



## 10. Capital Cost

This Section presents the capital cost estimates for the Short-List Alternatives. It summarizes the capital cost estimate structure and development, cost categories, quantities of materials, unit-cost data sources, contingencies and finance charges. The capital cost estimates for Alternatives 2, 3, 2A and 3A are order-of-magnitude in nature, developed for the purpose of comparing the alternatives. The estimates are based on the preliminary, concept-level design plans developed for the alternatives, appropriate for the Alternatives Analysis (AA) phase of project planning. Detailed cost analysis will be required during subsequent phases of project planning for the Locally Preferred Alternative (LPA).

### 10.1 Cost Estimate Structure and Development

Capital cost estimates for the four Short-List Alternatives were based on the concept-level designs developed for each alternative. Consistent with Federal Transit Administration (FTA) guidance and Standard Cost Category (SCC) structure,<sup>1</sup> a three-step process was employed to develop the capital cost estimates: 1) the quantities of materials needed to support each alternative were estimated, 2) unit costs were applied to arrive at a total estimated subtotal cost, and 3) contingencies were allocated across each category's subtotal cost.

Contingencies are intended to account for unforeseen items of work, quantity fluctuations, and variances in unit costs that develop as the project progresses through the various stages of development. The level of contingency applied to each cost category reflects the relative potential variability of those costs. Capital costs were developed in present-year (2012) dollars. As a specific build year has not been determined, mid-point of construction capital cost estimates has not yet been developed.

Therefore, the calculation of the total concept-level capital cost estimate for each alternative is as follows:

$$\text{Capital Cost} = \text{Quantity of Materials} \times \text{Unit Cost} + \text{Contingency}$$

### 10.2 Cost Categories

#### 10.2.1 Standard Cost Categories

Accurate capital costs are vital to the financial planning of the proposed project and allow the project to be seamlessly integrated into the FTA's New Starts/Small Starts program. Costs were determined based on each alternative's physical characteristics and required quantities of structures, equipment and other materials. Costs were organized according to the set of 10 SCCs described by the FTA. Due to the concept level of design of the Short-List Alternatives, project contingencies and allowances were also applied to capture the costs of unknown or unquantifiable items at this stage of project development so that the estimates reflect complete project costs. As the proposed project advances to future stages of design and the level of detail becomes more refined, the estimates of capital costs will also be refined.

#### 10.2.2 Category Detail

Table 10-1 identifies the 10 capital cost categories, organized according to the FTA's SCC structure. Applicable cost categories from Table 10-1 were used for the capital cost estimates.

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<sup>1</sup> FTA Standard Cost Categories for Capital Projects Workbook, Rev. 14, August 5, 2011.

**Table 10-1: FTA Standard Cost Category Estimate Structure**

<b>Mode</b>	<b>Description</b>
<b>10: GUIDEWAY &amp; TRACK ELEMENTS</b>	
General (Modern Streetcar & BRT/Premium Bus)	Guideway grading and drainage; retaining walls; bridges and tunnels
Modern Streetcar	Trackwork
Bus Rapid Transit (BRT)/ Premium Bus	Roadway construction
<b>20: STATIONS, STOPS, TERMINALS, INTERMODAL</b>	
General (Modern Streetcar & BRT/Premium Bus)	Enclosures, canopies and fixtures; elevators, escalators and stairs; multi-story auto parking structures and passenger transfer facilities
Modern Streetcar	Modern Streetcar stations
BRT/ Premium Bus	BRT/Premium Bus stations
<b>30: SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS</b>	
General (Modern Streetcar & BRT/Premium Bus)	Maintenance facility; midday layover facility; administration and/or operations buildings
Modern Streetcar	Overnight layover facility; yard track
<b>40: SITEWORK &amp; SPECIAL CONDITIONS</b>	
General (Modern Streetcar & BRT/Premium Bus)	Demolition, clearing, and earthwork; utilities and utility relocation; site remediation; environmental mitigation; noise mitigation; site structures; access roadways; temporary facilities required during construction phase; surface parking lots at stations; pedestrian and bicycle accommodations; landscaping, fencing and lighting
<b>50: SYSTEMS</b>	
General (Modern Streetcar & BRT/Premium Bus)	Roadway protection; communication systems; dispatching system and software; fare collection
Modern Streetcar	Train control signal systems; grade crossing signals; overhead catenary
BRT/ Premium Bus	Signal priority system
<b>60: RIGHT-OF-WAY, LAND, EXISTING IMPROVEMENTS</b>	
General (Modern Streetcar & BRT/Premium Bus)	Acquisition of right-of-way or easements for guideway, stations; relocation of existing households and businesses
<b>70: VEHICLES</b>	
General (Modern Streetcar & BRT/Premium Bus)	Non-revenue vehicles; spare parts
Modern Streetcar	Modern streetcar vehicles
BRT/ Premium Bus	BRT/premium buses
<b>80: PROFESSIONAL SERVICES (applies to Cats. 10-50)</b>	
General (Modern Streetcar & BRT/Premium Bus)	Preliminary engineering; final design; project management for design and construction; construction administration and management; professional liability and other non-construction insurance; legal; permits; review fees by other agencies, cities, etc.; surveys; testing; investigation; inspection; startup
<b>90: UNALLOCATED CONTINGENCY</b>	
Overall Project contingency and reserves	
<b>100: FINANCE CHARGES</b>	
General (Modern Streetcar & BRT/Premium Bus)	This category includes the finance charges to pay the interest on the bonds used to finance the project, where necessary.

Source: FTA Standard Cost Categories for Capital Projects Workbook, Rev. 14, August 5, 2011.

Note: For purposes of this Study and capital cost estimate, modern street car stations are assumed to have the identical characteristics as BRT/premium bus stations.



## 10.3 Quantity of Materials

### 10.3.1 Modern Streetcar Alternatives 2 and 3

#### Guideway and Track Elements

The capital cost for the guideway for the modern streetcar Alternatives 2 and 3 consists of the cost for right-of-way and track construction. The alignment for Alternative 2 is 7.1 miles in length, extends from the Village of Mineola to the Village of Hempstead and serves the Source Mall area. The alignment is primarily two tracks except in the vicinity of the Village of Mineola terminal, where a primarily one-way loop is assumed, as well as a short one-track section in the vicinity of East Gate Boulevard to Zeckendorf Boulevard and in a section of Hempstead Turnpike.

The modern streetcar would operate generally in mixed traffic with its alignment sharing the travel lanes on roadways in the Village of Mineola, Carle Place, and the Village of Hempstead. Exclusive right-of-way is assumed for Alternative 2's guideway in the following locations:

- Adjacent to the Meadowbrook State Parkway in Carle Place
- Under the Long Island Rail Road (LIRR) Main Line embankment
- Elevated over Old Country Road through the Roosevelt Field property, stopping at an elevated station in Roosevelt Field and crossing over the Meadowbrook State Parkway
- Through the majority of the Source Mall area on former rail right-of-way (including the one-track segment between East Gate and Zeckendorf Boulevards) and available land on either side of roadways using landscaped roadway medians to provide a semi-exclusive right-of-way
- Through Nassau Community College and the Nassau Veterans Memorial Coliseum property
- Along Hempstead Turnpike, along the north side of the curb lane, to Oak Street
- Along Fulton Avenue in the Village of Hempstead using curb lanes
- In a center median lane of Hempstead Turnpike/Fulton Avenue between Oak Street and Hendrickson Avenue
- In a center median lane of Hempstead Turnpike/Fulton Avenue between California Avenue and Clinton Street

The alignment for Alternative 3 is 6.5 miles in length and extends from the Village of Mineola to the Village of Hempstead. It follows the same routing as described, above, for Alternative 2 from the Village of Mineola to Roosevelt Field, except that the Source Mall area would not be served. The modern streetcar would operate generally in mixed traffic with its alignment sharing the travel lanes on roadways in the Village of Mineola, Carle Place, and the Village of Hempstead. Exclusive right-of-way is assumed for Alternative 3's guideway in the following locations:

- Adjacent to the Meadowbrook State Parkway in Carle Place
- Under the LIRR Main Line embankment
- Elevated over Old Country Road through the Roosevelt Field property, stopping at an elevated station in Roosevelt Field, continuing elevated south from within the western edge of the Meadowbrook

State Parkway right-of-way, crossing over Zeckendorf Boulevard, and along the western edge of the retention basin at Ring Road East and South Street

- At-grade in exclusive right-of-way eastbound on the north side of South Street and continuing southbound on the west side of Quentin Roosevelt Boulevard.
- At-grade in exclusive right-of-way eastbound onto the south side of Charles Lindbergh Boulevard continuing to Museum Row and the Nassau Community College West Campus using the campus parking lots
- At-grade in exclusive right-of-way south past the Nassau Community College Physical Education Complex, using the parking lots and vacant land, crossing Charles Lindbergh Boulevard to access the Nassau Veterans Memorial Coliseum
- Along Hempstead Turnpike, along the north side of the curb lane, to Oak Street
- Along Fulton Avenue in the Village of Hempstead using curb lanes
- In a center median lane of Hempstead Turnpike/Fulton Avenue between Oak Street and Hendrickson Avenue
- In a center median lane of Hempstead Turnpike/Fulton Avenue between California Avenue and Clinton Street

### Stations

Alternative 2 assumes 18 modern streetcar stations at the following locations (all stops have 1 station serving both directions of travel unless otherwise noted):

- Front Street
- East 2<sup>nd</sup> Street (2 stations)
- Voice Road
- Roosevelt Field
- East Gate Boulevard
- Zeckendorf Boulevard
- Source Mall
- Merchants Concourse
- Stewart Avenue (2 stations/stops)
- Nassau Community College North
- Nassau Community College-Museum Row (2 stations)
- Mitchel Field
- Nassau Veterans Memorial Coliseum
- Hofstra University
- Oak Street (2 stations)
- Warner Avenue (2 stations)
- Clinton Street
- Rosa Parks–Hempstead Transit Center



Alternative 3 assumes 14 modern streetcar stations at the following locations (all stops have 1 station for both directions unless otherwise noted):

- Front Street
- East 2<sup>nd</sup> Street (2 stations)
- Voice Road
- Roosevelt Field
- Roosevelt Field - South
- South Street
- Railroad Avenue
- Nassau Community College-Museum Row (2 stations)
- Nassau Veterans Memorial Coliseum
- Hofstra University
- Oak Street (2 stations)
- Warner Avenue (2 stations)
- Clinton Street
- Rosa Parks–Hempstead Transit Center

### **Support Facilities**

Capital costs for a vehicle base facility to accommodate 12 modern streetcars for Alternative 2 and 10 modern streetcars for Alternative 3 were assumed. A candidate vehicle base facility location at Axinn Avenue was assumed for Alternative 2 and a candidate location at South Street was assumed for Alternative 3.

### **Sitework and Special Conditions**

Capital costs for demolition, clearing, earthwork, utility relocation, hazardous materials removal/mitigation, ground water treatments and environmental mitigation<sup>2</sup> were included for both modern streetcar Alternatives 2 and 3. The cost for shifting or relocating the jogging/bike paths along Charles Lindbergh Boulevard to accommodate an exclusive transit right-of-way for the modern streetcar alternatives was also included.

### **Systems**

Costs for modification to existing traffic signals, installing new traffic signals and implementing traffic signal prioritization for Alternative 2 included:

- Existing signal modification:
  1. Roslyn Road at East 2<sup>nd</sup> Street
  2. Corporate Drive at Merchants Concourse
  3. Stewart Avenue at Merchants Concourse
  4. Endo Boulevard at Miller Avenue

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<sup>2</sup> Detailed environmental analysis, on the basis of which environmental mitigation costs can be estimated, has not yet been performed. An order-of-magnitude budget for this item has been included in the capital cost estimates for all alternatives.



5. Earl Ovington Boulevard at Quentin Roosevelt Boulevard
  6. Hempstead Turnpike at Oak Street
- New signals:
    1. Front Street East
    2. Front Street West
    3. 3<sup>rd</sup> Street at Main Street
    4. Willis Avenue at 3<sup>rd</sup> Street North
    5. Willis Avenue at 3<sup>rd</sup> Street South
    6. Roslyn Road at 3<sup>rd</sup> Street
    7. Voice Road
    8. Glen Cove Road
    9. East Gate Boulevard
    10. Charles Lindbergh Boulevard at Nassau Community College
    11. Hempstead Turnpike at Uniondale Avenue
    12. Hempstead Turnpike at Hofstra Boulevard
    13. Hempstead Turnpike at Peninsula Boulevard
    14. Jackson Street at Station Plaza
  - Signal prioritization: Jackson Street at Washington Street

Costs for traffic signal improvements and modifications for Alternative 3 included:

- Existing signal modification:
  1. Roslyn Road at East 2<sup>nd</sup> Street
  2. Corporate Drive at Merchants Concourse
  3. Stewart Avenue at Merchants Concourse
  4. Endo Boulevard at Miller Avenue
  5. Earl Ovington Boulevard at Quentin Roosevelt Boulevard
  6. Hempstead Turnpike at Oak Street
- New signals:
  1. Front Street East
  2. Front Street West
  3. 3<sup>rd</sup> Street at Main Street
  4. Willis Avenue at 3<sup>rd</sup> Street North
  5. Willis Avenue at 3<sup>rd</sup> Street South
  6. Roslyn Road at 3<sup>rd</sup> Street
  7. Voice Road
  8. Glen Cove Road
  9. East Gate Boulevard

10. Charles Lindbergh Boulevard at Nassau Community College
11. Hempstead Turnpike at Uniondale Avenue
12. Hempstead Turnpike at Hofstra Boulevard
13. Hempstead Turnpike at Peninsula Boulevard
14. Jackson Street at Station Plaza

- Signal prioritization: Jackson Street at Washington Street

Costs for eight electric substations for Alternative 2 and seven substations for Alternative 3 were included, as were catenary costs along the length of both alignments.

Costs for communications were included for both modern streetcar alternatives for the length of each alignment, at all stations and on vehicles. Fare-collection equipment was assumed at all stations. Cost for a central control center was assumed for both alternatives.

### **Right-of-Way**

The cost for the purchase of real estate for Alternatives 2 and 3 comprises any privately owned or municipally owned right-of-way, including lands belonging to the state, and any and all buildings that would need to be demolished to clear way for the track.

### **Vehicles**

The purchase of 12 modern streetcars vehicles was assumed for Alternative 2 and 10 modern streetcars was assumed for Alternative 3 (see Section 8.1.4).

## **10.3.2 BRT/Premium Bus Alternatives 2A and 3A**

### **Guideway and Track Elements**

The capital costs for the guideway elements for BRT/premium bus Alternatives 2A and 3A consist of the costs for roadway construction. The guideway for Alternative 2A from the Village of Mineola to the Village of Hempstead has an outbound alignment that is 8.5 miles in length, an inbound alignment that is 8.1 miles in length, and serves the Source Mall area. The majority of the alignment, approximately 6.5 miles of the guideway, would be at-grade in mixed traffic. Approximately 2.0 miles of the guideway would be at-grade, dedicated BRT/premium bus right-of-way at the following locations:

- Connecting the dead ends of East 2<sup>nd</sup> Street and Voice Road in the Village of Mineola<sup>3</sup>
- At Roosevelt Field for inbound buses across Ring Road North
- In the Source Mall area on the south side of Transverse Drive
- Through Nassau Community College and the Nassau Veterans Memorial Coliseum property
- In a center median lane of Hempstead Turnpike/Fulton Avenue between Oak Street and Hendrickson Avenue
- In a center median lane of Hempstead Turnpike/Fulton Avenue between California Avenue and Clinton Street

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<sup>3</sup> This concept will require additional coordination with the Village of Mineola.



The guideway for Alternative 3A from the Village of Mineola to the Village of Hempstead has an alignment that is 6.8 miles in length. The majority of the alignment, approximately 5.0 miles of the guideway, would be at-grade in mixed traffic. Approximately 1.8 miles of the guideway would be at-grade, dedicated BRT/premium bus right-of-way at the following locations:

- Connecting the dead ends of East 2<sup>nd</sup> Street and Voice Road in the Village of Mineola<sup>4</sup>
- At Roosevelt Field for inbound buses across Ring Road North
- From South Street on the south side of Charles Lindbergh Boulevard to the entrance of Museum Row for the outbound alignment
- Through Nassau Community College and the Nassau Veterans Memorial Coliseum property
- In a center median lane of Hempstead Turnpike/Fulton Avenue between Oak Street and Hendrickson Avenue
- In a center median lane of Hempstead Turnpike/Fulton Avenue between California Avenue and Clinton Street

### Stations

Alternative 2A assumes 21 BRT/premium bus station/stops at the following locations (all would have two separate stations/stops, one for each direction of travel, unless otherwise noted):

- Mineola Intermodal Center (1 station/stop only)
- Willis Avenue
- East 2<sup>nd</sup> Street
- Voice Road
- Old Country Road
- Roosevelt Field – North (1 station/stop only)
- Roosevelt Field – South
- East Gate Boulevard
- Zeckendorf Boulevard
- Source Mall
- Merchants Concourse
- Stewart Avenue
- Nassau Community College North
- Nassau Community College-Museum Row
- Mitchel Field (1 station/stop only)
- Nassau Veterans Memorial Coliseum

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<sup>4</sup> This concept will require additional coordination with the Village of Mineola.



- Uniondale Avenue
- Oak Street/Hofstra University
- Warner Avenue
- Clinton Street
- Rosa Parks–Hempstead Transit Center (1 station/stop only)

Alternative 3A assumes 16 BRT/premium bus stations/stops at the following locations (all would have two separate stations/stops, one for each direction of travel, unless otherwise noted):

- Mineola Intermodal Center (1 station/stop only)
- Willis Avenue
- East 2<sup>nd</sup> Street
- Voice Road
- Roosevelt Field – North (1 station/stop only)
- Roosevelt Field – South
- South Street
- Railroad Avenue
- Nassau Community College-Museum Row
- Mitchel Field
- Nassau Veterans Memorial Coliseum (1 station/stop only)
- Uniondale Avenue
- Oak Street/Hofstra University
- Warner Avenue
- Clinton Street
- Rosa Parks–Hempstead Transit Center (1 station/stop only)

### **Support Facilities**

Based on conversations with the operator of Nassau Inter County Express (NICE) Bus, the existing maintenance facilities in the Study Area have sufficient capacity to accommodate 12 BRT/premium buses with Alternative 2A and 10 BRT/premium buses with Alternative 3A. Therefore, costs for additional facilities were not assumed at this time.

### **Site Work and Special Conditions**

Capital costs for demolition, clearing, earthwork, utility relocation, hazardous materials removal/mitigation, ground water treatments and environmental mitigation were included for both BRT/premium bus alternatives for locations requiring construction, such as along segments of new guideway.



## Systems

Costs for modification to existing traffic signals, installing new traffic signals and implementing traffic signal prioritization for Alternative 2A include:

- Existing signal modification: Old Country Road at Glen Cove Road
- New signals:
  1. 3<sup>rd</sup> Street at Station Road
  2. Roslyn Road at 3<sup>rd</sup> Street
  3. Zeckendorf Boulevard at Transverse Drive
  4. Transverse Drive at Fortunoff Way
- Signal prioritization:
  1. Roslyn Road at East 2<sup>nd</sup> Street
  2. Voice Road at Glen Cove Road
  3. Glen Cove Road at A.C. Moore site driveway
  4. Zeckendorf Boulevard at Ring Road East
  5. Zeckendorf Boulevard at Corporate Drive
  6. Transverse Drive at Merchants Concourse
  7. Merchants Concourse at Corporate Drive
  8. Stewart Avenue at Merchants Concourse
  9. Endo Boulevard at Miller Avenue
  10. Charles Lindbergh Boulevard at Nassau Community College
  11. Hempstead Turnpike at Nassau Veterans Memorial Coliseum
  12. Fulton Avenue at Fairview Boulevard
- Pedestrian signal: Voice Road at Glen Cove Road

Costs for traffic signal improvements and modifications for Alternative 3A include:

- Existing signal modification: Old Country Road at Glen Cove Road.
- New signals:
  1. 3<sup>rd</sup> Street at Station Road
  2. Roslyn Road at 3<sup>rd</sup> Street
  3. Zeckendorf Boulevard at Transverse Drive
  4. Transverse Drive at Fortunoff Way



- Signal prioritization:
  1. Roslyn Road at East 2<sup>nd</sup> Street
  2. Voice Road at Glen Cove Road
  3. Glen Cove Road at A.C. Moore site driveway
  4. Hempstead Turnpike at Nassau Veterans Memorial Coliseum
  5. Fulton Avenue at Fairview Boulevard
- Pedestrian signal: Voice Road at Glen Cove Road

Costs for bus communications were included for both BRT/premium bus alternatives for the length of each alignment, at stations and on vehicles. Fare-collection equipment was assumed at all stations. Cost for a central control center was assumed for both alternatives.

### **Right-of-Way**

The cost for the purchase of real estate for Alternatives 2A and 3A comprises any privately owned or municipally owned right-of-way, including lands belonging to the state, and any and all buildings that would need to be demolished to clear way for the right-of-way.

### **Vehicles**

The purchase of 12 BRT/premium buses was assumed for Alternative 2A and 10 BRT/premium buses for Alternative 3A (see Section 8.2.4).

## **10.4 Unit Cost Data Sources**

Unit costs for typical cross-sections and elements for each alternative were developed from costs of the various subcomponents of the typical section, or from parametric cost information from similar projects, refined with adjustments for location and escalation costs.

Unit costs were developed using various local and national sources. Local source data from recent projects that are similar to the Short-List Alternatives in terms of scope and materials were utilized as the primary source for unit costs. Unit cost data for the modern streetcar Alternatives 2 and 3 were obtained from the Charlotte Area Transit System (CATS) *Charlotte Streetcar Project* (2011), the *Central Broward East-West Transit Analysis* (2012) and NJ TRANSIT's *Northern Branch Hudson-Bergen Light Rail Extension DEIS* (2012). Unit cost data for the BRT/premium bus Alternatives 2A and 3A were obtained from *Transit Cooperative Research Program (TCRP) Report 118 Bus Rapid Transit Practitioner's Guide* (2007) and the Florida Department of Transportation's *Central Broward East-West Transit Analysis* (2012). Roadway, site and real estate costs for all alternatives were estimated based on typical construction bids for projects in Nassau County municipalities and for the Nassau County Department of Public Works.

## 10.5 Contingencies and Finance Charges

### 10.5.1 Allocated Contingencies

All capital cost estimates include two types of contingencies: allocated contingencies and unallocated contingencies. Allocated contingencies are associated with individual cost estimate categories. These contingencies are intended to account for unforeseen items of work, quantity fluctuations, and variances in unit costs that develop as the proposed project progresses through the various stages of development. The level of contingency applied to each cost category was estimated, reflecting the relative potential variability of those costs. Table 10-2 lists the allocated contingencies by SCC that were applied for the four alternatives.

*Table 10-2: Allocated Standard Cost Category Contingencies*

SCC	Allocated Contingency
10: Guideway and Track Elements	25%
20: Stations	20%
30: Support Facilities	25%
40: Site work and Special Conditions	30%
50: Systems	15%
60: Right-of-Way	50%
70: Vehicles	5%

Source: Jacobs, 2012.

### 10.5.2 Unallocated Contingencies

Unallocated contingencies (SCC 90) were applied to the overall total capital cost estimate for each alternative. Unallocated contingencies account for potential changes to the project scope (e.g., design changes that may be required) and other unforeseeable project cost increases that are not directly associated with any particular cost category. Based on the conceptual level of design completed during this AA phase of the Study, 15 percent of construction costs were included in the cost estimate for each alternative in the unallocated contingency cost category.

### 10.5.3 Professional Services

In addition to the unallocated contingencies, allowances were included in the estimate for “soft costs” or professional services (SCC 80). These are project management and engineering costs, which were added to the total cost of each alternative. These soft costs include typical project management and engineering costs and are determined based on a percentage of the projected capital cost. The soft-cost contingency percentages were based on guidance in *TCRP Report 138: Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects* (2010). This estimating process begins with default averages for each category of professional services and adjusts them based on the specific attributes of the alternative. The soft costs for each component of the alternatives are listed in Table 10-3.

**Table 10-3: Professional Services Contingencies**

Service	Percentage
Preliminary engineering and final design	14%
Project management for design and construction	7.5%
Construction administration and management	5%
Professional liability and other non-construction insurance	2%
Legal; permits; review fees by other agencies, cities, etc.	0.3%
Surveys, testing, investigation, inspection	0.3%
Start-up	0.3%

Source: Jacobs, 2012.

#### 10.5.4 Finance Charges

A value for FTA Category 100: Finance Charges has not been included in the capital cost estimates, to date, pending development of a proposed financing plan and a design and construction schedule for the LPA. Once a financing plan and construction schedule are prepared during the project's Preliminary Engineering stage for the LPA and, if the financial plan's components include issuance of bonds or otherwise accrue financing charges, a cost value for Category 100: Finance Charges will be developed and incorporated in a refined capital cost estimate.

### 10.6 Capital Costs (2012 Dollars)

Adding the seven direct cost categories, with the allocated contingencies applied, and the two indirect cost categories (unallocated contingencies and professional services) provides an overall estimate of the capital cost for each alternative. Estimated capital costs for the four Short-List Alternatives are presented in Table 10-4.

**Table 10-4: Capital Costs (2012 dollars)**

	Alternative 2:	Alternative 3:	Alternative 2A:	Alternative 3A:
	Modern Streetcar	Modern Streetcar	BRT/ Premium Bus	BRT/ Premium Bus
Guideway & Track	\$103,913,000	\$99,106,000	\$15,874,000	\$13,157,000
Stations, Stops, Terminals, Intermodal Centers	\$8,688,000	\$7,188,000	\$11,988,000	\$8,850,000
Yards, Shops, Administration Buildings	\$26,670,000	\$20,839,000	\$0	\$0
Sitework & Special Conditions	\$45,675,000	\$42,565,000	\$27,781,000	\$24,487,000
Systems	\$50,821,000	\$45,241,000	\$17,068,000	\$14,927,000
Right-of-Way & Land	\$4,350,000	\$4,350,000	\$11,250,000	\$11,250,000
Vehicles	\$53,028,000	\$37,877,000	\$13,860,000	\$11,550,000
Professional Services	\$76,247,000	\$69,511,000	\$23,514,000	\$19,864,000
<b>SUBTOTAL</b>	<b>\$369,392,000</b>	<b>\$326,676,000</b>	<b>\$121,334,000</b>	<b>\$104,086,000</b>
Contingency	\$55,409,000	\$49,001,000	\$18,200,000	\$15,613,000
Finance Charges	TBD	TBD	TBD	TBD
<b>TOTAL PROJECT COST</b>	<b>\$424,801,000</b>	<b>\$375,678,000</b>	<b>\$139,534,000</b>	<b>\$119,699,000</b>

Source: Jacobs, 2012.

Of the modern streetcar alternatives, Alternative 2 is more expensive with a capital cost of \$424,801,000; Alternative 3 is less expensive with a capital cost of \$375,678,000. Of the BRT/premium bus alternatives, Alternative 2A is more expensive with a capital cost of \$139,534,000, compared to Alternative 3A with a capital cost of \$119,699,000.