



**Cotton Belt Corridor**  
**2013 Updated 5% PE Capital Cost Analysis**  
**Confidential**

**To:** Dan Meyers, AICP, URS Corporation

**From:** Kevin T. Howlett, P.E., Bowman Engineering and Consulting Inc.

**Copy:** URS Corporation  
BEC File

**Date:** August 30, 2013 Updated

**RE:** General Planning Consultant Services - Dallas Area Rapid Transit (DART)  
Contract ID C-1017751-01  
URS Project Number: 25338809

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**Introduction**

Bowman Engineering and Consulting Inc. was retained by URS Corporation to perform a Capital Cost Analysis for the Cotton Belt Corridor Commuter Rail Project in conjunction with the updated 5% Preliminary Engineering Phase, consisting of preliminary design activities including the Basis of Design and Conceptual Engineering. The Capital Cost Analysis identifies estimated direct costs, soft costs, and corresponding allocated and unallocated contingencies associated with the current status of design. It incorporates the major components of the project including civil and track construction, stations, utilities, special conditions, system elements, vehicles, right-of-way, professional services, and contingencies. The Capital Cost Analysis utilizes Federal Transit Administration (FTA) Standard Cost Categories (SCC) for Capital Projects encompassing the anticipated project components and corresponding estimated unit prices into a comprehensive conceptual Analysis inclusive of each project segment and alignment option.

**Project Description**

The project is an approximate 26 track mile double track passenger rail alignment that extends from just North of Dallas Fort Worth International Airport along an existing East-West freight rail corridor to a terminus in the City of Plano. The corridor passes through Tarrant, Dallas, and Collin Counties, and the cities of Grapevine, Coppell, Carrollton, Addison, Dallas, Richardson, and Plano. The project is proposed to provide connection to the DART Orange, Green, and Red Lines.

## **Definition of Sections**

### **Section 1**

This Section is approximately 7.16 Main Line miles (Sta. 993+00 to Sta. 1387+95) beginning from the West terminus located just North of Dallas Fort Worth International Airport and follows the existing freight corridor East through to the border of the Cities of Coppell and Carrollton border at the Elm Fork of the Trinity River.

**Cypress Waters Alignment/Station** is approximately 1.96 miles (Sta. 1180+00 to Sta. 1283+26) off the Main Line beginning from Coppell Road in the City of Coppell through the proposed Cypress Waters development along the Northwest corner/North side of North Lake to Moore Road in the City of Coppell.

**DFW Airport Terminal B Route Lead/Terminus** is approximately 0.88 miles (TexRail Sta. 10+00 to Sta. 56+57) off the Main Line beginning around the West terminus located just North of Dallas Fort Worth International Airport and follows a proposed alignment to Terminal B. This route is to be shared with the Fort Worth Transportation Authority's (The-T) Tex Rail Commuter Rail tracks. No cost estimate for this route is included in this analysis.

### **Section 2**

This Section is approximately 7.18 Main Line miles (Sta. 2010+00 to Sta. 2389+05) beginning from the border of the Cities of Coppell and Carrollton at the Elm Fork of the Trinity River and follows the existing freight corridor East through to the border of the Cities of Addison and Dallas at the Dallas North Tollway.

There is a significant amount of freight railroad realignment that will be necessary to complete the Cotton Belt commuter rail as shown in the preliminary engineering design. The cost of this realignment is about \$17.8 million for construction, and \$33.1 million after add-in costs for vehicles, ROW, professional services, and contingencies. These costs are included in the section 2 estimate.

### **Section 3**

**Segment 3A-** This Segment is approximately 6.76 Main Line miles (Sta. 3010+00 to Sta. 3367+00) beginning from the border of the Cities of Addison and Dallas at the Dallas North Tollway and follows the existing freight corridor East through to Alma Road around the point of switch for the potential and proposed City of Richardson alignment.

There are 3 alternatives being considered for this alignment which are at-grade alignment, shallow trench alignment, and tunnel alignment.

### **Segment 3B**

**At-grade Profile** - This alternative includes the new track being constructed at-grade for the entire alignment through segment 3A.

**Shallow Trench Profile** - This alternative includes the new track being constructed at-grade to just west of Preston Road, then constructing track in a depressed section with a sound wall on each side of the guideway to east of Coit Road. The depressed section is approximately 5 to 10 feet depressed rising to at-grade for creek crossings. This alternative also implements grade separations for the cross roads within the depressed profile segment. The cross road bridges would be constructed to go over the rail.

**Tunnel Profile** - This alternative includes the new track being constructed at-grade to just west of Preston Road, then constructing track in a tunnel to east of Coit Road. The tunnel would convey the track under creek crossings and cross roads. This alternative would not impact many of the utility crossings along the tunnel segment.

### **Segment 3C**

This segment begins around Alma Road and ends near Shiloh Road. There are two different alignment options for this segment, The North Alternative and the South Alternative. For the 2013 Updated 5% PE Cost Analysis, the North Alternative and South Alternatives are included.

**North Alternative Alignment Option (Plano Only Alignment)** - This East end terminus option is approximately 3.70 Main Line miles (Sta. 3367+00 to Sta. 3562+28) beginning from around Alma Road and follows the existing freight corridor to the existing DART Red Line and/or in the proximity of Municipal Avenue in the City of Plano and on to the proposed east terminus around Shiloh Road.

**South Alternative Alignment Option (Richardson/Plano Alignment)** - This East end terminus option is approximately 4.29 Main Line miles (Station 3367+00 to Sta. 3562+28 with station equation at NB Sta 3476+00) beginning from around Alma Road and follows the proposed new passenger rail corridor alignment through the City of Richardson and the DART President George Bush Turnpike Station to the existing DART Red Line and/or in the proximity of Municipal Avenue in the City of Plano and on to the proposed east terminus around Shiloh Road.

## **Capital Cost Analysis Methodology**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis was developed utilizing the following methodology:

1. Reviewed project proposed alignments and options and prepared list of capital cost Analysis assumptions and clarifications. **Refer to Attachment A.**
2. Incorporated assumed project stationing/locations for the Cotton Belt Corridor typical sections defined in Attachment A (and referenced in Attachments B and C). **Refer to Attachment B.**
3. Performed a quantity estimate per Track Foot/Route Foot for the Cotton Belt Corridor typical sections defined in Attachment A (and referenced in Attachments B and C). **Refer to Attachment C.**
4. Performed a unit cost estimate per Track Foot/Route Foot for the Cotton Belt Corridor typical sections defined in Attachment A (and referenced in Attachments B and C). **Refer to Attachment C.**
5. Reviewed current status of design and known project design issues and potential design/construction issues, in conjunction with the assumed proposed scope of work by typical sections through each Section and/or Alignment Alternative, and determined appropriate representative quantity and cost estimate for this assumed scope of work (whether estimated unit cost or estimated allowance cost). **Refer to Attachment C.**
6. Reviewed and applied allocated contingencies, unallocated contingencies, and professional services “soft costs”. **Refer to Attachment C.**

### **Guideway and Track Elements (FTA SCC 10)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis guideway and track elements are based on the typical sections and guideway plan/profile drawings defined in Attachment A (and referenced in Attachments B and C), as applied via assumed project stationing/location. The corresponding typical sections for this cost category include “Single Track At Grade, Single Track At Grade Crossing, Double Track At Grade, Double Track At Grade Crossing, Retained Cut Double Track 2 Walls, Retained Cut Double Track 1 Wall, Retained Fill Double Track 2 Walls, Retained Fill Double Track 1 Wall, Retained Fill Single Track 1 Wall, Retained Fill Single Track 2 Walls, Retained Fill Double Track 2 Walls, Direct Fixation Track Shallow Trench U-Wall Sec II with 10’ Sound Walls, Center Platform Station, Side Platform Station, Steel Plate Girder Bridge Structure Single Track, Steel Plate Girder Bridge Structure Double Track, Through Girder Bridge Structure Double Track, TX 70 Beam Bridge Structure Double Track, TX B40 Box Beam Bridge Structure Double Track, TX 62 Beam Bridge

Structure Single Track, TX 62 Bridge Beam Structure Double Track, AASHTO Type IV Beam Bridge Structure Single Track, AASHTO Type IV Beam Bridge Structure Double Track, Aerial/At Grade Double Track, Direct Fixation Track Deep Trench With 6' to 10' Sound Walls, and Direct Fixation Track Tunnel”.

### **Stations, Stops, Terminals, Intermodal (FTA SCC 20)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes proposed stations designated as the following:

- Section 1 - Airport North Station (Platform)
- Section 1 – Cypress Waters (Park and Ride)
- Section 2 - Downtown Carrollton Station (Park and Ride)
- Section 2 - Addison Transit Center (Platform)
- Section 3 - Knoll Trail Station (Platform)
- Section 3 - Preston Road Station (Platform)
- Section 3 - Renner Village Station West(Park and Ride)
- Section 3 - UTD/Synergy Park Station (Park and Ride)

Renner Village Station East (Park and Ride) was priced at \$8,662,500 but was not included in this 2013 Updated 5% PE Cost Analysis.

### **Support Facilities: Yards, Shops, Admin. Bldgs (FTA SCC 30)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis does NOT include an Operation and Maintenance Facility.

### **Sitework & Special Conditions (FTA SCC 40)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes numerous sitework and special conditions items including demolition/clearing, 51+/- at-grade road crossings and 6 road/grade separated crossings, street reconstruction; estimated utility relocations and/or encasements; storm water installation, retaining wall structures, bridge structures, and other associated items. Assumed special conditions include railroad worker protection/flagman estimates (1 flagman/mile, 36 months, and \$150/hr), temporary trackwork and service continuity to existing freight customers, Right-of-Way fencing, and railroad fees.

### **Systems (FTA SCC 50)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes systems elements including train control/wayside signals, traffic signals, interlocking and crossing protection, communication systems, fare collection, and positive train control with the major systems elements (signals, communication, positive train control) based on estimates prepared by Stantec Consulting, Inc dated April 15, 2011.

**ROW, Land, Existing Improvements (FTA SCC 60)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis does not include any Right-of-Way, land, and/or existing improvements, other than the property parcel required around Section 2 Downtown Carrollton Station/Existing Freight Yard and assumed needed for various construction easements that may be needed. Any additional potential Right-of-Way issues unknown at this time as well as assumed costs noted above would require more refinement.

**Vehicles (FTA SCC 70)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes estimated vehicle procurement costs based on a comparable Stadler GTW 2/6 Diesel Multiple Unit. In order to distribute the vehicle costs through the project sections and options, the Analysis incorporates 17 vehicles at \$7mil/each for 25 miles, total of \$119mil or approximately \$5mil/mile.

**Professional Services (FTA SCC 80)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes professional services “soft costs” for 32% based on the Cotton Belt Design Criteria Jan 2011 in conjunction with the Transit Cooperative Research Program Report 138 “Estimating Soft Costs for Major Transportation Fixed Guideway Projects”.

**Unallocated Contingency (FTA SCC 90)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes an unallocated contingency percentage of 10% on summation of cost categories 10 through 80 which is assumed to be for construction.

**Finance Charges (FTA SCC 100)**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis does not include any finance charges and is based on approximate 2010-2011 dollars, escalated to 2013

dollars. The escalation method was based on "USACE Civil Works Construction Cost Index March 31, 2013" using the historic/projected escalation % for "Roads, Railroads & Bridges".

### **Allocated Contingency**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes a 30% allocated contingency for all cost categories 10 through 50 due to the current status of design, project delivery method and construction general requirements/conditions, etc., or other unknown conditions at this time.

### **Assumptions/Clarifications**

The Cotton Belt Corridor 2013 Updated 5% PE Capital Cost Analysis includes Assumptions/Clarifications contained with Attachment A. **Refer to Attachment A.**

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**Cotton Belt Corridor Analysis Summary**

**High Level Summary (Below): \*\*\*Refer to Attachment C.\*\*\***

**Cost Summary, Details, FTA SCC: \*\*\*Refer to Attachment C.\*\*\***

**Capital Cost Analysis  
FTA ESTIMATE FORMAT  
2013 Updated 5% Preliminary Design  
DART- Cotton Belt Corridor**

<b>DART Cotton Belt Section</b>	<b>North Dallas At Grade</b>	<b>North Dallas Shallow Trench</b>	<b>North Dallas Tunnel</b>
Section 1	\$275,728,498.62	\$275,728,498.62	\$275,728,498.62
Section 1 Additional Cost for Cypress Waters(CW)	\$59,096,609.21	\$59,096,609.21	\$59,096,609.21
Section 2	\$350,492,561.21	\$350,492,561.21	\$350,492,561.21
Section 3 At Grade	\$307,348,434.28		
Section 3 Shallow Trench		\$430,489,247.33	
Section 3 Tunnel			\$817,998,600.76
Section 3 North Alternative	\$207,955,989.23	\$207,955,989.23	\$207,955,989.23
Section 3 Additional Cost for South Alternative	\$52,208,788.40	\$52,208,788.40	\$52,208,788.40
<b>Total Project (w/o CW)</b>	\$1,141,525,483.34	\$1,264,666,296.40	\$1,652,175,649.82
<b>Total Project w/ Cypress Waters</b>	\$1,200,622,092.55	\$1,323,762,905.60	\$1,711,272,259.03
<b>Total Project (w/o CW) - South Alt.</b>	\$1,193,734,271.74	\$1,316,875,084.80	\$1,704,384,438.22
<b>Total Project w/ Cypress Waters - South Alt.</b>	\$1,252,830,880.95	\$1,375,971,694.00	\$1,763,481,047.43



# ATTACHMENT A

## DART - Cotton Belt Corridor Capital Cost Analysis Updated 5% Preliminary Design Assumptions/Clarifications

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**DART Cotton Belt Corridor**

**Attachment A  
Capital Cost Analysis  
2013 Updated 5% Preliminary Design  
Assumptions/Clarifications  
August 30, 2013**

No.	Assumptions/Clarifications
1	Assumed typical vehicle similar to Stadler GTW DMU 2/6 at \$7mil/ea for 17 ea for corridor for approx. \$119mil base total or \$5/mile
2	Assumed Communications Total ROM of \$44 mil for corridor or \$1.913mil/mile
3	Assumed Signals Total ROM \$39mil for corridor or \$1.695mil/mile
4	Assumed Positive Train Control Total ROM \$30mil for corridor or \$1.304mil/mile
5	Assumed all subsurface/surface/soil/site conditions are typical, NO geotechnical report or information provided or utilized
6	Assumed typical TX 70 Concrete Girder bridge structure, double track, ballast deck, with 8 ea TX 70 Concrete Girder Beams, pier caps, 7" deck, parapet wall, handrail, 2 @ 48" drilled shafts, span at 90'.
7	Assumed typical TXDOT BB-B40 bridge structure, double track, ballast deck, with 7 ea TXDOT BB-B40 Box Beams, pier caps, parapet wall, handrail, 4 @ 36" drilled shafts, span at 50'.
8	Assumed typical TX 62 bridge structure, single track, ballast deck, with 4 ea TX 62 Beams, 7" deck, pier caps, parapet wall, handrail, 1 @ 48" drilled shafts, span at 75'.
9	Assumed typical TX 62 bridge structure, double track, ballast deck, with 8 ea TX 62 Beams, 7" deck, pier caps, parapet wall, handrail, 2 @ 48" drilled shafts, span at 75'.
10	Assumed typical AASHTO Type IV bridge structure, single track, ballast deck, with 4 ea AASHTO Type IV Beams, 7" deck, pier caps, parapet wall, handrail, 1 @ 48" drilled shafts, span at 60'.
11	Assumed typical AASHTO Type IV bridge structure, double track, ballast deck, with 8 ea AASHTO Type IV Beams, 7" deck, pier caps, parapet wall, handrail, 2 @ 48" drilled shafts, span at 60'.
12	Assumed typical Steel Plate Girder bridge structure, single track, direct fixation, with 4 ea Steel Plate Girder Beams, 10" deck, pier caps, parapet wall, handrail, 1 @ 48" drilled shafts, span at 52' to 145'.
13	Assumed typical Steel Plate Girder bridge structure, double track, direct fixation, with 8 ea Steel Plate Girder Beams, 10" deck, pier caps, parapet wall, handrail, 2 @ 48" drilled shafts, span at 52' to 145'.
14	Assumed typical Thru-Girder bridge structure, double track, ballast deck, pier caps, parapet wall, handrail, 4 @ 48" drilled shafts, span at 80'.
15	Assumed Typical Section II Retaining U-Wall / CIP Sound Wall for through entire Section 3 - direct fixation shallow trench sections.
16	Assumed typical single track bridge structure sections DO NOT include rehabilitation / relocation of adjacent existing freight track at grade, existing bridge structure, existing grade crossing, existing crossing warning protection, etc. (Only assumed simple/typical bridge demolition)
17	Assumed MAIN LINE routes with exception to Section 1, to be constructed as NEW double track sections, with the exception of single track bridges
18	Assumed a single track at grade section and single track Steel Plate Girder and TX 62 Beam bridge structure section with 10" deck, direct fixation together at Downtown Carrollton Station/DGNO Mercer Yard/BNSF Madill Sub area proposed aerial/at-grade track alignment.
19	Assumed MSE wall type for retained cut, fill sections, avg wall height varied 5', 10', or 15'
20	Assumed typical street reconstruction at each at-grade crossing with average limits of 70' each side (140' total) and an average street width of approx. 60'
21	Assumed typical at-grade crossing storm drainage \$20k/ea at each crossing
22	Assumed typical at-grade crossing traffic signalization at intersection \$100k/ea
23	Assumed typical passenger rail/light rail station at approximately \$3.5mil/platform only at following locations: Addison Transit Center, Preston Station, and Knoll Trail.
24	Park and Ride parking lots are at the following locations: Airport North Terminal B, Downtown Carrollton, Renner(West, Renner(East), UTD/Synergy Park, and Terminal Station. Park n ride costs will be calculated based on the footprint of the parking lot as compared to DART park n ride parking lots from NW-2, NW-3, and NW-4 corridors.
25	Assumed Cypress Waters Station and alignment WILL BE included.
26	Assumed typical misc. storm drainage \$75/RF allowance for guideway/other
27	Incorporated "Professional Services" or "Soft Costs" (FTA SCC 80) per draft "Cotton Belt Design Criteria" Rev. January 2011 at 32%
28	Assumed 136 lb./yd. rail and concrete ties for all ballasted track and special trackwork
29	Assumed No. 20 turnouts, double crossovers, and diamonds for special trackwork
30	Assumed RoW/easement allowance for construction easements, etc. of \$25k/mile
31	Assumed RoW purchase of property near Carrollton Station for CB-2 \$1mil based on Dallas County Central Appraisal District - 1-1-2011 (Cedar Supply). Cost for RoW purchase of any other Park and Ride or station has not been identified in this Cost Analysis.
32	Assumed FRA acceptance with Roadway Worker Protection Plan, flagging cost of \$15mil for 1 flagman/mile, 36 months, approximately \$150/hr.
33	Assumed fees to freight railroad at \$1mil Section 1 FWWR, \$1mil Section 2 DGNO
34	Assumed crossing agreements at \$0
35	Assumed access to all project areas, and standard working hours/days
36	For consistency shallow trench and all retained or cut fill sections coding is 10.03 guideway at-grade, and 40.05 site structures, NOT 10.08 guideway retained cut or fill

# DART Cotton Belt Corridor

## Attachment A Capital Cost Analysis 2013 Updated 5% Preliminary Design Assumptions/Clarifications August 30, 2013

No.	Assumptions/Clarifications
37	For consistency station amenities, etc., coded with 20.01, NOT 40.06
38	Assumed 2 unit/station fare collection system
39	Assumed Fare Collection at \$40k/mile or approximately \$900k
40	Assumed no additional demolition \$/RF allowance for guideway/other beyond demolition/clearing in 40.01 with typical sections
41	Assumed no FAA mitigation for DFWIA, Addison Airport
42	Assumed 2010-2011 dollars approximate escalated to 2013 dollars. Project timeline unknown, did not escalate to mid-point of construction, project escalated below the line "Basic Civil/Systems Cost" Subtotal. Assumed escalation from approximate 2010 Dollars to 2013 Dollars.
43	Assumed all construction for Class IV railroad.
44	Assumed minor temporary track work for freight service during construction, NO Trans loading
45	Assumed no additional drainage/flood/creek diversion mitigation for Section 3 - Shallow Trench other than typical guideway drainage assumption at \$/RF at \$75/RF
46	Assumed balanced earthwork project, no borrow, no haul off-site, etc.
47	Assumed typical road bridge section for 6 road bridges over CB-3 Shallow Trench Section (Typical Section for Road Bridge section not available) at approx. \$5mil/EA
48	Assumed typical single track at grade section and single track at grade crossing (Typical Sections not available)
49	Assumed 50% of misc. OH and underground potential utility conflicts, where available on plan sheets will need to be relocated at \$50k/EA
50	Assumed 50% of Atmos Gas casing /relocation at \$50k/EA per perpendicular crossing location, where available on plan sheets available.
51	Assumed Explorer Pipeline Casing / Relocation at \$300/LF for sections of pipeline running perpendicular to tracks.
52	Assume 30% allocated contingency based upon subtotal of all basic civil and systems total estimated DIRECT ONLY cost.
53	Assume 1% environmental allowance based upon subtotal of all subtotal total estimated project cost of basic civil/systems, RoW, vehicles, professional services, contingencies.meeting
54	Assume shared cost between DART and T for line segment at DFW Airport Terminal, these cost have not been included in this estimate. Estimate to be provided by others.
55	Did not assume project delivery method, 30% allocated contingency could include, but not limited to, delivery method/contractor general cond/req, indirects, bonds, mob, fee, etc.
56	NOTE, DART Approved Format and FTA SCC Format for estimate differences result in different total project cost due to the format sequence of the professional services 32% contingency, the construction/unallocated 10% contingency, and environmental 1% allowance within the capital cost estimate summary pages.
57	Any proposed Belt Line Road realignment - assume that there are no bridges, North Lake will be filled in (work not included in analysis).
58	Proposed Cypress Waters Alignment - no utility information present so it is not included in the analysis until more information known.
59	Assumed Guideway fencing of Typical Sections: Single Track At Grade, Double Track At Grade. Fencing totals vary depending upon Alignment. Fence estimated at \$20 per/LF.
60	Section 1 - "S. Denton Tap Road Bridge" Alignment, Plan/Profile based on drawings titled "CB1 SCHEMATICS COMBINED.pdf" received 4/30/13
61	Per Section 1 - "S. Denton Tap Road Bridge" , Assumed that the previously assumed replaced/existing bridge over creek at NB Station 1220+40 to 1221+00 will not be constructed and replaced with Retained Fill Double Track Section
62	Assume Section 1 the existing freight track will be left as is.
63	Assume no additional ROW will be needed for Ventilation buildings in section 3 Tunnel alternative.
64	Section 3 Tunnel alternative- assume deep bore tunnel, double bore of 30 DIA each. Assume all utilities not in conflict with the actual tunnel can remain in place. Deep trench section leading up to tunnels assume an average of 25' excavation and retaining wall with 6' to 10' sound walls on both sides to guard drop off.
65	Section 3 tunnel section has no geotech information available so assuming bore will be completely through rock(limestone). Assumption based on geotechnical report for Addison Airport Tunnel prepared by Lachecl & Associates, Inc. dated June 1996
66	Assumed \$750,000 for each signal house for the reconfiguration of diamonds in the downtown Carrollton area. Also assumed \$100,000 for track removal, cut-overs, realignments, bumping posts.
67	Assumed that the shared bridge with TEX Rail will be constructed by The-T so only cost for "single track at grade" considered for section of track on bridge.
68	Cypress Waters Alternative - there is no utility information provided at this time for the Cypress Waters alternative so assume utility costs are same for Cypress Water alternative as for the main line alternative.
69	Assume \$3.9 Million in Utility relocation cost for Segment 3 South Alt. due to lack of utility information at time. This was the approximate cost of utility relocation for the North Alternative minus the cost of other utilities and drainage per RF (this cost was developed using RF for South Alt.).
70	Freight realignment costs for the end of North alternative are included in the cost for the North Alternative.
71	Due to segment 1 utilizing existing rail, it is assumed that some of the existing rail will have to reconstructed or will not be usable to achieve Class 4 requirements for commuter rail. 1 Mile of track siding and 2 double crossovers have been added into the cost estimate for operational purposes for Segment 1. The cost was derived from 5280 LF of Single Track At Grade section with 4 crossovers(\$478 x 5280 ft. + 4* \$400,000= approx. \$3.3 Million)The location of the siding and crossovers has not yet been identified.

# ATTACHMENT B

DART - Cotton Belt Corridor  
Capital Cost Analysis  
Updated 5% Preliminary Design  
Alignment Sections

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DART Cotton Belt Corridor

Attachment B  
 Capital Cost Analysis  
 2013 Updated 5% Preliminary Design  
 Project Alignment Typical Sections - Revised  
 August 6, 2013

Project Alignment Section/Typical Section	Section 1 (Includes DFW Terminal)	Section 1 With Cypress Waters (Includes DFW Terminal)	Section 2	Section 3 At Grade	Section 3 - Trench	Section 3 Tunnel	Section 3 - North Alternative	Section 3 - South Alternative
Main Line Stationing	1010+00 to 1387+96	1010+00 to 1387+96	2010+00 to 2388+98	3010+00 to 3367+00	3010+00 to 3367+00	3010+00 to 3367+00	3367+00 to 3562+28	3367+00 to 3562+28
	37,796	37,796	37,898	35,700	35,700	35,700	19,528	22,677
Single Track At Grade	14,880	27,938	11,835	-	-	-	15,644	2,007
Single Track at Grade Crossing	175	1,075	400	-	-	-	865	60
Double Track At Grade	7,722	10,918	28,598	27,585	15,620	15,620	12,794	11,199
Double Track Grade Crossing	345	295	925	941	376	381	405	495
Retained Cut Double Track	-	-	-	600	600	600	-	445
Retained Cut 1 Wall	-	-	600	-	-	-	-	-
Retained Fill Double Track	3,067	2,750	1,547	1,413	418	418	-	3,138
Retained Fill Single Track 1 Wall	10,137	2,744	100	-	-	-	992	-
Retained Fill Single Track 2 Walls	1,454	950	2,670	-	-	-	828	750
Retained Fill Double Track 1 Wall	1,760	2,884	240	1,474	1,472	1,472	-	-
Direct Fixation Track Shallow Trench U Wall Sec II	-	-	-	-	13,805	3,970	-	-
Center Platform Station Section	-	-	-	1,300	1,000	1,000	800	400
Side Platform Station Section	500	970	900	1,000	1,000	1,000	30	500
Steel Plate Girder Bridge Single Track	130	-	250	124	124	124	560	-
Steel Plate Girder Bridge Double Track	-	295	-	140	140	140	-	445
Through Girder Bridge	277	277	-	350	370	-	-	210
Aerial / At Grade Section	-	-	-	-	-	-	-	-
TX 70 Bridge	-	-	-	-	-	-	-	-
TXDOT BB-B40 Box	1,160	1,020	898	-	-	-	-	-
TX 62 Bridge Single Track	346	480	1,305	-	-	-	320	-
TX 62 Bridge Double track	-	-	-	-	-	-	-	855
ASSHTO Type IV Single Track	-	-	-	773	775	775	652	-
ASSHTO Type IV Double Track	-	-	-	-	-	-	-	2,975
Direct Fixation Track Deep Trench With 6' to 10' Sound Walls	-	-	-	-	-	1,620	-	-
Direct Fixation Track Tunnel	-	-	-	-	-	8,580	-	-
<b>Totals</b>	<b>41,953</b>	<b>52,596</b>	<b>50,268</b>	<b>35,700</b>	<b>35,700</b>	<b>35,700</b>	<b>33,890</b>	<b>23,479</b>
Numbers At Grade Crossings - Single Track	1	4	6	-	-	-	6	1
Numbers At Grade Crossings - Double Track	7	7	12	14	4	7	8	8
Number of HWY Bridge Crossings Over Trench	-	-	-	-	6	-	-	-
Explorer Pipe Line Crossings	3	3	1	-	1	-	1	-
Atmos Energy Gas Line Crossings	7	4	9	-	12	-	6	-
Misc. Over Head (OH) Utility Potential Conflicts	17	12	24	-	25	-	19	-
Misc. Under Ground (UG) Utility Potential Conflicts	68	48	52	-	73	-	28	-
Existing TO North Side	-	-	2	-	1	1	-	-
Existing TO South Side	-	-	12	-	-	-	3	2
Existing TO for Side Track North Side	-	-	4	-	-	-	-	-
Existing TO for Side Track South Side	-	-	4	-	-	-	-	-
Existing TO for Industry off of Yard track	-	-	1	-	-	-	-	3
Existing TO for Yard Track	-	-	-	-	-	-	-	-
Proposed Cross Over	2	2	10	-	-	-	5	4
Proposed TO	4	6	6	-	-	-	1	4
Proposed Diamond	-	-	5	-	-	-	-	-

# ATTACHMENT C

## DART - Cotton Belt Corridor Capital Cost Analysis Updated 5% Preliminary Design Analysis

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# CAPITAL COST ANALYSIS

## DART - Cotton Belt Corridor Regional Rail Project

(Based on updated 5% PE Design as of 08/30/2013)

**BEC Confidential**

		Corridor Section 1, 2, 3 - At Grade
		24.80 Miles
Description	2013 Dollars	
Utilities		\$50,250,289
Special Conditions		\$28,247,045
Track Grade Construction		\$47,225,450
Trackwork		\$81,133,612
Structures		\$50,174,265
Crossings		\$60,444,318
Stations		\$63,757,513
Fare Collection		\$1,083,608
Signal System		\$84,957,439
Communications		\$51,823,523
O&M Facility		\$0
<b>Basic Civil / Systems Cost</b>		<b>\$519,097,062</b>
DART Allowances		
Preliminary Design Contingency (30%)		\$155,729,119
	Subtotal	\$674,826,181
Construction Contingency (10%)		\$67,482,618
	Subtotal	\$742,308,799
DART Add-on Allowance (32%)		\$237,538,816
	Subtotal	\$979,847,614
Environmental Allowance (1%)		\$9,798,476
	Subtotal	\$989,646,090
Right of Way		\$1,764,742
Vehicles		\$135,078,986
<b>GRAND TOTAL</b>		<b>\$1,126,489,818</b>
Average Cost Per Route Foot		\$8,603 / RF
Average Cost Per Mile in Millions		\$45.42

# CAPITAL COST ANALYSIS

## DART - Cotton Belt Corridor Regional Rail Project

(Based on updated 5% PE Design as of 08/30/2013)

**BEC Confidential**

		Corridor Section 1, 2, 3 - Trench
		24.80 Miles
Description	2013 Dollars	
Utilities		\$55,602,785
Special Conditions		\$27,724,247
Track Grade Construction		\$64,262,654
Trackwork		\$81,285,701
Structures		\$71,255,255
Crossings		\$82,044,370
Stations		\$63,757,513
Fare Collection		\$1,083,607
Signal System		\$84,848,204
Communications		\$51,823,522
O&M Facility		\$0
<b>Basic Civil / Systems Cost</b>		<b>\$583,687,859</b>
DART Allowances		
Preliminary Design Contingency (30%)		\$175,106,358
	Subtotal	\$758,794,217
Construction Contingency (10%)		\$75,879,422
	Subtotal	\$834,673,638
DART Add-on Allowance (32%)		\$267,095,564
	Subtotal	\$1,101,769,203
Environmental Allowance (1%)		\$11,017,692
	Subtotal	\$1,112,786,895
Right of Way		\$1,764,742
Vehicles		\$135,078,986
<b>GRAND TOTAL</b>		<b>\$1,249,630,623</b>
Average Cost Per Route Foot		\$9,543 / RF
Average Cost Per Mile in Millions		\$50.39



# CAPITAL COST ANALYSIS

## DART - Cotton Belt Corridor Regional Rail Project

(Based on updated 5% PE Design as of 08/30/2013)

**BEC Confidential**

		Corridor Section 1, 2, 3 - Tunnel
		24.80 Miles
Description	2013 Dollars	
Utilities		\$50,250,289
Special Conditions		\$27,724,247
Track Grade Construction		\$316,796,160
Trackwork		\$81,318,710
Structures		\$56,791,895
Crossings		\$52,553,209
Stations		\$63,757,513
Fare Collection		\$1,083,607
Signal System		\$84,848,204
Communications		\$51,823,522
O&M Facility		\$0
<b>Basic Civil / Systems Cost</b>		<b>\$786,947,356</b>
DART Allowances		
Preliminary Design Contingency (30%)		\$236,084,207
	Subtotal	\$1,023,031,563
Construction Contingency (10%)		\$102,303,156
	Subtotal	\$1,125,334,720
DART Add-on Allowance (32%)		\$360,107,110
	Subtotal	\$1,485,441,830
Environmental Allowance (1%)		\$14,854,418
	Subtotal	\$1,500,296,248
Right of Way		\$1,764,742
Vehicles		\$135,078,986
<b>GRAND TOTAL</b>		<b>\$1,637,139,976</b>
Average Cost Per Route Foot		\$12,503 / RF
Average Cost Per Mile in Millions		\$66.01

# CAPITAL COST ANALYSIS

## DART - Cotton Belt Corridor Regional Rail Project

(Based on updated 5% PE Design as of 08/30/2013)

**BEC Confidential**

		Cypress Waters Alternative
		1.96 Miles
Description	2013 Dollars	
Utilities		\$0
Special Conditions		\$480,152
Track Grade Construction		\$4,261,819
Trackwork		\$4,427,447
Structures		-\$963,875
Crossings		\$16,559,967
Stations		\$7,646,150
Fare Collection		\$0
Signal System		\$0
Communications		\$0
O&M Facility		\$0
<b>Basic Civil / Systems Cost</b>		<b>\$32,411,660</b>
DART Allowances		
Preliminary Design Contingency (30%)		\$9,723,498
	Subtotal	\$42,135,157
Construction Contingency (10%)		\$4,213,516
	Subtotal	\$46,348,673
DART Add-on Allowance (32%)		\$14,831,575
	Subtotal	\$61,180,249
Environmental Allowance (1%)		\$611,802
	Subtotal	\$61,792,051
Right of Way		\$0
Vehicles		\$0
<b>GRAND TOTAL</b>		<b>\$61,792,051</b>
Average Cost Per Route Foot		\$5,971 / RF
Average Cost Per Mile in Millions		\$31.53

# CAPITAL COST ANALYSIS

## DART - Cotton Belt Corridor Regional Rail Project

(Based on updated 5% PE Design as of 08/30/2013)

**BEC Confidential**

		Segment 3 South Alternative
		4.29 Miles
Description	2013 Dollars	
Utilities		\$410,815
Special Conditions		\$363,456
Track Grade Construction		-\$3,772,211
Trackwork		-\$402,726
Structures		\$18,787,764
Crossings		-\$5,598,274
Stations		\$12,206,968
Fare Collection		\$25,779
Signal System		\$2,151,277
Communications		\$1,232,898
O&M Facility		\$0
<b>Basic Civil / Systems Cost</b>		<b>\$25,405,747</b>
DART Allowances		
Preliminary Design Contingency (30%)		\$7,621,724
	Subtotal	\$33,027,472
Construction Contingency (10%)		\$3,302,747
	Subtotal	\$36,330,219
DART Add-on Allowance (32%)		\$11,625,670
	Subtotal	\$47,955,889
Environmental Allowance (1%)		\$479,559
	Subtotal	\$48,435,448
Right of Way		\$0
Vehicles		\$0
<b>GRAND TOTAL</b>		<b>\$48,435,448</b>
Average Cost Per Route Foot		\$2,138 / RF
Average Cost Per Mile in Millions		\$11.29

**DART - Cotton Belt Corridor**

**Attachment C  
Capital Cost ANALYSIS - FTA SCC FORMAT  
Updated 5% Preliminary Design  
August 30, 2013**

		Cotton Belt Section 1 - DFW Terminal / w/o Cypress Waters		Cotton Belt Section 1 - Additional Cost With Cypress Waters	
		7.16 Main Line Miles		1.96 Main Line Miles	
FTA SCC	Description	Summary Total		Summary Total	
10	Guideway Construction		\$ 8,712,799.58		\$ 3,901,527.59
10	Tunnel		\$ -		\$ -
10	Trackwork		\$ 14,401,095.65		\$ 4,053,154.24
20	Stations		\$ 3,500,000.00		\$ 6,999,750.00
30	O&M Facility		\$ -		\$ -
40	Demo/Clearing		\$ 422,661.69		\$ 105,689.82
40	Utilities		\$ 12,799,982.73		\$ (1,400,000.00)
40	Structures		\$ 17,458,303.32		\$ (882,389.84)
40	Crossings		\$ 8,173,000.00		\$ 15,160,000.00
40	Special Conditions		\$ 10,009,680.00		\$ 439,560.00
50	Signal System		\$ 21,972,840.00		\$ -
50	Communications		\$ 13,697,080.00		\$ -
50	Fare Collection		\$ 286,400.00		\$ -
	Subtotal Basic Civil/Systems		\$ 111,433,842.97		\$ 28,377,291.81
	Allocated Contingency (30%)		\$ 33,430,152.89		\$ 8,513,187.54
	<b>Basic Civil/Systems Subtotal</b>		<b>\$ 144,863,995.86</b>		<b>\$ 36,890,479.35</b>
60	Right-of-Way		\$ 179,000.00		\$ -
70	Vehicles		\$ 35,800,000.00		\$ -
80	Professional Services (Basic Civil/Systems) (32%)		\$ 46,356,478.68		\$ 11,804,953.39
	<b>Project Subtotal</b>		<b>\$ 227,199,474.54</b>		<b>\$ 48,695,432.74</b>
90	Unallocated Contingency (10%)		\$ 22,719,947.45		\$ 4,869,543.27
90	Environmental Allowance (1%)		\$ 2,499,194.22		\$ 535,649.76
100	Finance Charges		\$ -		\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>		<b>\$ 252,418,616.21</b>		<b>\$ 54,100,625.77</b>
<b>Total Project Cost in FY 2013 Dollars</b>			<b>\$ 275,728,498.62</b>		<b>\$ 59,096,609.21</b>

**DART - Cotton Belt Corridor**

**Attachment C  
Capital Cost ANALYSIS - FTA SCC FORMAT  
Updated 5% Preliminary Design  
August 30, 2013**

		Cotton Belt Section 2	
		7.18 Main Line Miles	
FTA SCC	Description	Summary Total	
10	Guideway Construction	\$	13,417,567.44
10	Tunnel	\$	-
10	Trackwork	\$	29,885,798.88
20	Stations	\$	7,662,500.00
30	O&M Facility	\$	-
40	Demo/Clearing	\$	714,878.78
40	Utilities	\$	18,515,730.00
40	Structures	\$	12,677,035.19
40	Crossings	\$	18,450,000.00
40	Special Conditions	\$	7,614,220.00
50	Signal System	\$	23,732,820.00
50	Communications	\$	13,735,340.00
50	Fare Collection	\$	287,200.00
	Subtotal Basic Civil/Systems	\$	146,693,090.29
	Allocated Contingency (30%)	\$	44,007,927.09
	<b>Basic Civil/Systems Subtotal</b>	<b>\$</b>	<b>190,701,017.37</b>
60	Right-of-Way	\$	1,179,500.00
70	Vehicles	\$	35,900,000.00
80	Professional Services (Basic Civil/Systems) (32%)	\$	61,024,325.56
	<b>Project Subtotal</b>	<b>\$</b>	<b>288,804,842.93</b>
90	Unallocated Contingency (10%)	\$	28,880,484.29
90	Environmental Allowance (1%)	\$	3,176,853.27
100	Finance Charges	\$	-
	<b>Total Project Cost in FY 2010 Dollars</b>	<b>\$</b>	<b>320,862,180.50</b>
<b>Total Project Cost in FY 2013 Dollars</b>		<b>\$</b>	<b>350,492,561.21</b>

DART - Cotton Belt Corridor

Attachment C  
 Capital Cost ANALYSIS - FTA SCC FORMAT  
 Updated 5% Preliminary Design  
 August 30, 2013

FTA SCC	Description	Cotton Belt Section 3 At Grade		Cotton Belt Section 3 Shallow Trench		Cotton Belt Section 3 Tunnel	
		6.76 Main Line Miles		6.76 Main Line Miles		6.76 Main Line Miles	
		Summary Total		Summary Total		Summary Total	
10	Guideway Construction		\$ 10,301,716.03		\$ 25,857,570.99		\$ 14,530,982.00
10	Tunnel		\$ -		\$ -		\$ 242,699,600.00
10	Trackwork		\$ 16,490,732.38		\$ 16,629,964.63		\$ 16,660,182.42
20	Stations		\$ 27,880,000.00		\$ 27,880,000.00		\$ 27,880,000.00
30	O&M Facility		\$ -		\$ -		\$ -
40	Demo/Clearing		\$ 565,859.62		\$ 606,896.62		\$ 418,396.43
40	Utilities		\$ 9,466,128.79		\$ 14,366,128.79		\$ 9,466,128.79
40	Structures		\$ 9,803,826.42		\$ 29,102,645.42		\$ 15,862,007.26
40	Crossings		\$ 14,376,400.00		\$ 34,150,400.00		\$ 7,152,400.00
40	Special Conditions		\$ 5,328,400.00		\$ 4,849,800.00		\$ 4,849,800.00
50	Signal System		\$ 20,373,240.00		\$ 20,273,240.00		\$ 20,273,240.00
50	Communications		\$ 12,931,880.00		\$ 12,931,880.00		\$ 12,931,880.00
50	Fare Collection		\$ 270,400.00		\$ 270,400.00		\$ 270,400.00
	Subtotal Basic Civil/Systems		\$ 127,788,583.23		\$ 186,918,926.45		\$ 372,995,016.89
	Allocated Contingency (30%)		\$ 38,336,574.97		\$ 56,075,677.93		\$ 111,898,505.07
	<b>Basic Civil/Systems Subtotal</b>		<b>\$ 166,125,158.20</b>		<b>\$ 242,994,604.38</b>		<b>\$ 484,893,521.96</b>
60	Right-of-Way		\$ 169,000.00		\$ 169,000.00		\$ 169,000.00
70	Vehicles		\$ 33,800,000.00		\$ 33,800,000.00		\$ 33,800,000.00
80	Professional Services (Basic Civil/Systems) (32%)		\$ 53,160,050.62		\$ 77,758,273.40		\$ 155,165,927.03
	<b>Project Subtotal</b>		<b>\$ 253,254,208.82</b>		<b>\$ 354,721,877.79</b>		<b>\$ 674,028,448.99</b>
90	Unallocated Contingency (10%)		\$ 25,325,420.88		\$ 35,472,187.78		\$ 67,402,844.90
90	Environmental Allowance (1%)		\$ 2,785,796.30		\$ 3,901,940.66		\$ 7,414,312.94
100	Finance Charges		\$ -		\$ -		\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>		<b>\$ 281,365,426.00</b>		<b>\$ 394,096,006.22</b>		<b>\$ 748,845,606.83</b>
<b>Total Project Cost in FY 2013 Dollars</b>			<b>\$ 307,348,434.28</b>		<b>\$ 430,489,247.33</b>		<b>\$ 817,998,600.76</b>

**DART - Cotton Belt Corridor**

**Attachment C  
Capital Cost ANALYSIS - FTA SCC FORMAT  
Updated 5% Preliminary Design  
August 30, 2013**

FTA SCC	Description	Cotton Belt Section 3 - North Alternative		Cotton Belt Section 3 - Additional Cost for South Alternative	
		3.70 Main Line Miles		4.29 Main Line Miles	
		Summary Total		Summary Total	
10	Guideway Construction		\$ 8,692,434.76		\$ (3,453,310.83)
10	Tunnel		\$ -		\$ -
10	Trackwork		\$ 13,497,009.46		\$ (368,680.27)
20	Stations		\$ 19,325,000.00		\$ 11,175,000.00
30	O&M Facility		\$ -		\$ -
40	Demo/Clearing		\$ 405,127.50		\$ 153,219.71
40	Utilities		\$ 5,220,325.00		\$ 376,085.00
40	Structures		\$ 5,993,404.72		\$ 17,199,460.44
40	Crossings		\$ 14,335,000.00		\$ (5,125,000.00)
40	Special Conditions		\$ 2,906,760.00		\$ 332,730.00
50	Signal System		\$ 11,696,300.00		\$ 1,969,410.00
50	Communications		\$ 7,078,100.00		\$ 1,128,670.00
50	Fare Collection		\$ 148,000.00		\$ 23,600.00
	Subtotal Basic Civil/Systems		\$ 89,297,461.44		\$ 23,411,184.06
	Allocated Contingency (30%)		\$ 26,789,238.43		\$ 7,023,355.22
	<b>Basic Civil/Systems Subtotal</b>		<b>\$ 116,086,699.87</b>		<b>\$ 30,434,539.28</b>
60	Right-of-Way		\$ 92,500.00		\$ 14,750.00
70	Vehicles		\$ 18,500,000.00		\$ 2,950,000.00
80	Professional Services (Basic Civil/Systems) (32%)		\$ 37,147,743.96		\$ 9,739,052.57
	<b>Project Subtotal</b>		<b>\$ 171,826,943.83</b>		<b>\$ 43,138,341.85</b>
90	Unallocated Contingency (10%)		\$ 17,182,694.38		\$ 4,313,834.18
90	Environmental Allowance (1%)		\$ 1,890,096.38		\$ 474,521.76
100	Finance Charges		\$ -		\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>		<b>\$ 190,899,734.60</b>		<b>\$ 47,926,697.79</b>
<b>Total Project Cost in FY 2013 Dollars</b>			<b>\$ 207,955,989.23</b>		<b>\$ 52,208,788.40</b>

DART - Cotton Belt Corridor

Attachment C  
 Capital Cost ANALYSIS - FTA SCC FORMAT  
 Updated 5% Preliminary Design  
 August 30, 2013

		Total Cotton Belt Section 1, 2, 3 At Grade North	Total Cotton Belt Section 1, 2, 3 Trench North	Total Cotton Belt Section 1, 2, 3 Tunnel North
		24.80 Main Line Total Miles	24.80 Main Line Total Miles	24.80 Main Line Total Miles
FTA SCC	Description	Summary Total	Summary Total	Summary Total
10	Guideway Construction	\$ 41,124,517.80	\$ 56,680,372.76	\$ 45,353,783.77
10	Tunnel	\$ -	\$ -	\$ 242,699,600.00
10	Trackwork	\$ 74,274,636.37	\$ 74,413,868.62	\$ 74,444,086.41
20	Stations	\$ 58,367,500.00	\$ 58,367,500.00	\$ 58,367,500.00
30	O&M Facility	\$ -	\$ -	\$ -
40	Demo/Clearing	\$ 2,108,527.59	\$ 2,149,564.59	\$ 1,961,064.40
40	Utilities	\$ 46,002,166.52	\$ 50,902,166.52	\$ 46,002,166.52
40	Structures	\$ 45,932,569.66	\$ 65,231,388.66	\$ 51,990,750.50
40	Crossings	\$ 55,334,400.00	\$ 75,108,400.00	\$ 48,110,400.00
40	Special Conditions	\$ 25,859,060.00	\$ 25,380,460.00	\$ 25,380,460.00
50	Signal System	\$ 77,775,200.00	\$ 77,675,200.00	\$ 77,675,200.00
50	Communications	\$ 47,442,400.00	\$ 47,442,400.00	\$ 47,442,400.00
50	Fare Collection	\$ 992,000.00	\$ 992,000.00	\$ 992,000.00
	Subtotal Basic Civil/Systems	\$ 475,212,977.93	\$ 534,343,321.15	\$ 720,419,411.60
	Allocated Contingency (30%)	\$ 142,563,893.38	\$ 160,302,996.34	\$ 216,125,823.48
	<b>Basic Civil/Systems Subtotal</b>	<b>\$ 617,776,871.31</b>	<b>\$ 694,646,317.49</b>	<b>\$ 936,545,235.07</b>
60	Right-of-Way	\$ 1,620,000.00	\$ 1,620,000.00	\$ 1,620,000.00
70	Vehicles	\$ 124,000,000.00	\$ 124,000,000.00	\$ 124,000,000.00
80	Professional Services (Basic Civil/Systems) (32%)	\$ 197,688,598.82	\$ 222,286,821.60	\$ 299,694,475.22
	<b>Project Subtotal</b>	<b>\$ 941,085,470.13</b>	<b>\$ 1,042,553,139.09</b>	<b>\$ 1,361,859,710.30</b>
90	Unallocated Contingency (10%)	\$ 94,108,547.01	\$ 104,255,313.91	\$ 136,185,971.03
90	Environmental Allowance (1%)	\$ 10,351,940.17	\$ 11,468,084.53	\$ 14,980,456.81
100	Finance Charges	\$ -	\$ -	\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>	<b>\$ 1,045,545,957.32</b>	<b>\$ 1,158,276,537.53</b>	<b>\$ 1,513,026,138.14</b>
	<b>Total Project Cost in FY 2013 Dollars</b>	<b>\$ 1,141,525,483.34</b>	<b>\$ 1,264,666,296.40</b>	<b>\$ 1,652,175,649.82</b>



**DART - Cotton Belt Corridor**

**Attachment C  
Capital Cost ANALYSIS - FTA SCC FORMAT  
Updated 5% Preliminary Design  
August 30, 2013**

		Total Cotton Belt Section 1 With CW, 2, 3 At Grade North	Total Cotton Belt Section 1 with CW, 2, 3 Trench North	Total Cotton Belt Section 1 With CW, 2, 3 Tunnel North
		24.80 Main Line Total Miles	24.80 Main Line Total Miles	24.80 Main Line Total Miles
FTA SCC	Description	Summary Total	Summary Total	Summary Total
10	Guideway Construction	\$ 45,026,045.39	\$ 60,581,900.35	\$ 49,255,311.36
10	Tunnel	\$ -	\$ -	\$ 242,699,600.00
10	Trackwork	\$ 78,327,790.62	\$ 78,467,022.87	\$ 78,497,240.65
20	Stations	\$ 65,367,250.00	\$ 65,367,250.00	\$ 65,367,250.00
30	O&M Facility	\$ -	\$ -	\$ -
40	Demo/Clearing	\$ 2,214,217.41	\$ 2,255,254.41	\$ 2,066,754.21
40	Utilities	\$ 44,602,166.52	\$ 49,502,166.52	\$ 44,602,166.52
40	Structures	\$ 45,050,179.81	\$ 64,348,998.82	\$ 51,108,360.66
40	Crossings	\$ 70,494,400.00	\$ 90,268,400.00	\$ 63,270,400.00
40	Special Conditions	\$ 26,298,620.00	\$ 25,820,020.00	\$ 25,820,020.00
50	Signal System	\$ 77,775,200.00	\$ 77,675,200.00	\$ 77,675,200.00
50	Communications	\$ 47,442,400.00	\$ 47,442,400.00	\$ 47,442,400.00
50	Fare Collection	\$ 992,000.00	\$ 992,000.00	\$ 992,000.00
	Subtotal Basic Civil/Systems	\$ 503,590,269.74	\$ 562,720,612.96	\$ 748,796,703.40
	Allocated Contingency (30%)	\$ 151,077,080.92	\$ 168,816,183.89	\$ 224,639,011.02
	<b>Basic Civil/Systems Subtotal</b>	<b>\$ 654,667,350.66</b>	<b>\$ 731,536,796.84</b>	<b>\$ 973,435,714.42</b>
60	Right-of-Way	\$ 1,620,000.00	\$ 1,620,000.00	\$ 1,620,000.00
70	Vehicles	\$ 124,000,000.00	\$ 124,000,000.00	\$ 124,000,000.00
80	Professional Services (Basic Civil/Systems) (32%)	\$ 209,493,552.21	\$ 234,091,774.99	\$ 311,499,428.62
	<b>Project Subtotal</b>	<b>\$ 989,780,902.87</b>	<b>\$ 1,091,248,571.83</b>	<b>\$ 1,410,555,143.04</b>
90	Unallocated Contingency (10%)	\$ 98,978,090.29	\$ 109,124,857.18	\$ 141,055,514.30
90	Environmental Allowance (1%)	\$ 10,887,589.93	\$ 12,003,734.29	\$ 15,516,106.57
100	Finance Charges	\$ -	\$ -	\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>	<b>\$ 1,099,646,583.09</b>	<b>\$ 1,212,377,163.31</b>	<b>\$ 1,567,126,763.92</b>
	<b>Total Project Cost in FY 2013 Dollars</b>	<b>\$ 1,200,622,092.55</b>	<b>\$ 1,323,762,905.60</b>	<b>\$ 1,711,272,259.03</b>

**DART - Cotton Belt Corridor**

**Attachment C  
Capital Cost ANALYSIS - FTA SCC FORMAT  
Updated 5% Preliminary Design  
August 30, 2013**

		Total Cotton Belt Section 1, 2, 3 At Grade South	Total Cotton Belt Section 1, 2, 3 Trench South	Total Cotton Belt Section 1, 2, 3 Tunnel South
		25.39 Main Line Total Miles	25.39 Main Line Total Miles	25.39 Main Line Total Miles
FTA SCC	Description	Summary Total	Summary Total	Summary Total
10	Guideway Construction	\$ 37,671,206.97	\$ 53,227,061.93	\$ 41,900,472.94
10	Tunnel	\$ -	\$ -	\$ 242,699,600.00
10	Trackwork	\$ 73,905,956.10	\$ 74,045,188.35	\$ 74,075,406.14
20	Stations	\$ 69,542,500.00	\$ 69,542,500.00	\$ 69,542,500.00
30	O&M Facility	\$ -	\$ -	\$ -
40	Demo/Clearing	\$ 2,261,747.30	\$ 2,302,784.30	\$ 2,114,284.11
40	Utilities	\$ 46,378,251.52	\$ 51,278,251.52	\$ 46,378,251.52
40	Structures	\$ 63,132,030.10	\$ 82,430,849.11	\$ 69,190,210.95
40	Crossings	\$ 50,209,400.00	\$ 69,983,400.00	\$ 42,985,400.00
40	Special Conditions	\$ 26,191,790.00	\$ 25,713,190.00	\$ 25,713,190.00
50	Signal System	\$ 79,744,610.00	\$ 79,644,610.00	\$ 79,644,610.00
50	Communications	\$ 48,571,070.00	\$ 48,571,070.00	\$ 48,571,070.00
50	Fare Collection	\$ 1,015,600.00	\$ 1,015,600.00	\$ 1,015,600.00
	Subtotal Basic Civil/Systems	\$ 498,624,161.99	\$ 557,754,505.21	\$ 743,830,595.65
	Allocated Contingency (30%)	\$ 149,587,248.60	\$ 167,326,351.56	\$ 223,149,178.70
	<b>Basic Civil/Systems Subtotal</b>	<b>\$ 648,211,410.59</b>	<b>\$ 725,080,856.77</b>	<b>\$ 966,979,774.35</b>
60	Right-of-Way	\$ 1,634,750.00	\$ 1,634,750.00	\$ 1,634,750.00
70	Vehicles	\$ 126,950,000.00	\$ 126,950,000.00	\$ 126,950,000.00
80	Professional Services (Basic Civil/Systems) (32%)	\$ 207,427,651.39	\$ 232,025,874.17	\$ 309,433,527.79
	<b>Project Subtotal</b>	<b>\$ 984,223,811.98</b>	<b>\$ 1,085,691,480.94</b>	<b>\$ 1,404,998,052.14</b>
90	Unallocated Contingency (10%)	\$ 98,422,381.20	\$ 108,569,148.09	\$ 140,499,805.21
90	Environmental Allowance (1%)	\$ 10,826,461.93	\$ 11,942,606.29	\$ 15,454,978.57
100	Finance Charges	\$ -	\$ -	\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>	<b>\$ 1,093,472,655.11</b>	<b>\$ 1,206,203,235.32</b>	<b>\$ 1,560,952,835.93</b>
	<b>Total Project Cost in FY 2013 Dollars</b>	<b>\$ 1,193,734,271.74</b>	<b>\$ 1,316,875,084.80</b>	<b>\$ 1,704,384,438.22</b>

**DART - Cotton Belt Corridor**

**Attachment C  
Capital Cost ANALYSIS - FTA SCC FORMAT  
Updated 5% Preliminary Design  
August 30, 2013**

		Total Cotton Belt Section 1 With CW, 2, 3 At Grade South	Total Cotton Belt Section 1 with CW, 2, 3 Trench South	Total Cotton Belt Section 1 With CW, 2, 3 Tunnel South
		25.39 Main Line Total Miles	25.39 Main Line Total Miles	25.39 Main Line Total Miles
FTA SCC	Description	Summary Total	Summary Total	Summary Total
10	Guideway Construction	\$ 41,572,734.56	\$ 57,128,589.52	\$ 45,802,000.53
10	Tunnel	\$ -	\$ -	\$ 242,699,600.00
10	Trackwork	\$ 77,959,110.35	\$ 78,098,342.60	\$ 78,128,560.38
20	Stations	\$ 76,542,250.00	\$ 76,542,250.00	\$ 76,542,250.00
30	O&M Facility	\$ -	\$ -	\$ -
40	Demo/Clearing	\$ 2,367,437.12	\$ 2,408,474.12	\$ 2,219,973.93
40	Utilities	\$ 44,978,251.52	\$ 49,878,251.52	\$ 44,978,251.52
40	Structures	\$ 62,249,640.26	\$ 81,548,459.26	\$ 68,307,821.10
40	Crossings	\$ 65,369,400.00	\$ 85,143,400.00	\$ 58,145,400.00
40	Special Conditions	\$ 26,631,350.00	\$ 26,152,750.00	\$ 26,152,750.00
50	Signal System	\$ 79,744,610.00	\$ 79,644,610.00	\$ 79,644,610.00
50	Communications	\$ 48,571,070.00	\$ 48,571,070.00	\$ 48,571,070.00
50	Fare Collection	\$ 1,015,600.00	\$ 1,015,600.00	\$ 1,015,600.00
	Subtotal Basic Civil/Systems	\$ 527,001,453.80	\$ 586,131,797.02	\$ 772,207,887.46
	Allocated Contingency (30%)	\$ 158,100,436.14	\$ 175,839,539.10	\$ 231,662,366.24
	<b>Basic Civil/Systems Subtotal</b>	<b>\$ 685,101,889.94</b>	<b>\$ 761,971,336.12</b>	<b>\$ 1,003,870,253.70</b>
60	Right-of-Way	\$ 1,634,750.00	\$ 1,634,750.00	\$ 1,634,750.00
70	Vehicles	\$ 126,950,000.00	\$ 126,950,000.00	\$ 126,950,000.00
80	Professional Services (Basic Civil/Systems) (32%)	\$ 219,232,604.78	\$ 243,830,827.56	\$ 321,238,481.18
	<b>Project Subtotal</b>	<b>\$ 1,032,919,244.72</b>	<b>\$ 1,134,386,913.68</b>	<b>\$ 1,453,693,484.88</b>
90	Unallocated Contingency (10%)	\$ 103,291,924.47	\$ 113,438,691.37	\$ 145,369,348.49
90	Environmental Allowance (1%)	\$ 11,362,111.69	\$ 12,478,256.05	\$ 15,990,628.33
100	Finance Charges	\$ -	\$ -	\$ -
	<b>Total Project Cost in FY 2010 Dollars</b>	<b>\$ 1,147,573,280.88</b>	<b>\$ 1,260,303,861.10</b>	<b>\$ 1,615,053,461.71</b>
	<b>Total Project Cost in FY 2013 Dollars</b>	<b>\$ 1,252,830,880.95</b>	<b>\$ 1,375,971,694.00</b>	<b>\$ 1,763,481,047.43</b>