

# Master Development Plan for the TxDOT North Tarrant Express Project Segments 2-4

## Chapter 6: Preliminary Cost Estimates



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Chapter 6: Preliminary Cost Estimates

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## 6. Preliminary Cost Estimates

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NTEMP24 has prepared estimates of costs for pre-development, design, construction, operations and maintenance of the interim and ultimate configurations of NTE Segments 2-4. A cost analysis spreadsheet is provided at the end of this chapter (Table 6-7) that includes detailed cost estimates for each Segment. Sections 6.1 through 6.12 of this chapter provide information on the types of tasks and materials that constitute each category discussed in the cost analysis spreadsheet. Where possible, this chapter also provides information on the quantities and assumptions underlying the cost calculations presented in the spreadsheet.

The interim and ultimate configurations presented in Table 6-7 are consistent with those shown in the Draft List of Facilities. The general concept of the interim construction is to provide two Managed Lanes per direction, maintain the current capacity of the General Purpose Lanes and maintain the existing capacity of the Frontage Roads. The ultimate configuration involves the addition of one to two General Purpose Lanes and other improvements as shown in the Chapter 5 schematics. The costs of the ultimate configuration for each Facility include the costs of construction of the interim configuration.

### 6.1 Details of Facilities

Table 6-1 provides an overview of the characteristics and development schedule for the interim and ultimate configurations of each Facility.

Table 6-1: Details of Facilities

Segment / Facility		Length / Limits	Number of Lanes	Timeline
<b>Segment 2E</b>		4.5 Miles: from NTE Segment 2C (SH 183) at Industrial Blvd. (FM 157) to County Line Road	<b>Interim:</b> GPL: 3 / ML: 2 / FR: 2 <b>Ultimate:</b> GPL: 3 / ML: 3 / FR: 2	Pre-Development: 2014-2015 D&C Period: 2016-2020 O&M Period: 2020-2065
<b>Potential Facility 3A/3B</b>	Seg. 3A	5.4 Miles: from Meacham Blvd. to IH 30	<b>Interim:</b> GPL: 2-3 / ML: 2 / FR: 2 <b>Ultimate:</b> GPL: 4 / ML: 3 / FR: 2-3	Pre-Development: 2010-2011 D&C Period: 2012-2017 O&M Period: 2017-2065
	IH 35W / IH 820 Interchange	1.7 Miles on IH 35W: from Western Center Blvd. to Meacham Blvd 1.87 Miles on IH 820: from NTE Seg. 1B to east of Mark IV Parkway	<b>Interim:</b> GPL: 2-3 / ML on IH 35W: 2 / ML on IH 820: 1-2 / FR: 2 / DC: 1 <b>Ultimate:</b> GPL: 3 / ML on IH 35W: 2 / ML on IH 820: 2 / FR: 2 / DC: as shown on schematics for environmental approval	
	Seg. 3B	3.4 Miles: from south of Fossil Creek Blvd. to North Tarrant Parkway	<b>Interim:</b> GPL: 2-3 / ML: 2-3 / FR: 2-3 <b>Ultimate:</b> GPL: 4-5 / ML: 2-3 / FR: 2-3	
<b>Segment 3C</b>		7.2 miles: from NTE Segment 3B (US 287) to SH 170 (ultimate extends to 0.16 mile south of Eagle Parkway)	<b>Interim:</b> GPL: 2 / ML: 2 / FR: 2 <b>Ultimate:</b> GPL: 3 / ML: 2 / FR: 2	Pre-Development: 2014-2015 D&C Period: 2016-2020 O&M Period: 2020-2065
<b>Segment 4</b>		3.7 miles: from NTE Segment 2C (IH 820/SH 121/SH 183) to Randol Mill Road	<b>Interim:</b> GPL: 3-5 / ML: 1-2 / FR: 2-3 <b>Ultimate:</b> GPL: 3-5 / ML: 1-2 / FR: 2-3	Pre-Development: 2019-2020 D&C Period: 2021-2025 O&M Period: 2025-2065

## **6.2 Pre-Development and Facility Feasibility**

Pre-development and Facility feasibility costs are the activities taking place following TxDOT acceptance of a Facility Implementation Plan and issuance of Facility NTP2 through Close of Finance. The activities in this category that are included in the preliminary cost estimates are described below.

### **6.2.1 Planning**

- Determination of Facility Ready for Development status
- Preparation of Facility Implementation Plan

The cost estimates for planning entail a project management allowance for approximately two months of work to determine whether a Facility is Ready for Development and a fixed fee for preparation of a Facility Implementation Plan. For Segments scheduled to be developed concurrently, these costs are shared between the Segments.

### **6.2.2 Environmental Mitigation**

During the pre-development stage, environmental mitigation activities will include:

- Identification of sensitive environmental sites
- Preliminary assessment of mitigation to be carried out, such as noise walls, erosion and sedimentation controls, wetland mitigation and permitting.

Costs for implementation of environmental mitigation measures are included in the cost estimates for Design and Construction.

### **6.2.3 Technical and Financial Feasibility Studies**

- Preliminary engineering
- Geotechnical studies
- Investment-grade traffic and revenue report
- Facility Financial Plan

### **6.2.4 Transaction Advisory Services**

- General Legal Counsel
- Local Legal Counsel
- Lender's Counsel
- Lenders' Advisors (technical, traffic and revenue, insurance, financial model auditor)
- Rating Agencies

### 6.3 Administration and Overhead

Administration and overhead costs during the Construction phase include, but are not limited to salaries/wages, employee benefits, office space rental, office utilities and equipment, insurance, contingencies, and profit. Additional administration and overhead costs for operations and maintenance are included under Operations (section 7 of spreadsheet).

### 6.4 Contract Administration

Contract administration costs include a shared responsibility for the fees of oversight consultants and the Independent Engineer during construction. Assuming a similar arrangement to that undertaken on NTE Segments 1 and 2W, the Concessionaire and TxDOT will each pay half of the Independent Engineer’s fees. Additional contract administration costs for operations and maintenance under Operations (section 7 of spreadsheet).

### 6.5 Right-of-Way

ROW costs were estimated based on the number of acres to be acquired for each Segment. The number of acres of acquisition necessary for each Segment is presented in Table 6-2. A 15% contingency is built into the ROW cost estimates.

Table 6-2: Estimated ROW Acquisitions by Segment (in Acres)

Segment	2E	3A	3B	3C	4
Interim	26.2	70.0	36.7	61.5	49.6
Ultimate	26.2	76.0	43.2	61.5	49.6

### 6.6 Design and Construction

#### 6.6.1 Design and Engineering

Design and engineering costs include the costs of the lead design firm and engineering subconsultants.

#### 6.6.2 Civil Infrastructure and Fixed Facilities

Costs were estimated for the following elements related to civil infrastructure and fixed facilities:

### 6.6.2.1 Roadway

- Roadway Removals and Preliminary Work: includes costs for removal of all intersecting streets and refurbishment of existing pavement.
- Pavements, Driveways and Curbs: Pavement costs were estimated based on the use of asphalt concrete pavement (ACP). Costs for curbs were estimated based on the length of the frontage roads on both sides of each Segment.
- Subgrade Treatments and Base: Costs were estimated based on use of lime-treated subbase (LTS) and 10-inch flex base.

### 6.6.2.2 Structures

- Bridge Removals: Costs for removal of bridges are based on the number of structures on each Segment shown in Table 6-3.

Table 6-3: Number of Structure Removals per Segment

Segment	Number of Structures (major bridges and drainage elements)	
	Interim	Ultimate
2E	8	11
3A	19	26
3B	12	11
3C	15	15
4	12	17

- Bridge Construction: Costs were estimated for bridges on the main lanes, frontage roads, and on direct connectors. These costs were estimated on a per-square foot basis. Table 6-4 shows the square footage of new bridges per Segment.

Table 6-4: Square Footage of New Bridges per Segment

Segment	Bridges – Main Lanes and Frontage Roads (square feet)		Bridges – Direct Connectors (square feet)	
	Interim	Ultimate	Interim	Ultimate
2E	1,786,480	2,773,253	118,593	395,227
3A	2,132,700	2,969,159	147,031	509,311
3B	309,446	423,592	180,788	181,941
3C	725,753	782,841	0	381,411
4	593,080	946,388	309,236	249,671

- Retaining Walls, Shoring and Sheet Piling: Retaining wall costs were estimated on a per-square foot basis, assuming 17-foot-high retaining walls.

The square footage of new retaining walls, shoring and sheet piling is shown in Table 6-5.

Table 6-5: Square Footage of New Retaining Walls per Segment

Segment	Retaining Walls (square feet)	
	Interim	Ultimate
2E	855,389	951,796
3A	964,903	1,203,277
3B	357,187	256,292
3C	692,155	865,657
4	613,377	680,357

- Permanent Barriers, Guardrail and Fencing: Costs of permanent barriers, guardrail and fencing were estimated on a per-linear foot basis for each potential occurrence.
- Noise Walls: Noise wall costs were estimated on a per-square foot basis for the walls recommended as reasonable and feasible in the environmental documents for Segments 2E (60,112 square feet) and 3A (35,337 square feet). A 16-foot wall height is assumed.

### 6.6.2.3 *Drainage and Riprap*

Drainage cost estimates include a combination of the following:

- Open Drainage Systems: estimates were calculated on a per-cubic yard basis, assuming four parallel ditches, two feet deep, with 3.5:1 sideslopes.
- Closed Drainage Systems: estimates were calculated on a per-linear foot basis, assuming 750 feet of reinforced concrete pipe (RCP) per intersection, plus a trunk line for the length of each Segment.
- Minor Stream Culverts: estimates were calculated on a per-linear foot basis, assuming an average length of 500 feet per culvert.

### 6.6.2.4 *Earthwork and Landscaping*

Earthwork costs were estimated on a per-cubic yard basis for excavation and construction of embankments along the General Purpose Lanes, Managed Lanes, direct connectors, frontage roads, cross streets and bridges.

### 6.6.2.5 *Utility Relocations*

Utility relocation costs were calculated on a per-mile basis.

### 6.6.2.6 *Traffic Control, Detours and Temporary Work*

Cost estimates in this category are based on a 36-month construction schedule, and include mobilization, barricades, warning and detour signs and traffic handling.

### 6.6.2.7 **Signing and Pavement Marking**

Costs for signing and striping were estimated on a per-mile basis for the full length of the General Purpose Lanes, Managed Lanes, Frontage Roads and cross streets, in both directions.

### 6.6.2.8 **Lighting, Electrical and Traffic Signals**

- **Traffic Signals and Intersection Lighting:** Costs in this category are based on the number of signalized intersections shown in the schematic, which is shown in Table 6-6.

Table 6-6: Number of Signalized Intersections Per Segment

Segment	Number of Signalized Intersections	
	Interim	Ultimate
2E	8	8
3A	6	10
3B	4	4
3C	14	14
4	7	7

- **Illumination:** Illumination costs were estimated on a per-luminary basis, with the costs of conduit and electrical incorporated. These estimates assume eight luminaries per ramp gore.

### 6.6.2.9 **Special Aesthetic Treatments**

Costs for aesthetic treatments were calculated on a per-mile basis for the full length of each Segment. An estimated allowance of \$1 million per mile was used as the basis for the cost of aesthetic treatments. All aesthetic allowances are excluded on Segments 3A and 3B.

### 6.6.2.10 **Landscaping**

Landscaping costs include seeding, topsoil and vegetative watering and were calculated assuming an average ROW width of 500 feet, minus pavement areas and bridges.

### 6.6.2.11 **Construction Cost Adjustments**

Construction cost adjustments were used only on Segments 3A and 3B. These adjustments consist of scope reductions, value engineering considerations, and discounts that have been negotiated between TxDOT and NTEMP24 through the proposal bid process for Facility 3A-3B. The remaining Segments have not gone through this process, and therefore do not include construction cost adjustments.

## 6.7 Tolling Systems and ITS

Costs were estimated for the following elements related to operating systems, technology and software:

- **Hardware:** Hardware costs were estimated for the ITS duct bank system, modifications to the main control building and the Electronic Toll Collection System.

## 6.8 Operations

### 6.8.1 Administration and Overhead

Administration and overhead includes the following costs:

- **Overhead:** all costs related to staff, offices, and vehicles during the Operating Period.
- **Advisors:** any type of specialized advisory that the Developer will need during the Operating Period (legal, technical, etc.).
- **Insurance:** costs related to insurance policies that the Developer will need to obtain during the Operating Period.

### 6.8.2 Tolling Service

Tolling collection service includes the following items:

- **Tag issuance:** costs related to marketing, and production.
- **Billing:** costs related to the procedures that the Developer will need to collect the tolls.
- **Fees:** costs that the financial institutions will charge for processing transaction payments.
- **Enforcement:** costs related to the procedures and actions that will have to be carried out to address violations.
- **Customer Service:** costs related to provide an appropriate level of service to the users and attend their complaints and suggestions.

### 6.8.3 Security

Security refers mainly to costs related to Traffic Operations (patrolling, management of hazardous material spills, traffic control etc.).

### 6.8.4 Tolling System and ITS Maintenance

This category includes costs related to both software and staff needed to properly operate the Electronic Toll Collection System, such as Optical Character Recognition

(OCR), Vehicle Exception Processing (VEP), Back-office, etc.

## **6.9 Maintenance**

### **6.9.1 Routine Maintenance**

This category includes costs related to repairing, maintaining or cleaning the items listed below:

- Roadway Routine Maintenance
  - Labor and Indirect Costs (maintenance crews, consumptions, etc.)
  - Pavement repairs (potholes, crack sealing, etc.)
  - Roadside Operations (mowing, sweeping, debris removal, etc.)
- Structures Routine Maintenance
  - Joints replacement
  - cleaning
- Other Road Assets Routine Maintenance
  - Drainage (cleaning and repair)
  - Janitorial
  - Landscaping

### **6.9.2 Major Maintenance**

Costs related to rehabilitation and replacement of major roadway items are listed below:

- Pavement Major Maintenance
- Structures Major Maintenance
- Road Assets Replacements, such as:
  - Drainage repairs
  - Retaining Walls
  - Earthworks (embankments and/or slopes treatment)
  - Signs, fence, and other items related to safety

The below highlights the maintenance schedules for pavements, and structures of the Facilities:

- Pavements: flexible pavement is assumed to be used for the entire limit of the facility. Resurfacing of the pavement would be conducted based on the schedule below for different lanes throughout the concession period.

- General Purpose lanes – every 8 years
- Managed lanes – every 13 years
- Frontage roads and cross streets – every 11 years
- Structures: the major structures such as bridge slab and bridge joint seal shall be repaired / replaced every 20 years, while other minor structures such as retaining walls and culvert repairs shall be conducted every 15 years in general.

## **6.10 Expansion of Capacity and New Capital Improvements**

Capacity expansions involve expansion of each Segment from the interim to ultimate configuration. Cost estimates are provided for both the interim and ultimate configurations; therefore, the costs of expansion constitute the difference between the design and construction costs of the interim and ultimate configurations. Costs of renewal work are built into the “major maintenance” estimates described in Section 6.9.2.

## **6.11 Major Systems and Equipment Supply**

Major systems and equipment supply includes major maintenance or renewal of systems elements such as the ITS duct bank system, main control building and the Electronic Toll Collection System. The renovation of the tolling system will be conducted every 10 years in general.

## **6.12 Financing and Related Costs**

Financing costs refer to interest and fees associated with the debt incurred to finance each Facility.

Table 6-7: Facility Cost Analysis

	Segment 2E		Segment 3A		Segment 3B		Segment 3C		Segment 4		IH 35W/IH 820 IC
	Interim	Ultimate	Optimized								
<b>1 Pre-Development and Facility Feasibility</b>											
1.1 Planning	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ 220,000	\$ -
1.2 Technical and Financial Feasibility Studies (includes Environmental Mitigation)	\$ 1,661,000	\$ 2,028,000	\$ 1,699,000	\$ 2,557,000	\$ 917,000	\$ 990,000	\$ 1,677,000	\$ 1,884,000	\$ 1,314,000	\$ 1,532,000	\$ -
1.3 Transaction Advisory Services											
1.3.1 Legal	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ -
1.3.2 Financial Advisory	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ 2,500,000	\$ -
1.3.3 Risk Analysis	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ -
1.3.4 Preparation of Procurement Documents	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ 75,000	\$ -
<b>TOTAL - Pre-Development and Facility Feasibility</b>	<b>\$ 5,556,000</b>	<b>\$ 5,923,000</b>	<b>\$ 5,594,000</b>	<b>\$ 6,452,000</b>	<b>\$ 4,812,000</b>	<b>\$ 4,885,000</b>	<b>\$ 5,572,000</b>	<b>\$ 5,779,000</b>	<b>\$ 5,209,000</b>	<b>\$ 5,427,000</b>	<b>\$ -</b>
<b>2 Administration and Overhead</b>											
2.1 Administration and Overhead	\$ 31,486,000	\$ 31,803,000	\$ 14,366,000	\$ 15,716,000	\$ 7,104,000	\$ 7,142,000	\$ 41,430,000	\$ 43,648,000	\$ 29,394,000	\$ 29,852,000	\$ -
<b>TOTAL - Administration and Overhead</b>	<b>\$ 31,486,000</b>	<b>\$ 31,803,000</b>	<b>\$ 14,366,000</b>	<b>\$ 15,716,000</b>	<b>\$ 7,104,000</b>	<b>\$ 7,142,000</b>	<b>\$ 41,430,000</b>	<b>\$ 43,648,000</b>	<b>\$ 29,394,000</b>	<b>\$ 29,852,000</b>	<b>\$ -</b>
<b>3 Contract Administration</b>											
3.1 Misc. Advisors (includes Independent Engineer)	\$ 5,325,000	\$ 6,321,000	\$ 14,688,000	\$ 14,688,000	\$ 5,487,000	\$ 5,487,000	\$ 5,367,000	\$ 5,930,000	\$ 4,455,000	\$ 5,045,000	\$ -
<b>TOTAL - Contract Administration</b>	<b>\$ 5,325,000</b>	<b>\$ 6,321,000</b>	<b>\$ 14,688,000</b>	<b>\$ 14,688,000</b>	<b>\$ 5,487,000</b>	<b>\$ 5,487,000</b>	<b>\$ 5,367,000</b>	<b>\$ 5,930,000</b>	<b>\$ 4,455,000</b>	<b>\$ 5,045,000</b>	<b>\$ -</b>
<b>4 Right-of-Way*</b>											
4.1 Survey	\$ 238,000	\$ 238,000	\$ 330,000	\$ 448,000	\$ 54,000	\$ 104,000	\$ 150,000	\$ 150,000	\$ 296,000	\$ 296,000	\$ -
4.2 Appraisal	\$ 1,953,000	\$ 1,953,000	\$ 2,480,000	\$ 3,370,000	\$ 468,000	\$ 941,000	\$ 1,229,000	\$ 1,229,000	\$ 1,305,000	\$ 1,305,000	\$ -
4.3 Acquisition Services	\$ 4,469,000	\$ 4,469,000	\$ 7,120,000	\$ 8,885,000	\$ 492,000	\$ 2,018,000	\$ 2,276,000	\$ 2,276,000	\$ 2,837,000	\$ 2,837,000	\$ -
4.4 Acquisition Costs	\$ 25,035,000	\$ 25,035,000	\$ 50,533,000	\$ 58,674,000	\$ 2,178,000	\$ 20,823,000	\$ 21,505,000	\$ 21,505,000	\$ 13,385,000	\$ 13,385,000	\$ -
4.5 Misc. Segment Fees for Pre-acquisition and Acquisition	\$ 1,325,000	\$ 1,325,000	\$ 24,453,000	\$ 26,904,000	\$ 3,661,000	\$ 10,413,000	\$ 11,114,000	\$ 11,114,000	\$ 10,301,000	\$ 10,301,000	\$ -
4.6 Contingency	\$ 4,953,000	\$ 4,953,000	\$ 12,737,000	\$ 14,742,000	\$ 1,028,000	\$ 5,145,000	\$ 5,441,000	\$ 5,441,000	\$ 4,219,000	\$ 4,219,000	\$ -
<b>TOTAL - Right-of-Way</b>	<b>\$ 37,973,000</b>	<b>\$ 37,973,000</b>	<b>\$ 97,653,000</b>	<b>\$ 113,023,000</b>	<b>\$ 7,881,000</b>	<b>\$ 39,444,000</b>	<b>\$ 41,715,000</b>	<b>\$ 41,715,000</b>	<b>\$ 32,343,000</b>	<b>\$ 32,343,000</b>	<b>\$ -</b>
<b>5 Design &amp; Construction**</b>											
5.1 Roadways											
5.1.1 Roadway Removals and Preliminary Work	\$ 5,906,000	\$ 5,149,000	\$ 8,904,000	\$ 7,558,000	\$ 4,854,000	\$ 3,553,000	\$ 7,973,000	\$ 7,973,000	\$ 3,980,000	\$ 5,464,000	\$ 3,507,000
5.1.2 Subgrade Treatment, Base and Paving	\$ 74,832,000	\$ 81,532,000	\$ 84,480,000	\$ 132,782,000	\$ 75,594,000	\$ 94,767,000	\$ 144,539,000	\$ 158,589,000	\$ 78,840,000	\$ 96,664,000	\$ 52,087,000
5.1.3 Traffic Control, Detours and Temporary Work	\$ 4,644,000	\$ 4,675,000	\$ 33,685,000	\$ 4,731,000	\$ 18,791,000	\$ 4,804,000	\$ 4,536,000	\$ 4,536,000	\$ 4,536,000	\$ 4,536,000	\$ 11,367,000
5.2 Structures											
5.2.1 Bridge Removals***	\$ 2,340,000	\$ 3,238,000		\$ 7,744,000		\$ 3,328,000	\$ 4,284,000	\$ 4,284,000	\$ 3,428,000	\$ 4,856,000	\$ -
5.2.2 Bridges	\$ 134,393,000	\$ 227,719,000	\$ 179,783,000	\$ 345,733,000	\$ 40,015,000	\$ 47,991,000	\$ 49,533,000	\$ 83,476,000	\$ 64,831,000	\$ 98,185,000	\$ 94,964,000
5.2.3 Retaining Walls, Noise Walls, Shoring and Sheet Piling	\$ 76,020,000	\$ 84,860,000	\$ 82,981,000	\$ 106,881,000	\$ 33,292,000	\$ 22,800,000	\$ 58,142,000	\$ 72,716,000	\$ 51,524,000	\$ 57,150,000	\$ 6,177,000
5.2.4 Permanent Barriers, Guardrail and Fencing	\$ 1,312,000	\$ 1,320,000	\$ 4,434,000	\$ 1,570,000	\$ 5,450,000	\$ 996,000	\$ 2,199,000	\$ 2,199,000	\$ 1,059,000	\$ 1,475,000	\$ 3,853,000
5.3 Drainage and Riprap	\$ 14,181,000	\$ 14,273,000	\$ 21,545,000	\$ 7,436,000	\$ 21,135,000	\$ 8,024,000	\$ 13,120,000	\$ 13,120,000	\$ 5,948,000	\$ 6,852,000	\$ 14,735,000
5.4 Earthwork and Landscaping	\$ 15,664,000	\$ 18,102,000	\$ 38,305,000	\$ 42,630,000	\$ 17,289,000	\$ 14,888,000	\$ 30,154,000	\$ 30,793,000	\$ 15,878,000	\$ 19,092,000	\$ 10,367,000
5.5 Utility Relocations	\$ 11,062,000	\$ 11,134,000	\$ 38,615,000	\$ 31,109,000	\$ 5,728,000	\$ 15,235,000	\$ 23,730,000	\$ 23,730,000	\$ 6,090,000	\$ 6,090,000	\$ 7,801,000
5.6 Lighting, Signals, Signing and Pavement Marking	\$ 5,455,000	\$ 5,546,000	\$ 10,691,000	\$ 7,343,000	\$ 6,787,000	\$ 3,790,000	\$ 8,984,000	\$ 8,984,000	\$ 4,953,000	\$ 5,349,000	\$ 4,492,000
5.7 Miscellaneous****	\$ 4,967,000	\$ 4,999,000	\$ 14,726,000	\$ 5,946,000	\$ 5,790,000	\$ 3,770,000	\$ 8,327,000	\$ 8,327,000	\$ 4,011,000	\$ 5,586,000	\$ 2,700,000
5.8 Engineering and Others											
5.8.1 Design and Engineering	\$ 31,570,000	\$ 41,629,000	\$ 46,432,000	\$ 63,132,000	\$ 21,385,000	\$ 20,155,000	\$ 31,997,000	\$ 37,685,000	\$ 22,057,000	\$ 28,017,000	\$ 19,230,000
5.8.2 Others*****	\$ 87,605,000	\$ 115,520,000	\$ 68,387,000	\$ 175,190,000	\$ 31,496,000	\$ 55,930,000	\$ 88,790,000	\$ 104,577,000	\$ 61,208,000	\$ 77,746,000	\$ 28,323,000
5.8.3 Construction Cost Adjustments*****			\$ (43,484,000)		\$ (17,606,000)						\$ (25,603,000)
<b>TOTAL - Design &amp; Construction</b>	<b>\$ 469,951,000</b>	<b>\$ 619,696,000</b>	<b>\$ 589,484,000</b>	<b>\$ 939,785,000</b>	<b>\$ 270,000,000</b>	<b>\$ 300,031,000</b>	<b>\$ 476,308,000</b>	<b>\$ 560,989,000</b>	<b>\$ 328,343,000</b>	<b>\$ 417,062,000</b>	<b>\$ 234,000,000</b>
<b>6 Tolling Systems &amp; ITS</b>											
6.1 Tolling Systems & ITS	\$ 20,535,000	\$ 20,535,000	\$ 29,991,000	\$ 29,991,000	\$ 18,883,000	\$ 18,883,000	\$ 23,996,000	\$ 23,996,000	\$ 18,195,000	\$ 18,195,000	\$ 17,969,000
<b>TOTAL - Tolling System &amp; ITS</b>	<b>\$ 20,535,000</b>	<b>\$ 20,535,000</b>	<b>\$ 29,991,000</b>	<b>\$ 29,991,000</b>	<b>\$ 18,883,000</b>	<b>\$ 18,883,000</b>	<b>\$ 23,996,000</b>	<b>\$ 23,996,000</b>	<b>\$ 18,195,000</b>	<b>\$ 18,195,000</b>	<b>\$ 17,969,000</b>

Chapter 6: Preliminary Cost Estimates

7 Operations												
7.1	Administration and Overhead (includes Safety, Security, Independent Engineer)	\$ 178,823,000	\$ 178,823,000	\$ 40,204,000	\$ 40,204,000	\$ 25,235,000	\$ 25,235,000	\$ 176,917,000	\$ 176,917,000	\$ 158,129,000	\$ 158,129,000	
7.2	Revenue and User Fee Collection System and Technologies; Enforcement; Public Relations & Customer Service	\$ 157,984,000	\$ 124,591,000	\$ 237,080,000	\$ 177,822,000	\$ 174,299,000	\$ 137,386,000	\$ 116,122,000	\$ 63,762,000	\$ 22,199,000	\$ 24,617,000	
7.3	Insurance	\$ 25,094,000	\$ 28,305,000	\$ 38,149,000	\$ 40,533,000	\$ 22,042,000	\$ 21,617,000	\$ 19,623,000	\$ 21,556,000	\$ 11,222,000	\$ 14,307,000	
7.4	Tolling Systems and ITS Maintenance	\$ 22,171,000	\$ 22,171,000	\$ 27,595,000	\$ 27,595,000	\$ 14,859,000	\$ 14,859,000	\$ 30,674,000	\$ 30,674,000	\$ 22,747,000	\$ 22,747,000	
<b>TOTAL - Operations</b>		<b>\$ 361,901,000</b>	<b>\$ 331,719,000</b>	<b>\$ 315,433,000</b>	<b>\$ 258,559,000</b>	<b>\$ 221,576,000</b>	<b>\$ 184,238,000</b>	<b>\$ 312,662,000</b>	<b>\$ 262,235,000</b>	<b>\$ 191,550,000</b>	<b>\$ 197,053,000</b>	<b>\$ -</b>
8 Maintenance												
8.1 Routine Maintenance												
8.1.1	Routine Maintenance of Structures, Roadway, etc.	\$ 59,973,000	\$ 62,087,000	\$ 33,523,000	\$ 41,641,000	\$ 30,110,000	\$ 32,048,000	\$ 77,989,000	\$ 80,229,000	\$ 53,685,000	\$ 55,176,000	
8.2 Periodic Maintenance and Reconstruction as Necessary												
8.2.1	Pavement Major Maintenance	\$ 36,785,000	\$ 45,171,000	\$ 48,904,000	\$ 69,990,000	\$ 48,460,000	\$ 53,075,000	\$ 78,658,000	\$ 88,881,000	\$ 37,972,000	\$ 45,842,000	
8.2.2	Structures Major Maintenance	\$ 37,749,000	\$ 54,222,000	\$ 63,652,000	\$ 94,335,000	\$ 10,469,000	\$ 10,291,000	\$ 16,223,000	\$ 25,279,000	\$ 18,658,000	\$ 19,931,000	
8.2.3	Road Assets Replacements	\$ 12,551,000	\$ 12,634,000	\$ 14,614,000	\$ 20,696,000	\$ 15,549,000	\$ 16,289,000	\$ 28,313,000	\$ 28,313,000	\$ 21,675,000	\$ 21,810,000	
<b>TOTAL - Maintenance</b>		<b>\$ 147,058,000</b>	<b>\$ 174,114,000</b>	<b>\$ 160,693,000</b>	<b>\$ 226,662,000</b>	<b>\$ 104,588,000</b>	<b>\$ 111,703,000</b>	<b>\$ 201,183,000</b>	<b>\$ 222,702,000</b>	<b>\$ 131,990,000</b>	<b>\$ 142,759,000</b>	<b>\$ -</b>
9 Expansion of Capacity and Other New Capital Improvements												
9.1	Expansion of Capacity and Other New Capital Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>TOTAL - Expansion &amp; Capital Improvements</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
10 Major Systems and Equipment Supply												
10.1	Major Systems and Equipment Supply	\$ 31,759,000	\$ 31,759,000	\$ 22,507,000	\$ 22,507,000	\$ 12,119,000	\$ 12,119,000	\$ 33,152,000	\$ 33,152,000	\$ 41,312,000	\$ 41,312,000	
<b>TOTAL - Major Systems and Equipment Supply</b>		<b>\$ 31,759,000</b>	<b>\$ 31,759,000</b>	<b>\$ 22,507,000</b>	<b>\$ 22,507,000</b>	<b>\$ 12,119,000</b>	<b>\$ 12,119,000</b>	<b>\$ 33,152,000</b>	<b>\$ 33,152,000</b>	<b>\$ 41,312,000</b>	<b>\$ 41,312,000</b>	<b>\$ -</b>
<b>TOTAL - ALL PROJECT COSTS</b>		<b>\$ 1,111,544,000</b>	<b>\$ 1,259,843,000</b>	<b>\$ 1,250,409,000</b>	<b>\$ 1,627,383,000</b>	<b>\$ 652,450,000</b>	<b>\$ 683,932,000</b>	<b>\$ 1,141,385,000</b>	<b>\$ 1,200,146,000</b>	<b>\$ 782,791,000</b>	<b>\$ 889,048,000</b>	<b>\$ 251,969,000</b>

		Interim	Ultimate
<b>TOTAL - ALL SEGMENTS (interim includes IH 35W/IH 820 IC)</b>		<b>\$ 5,190,548,000</b>	<b>\$ 5,660,352,000</b>

11 Financing and Related Costs												
11.1	Debt Interest	\$ 55,800,000	\$ 49,036,000	\$ 118,260,000	\$ 76,456,000	\$ 52,513,000	\$ 33,945,000	\$ 130,460,000	\$ 148,773,000	\$ 103,748,000	\$ 124,016,000	
11.2	Debt Fees	\$ 2,310,000	\$ 2,129,000	\$ 2,510,000	\$ 1,781,000	\$ 1,116,000	\$ 791,000	\$ 3,510,000	\$ 3,767,000	\$ 3,228,000	\$ 3,520,000	
<b>TOTAL - Financing &amp; Related Costs</b>		<b>\$ 58,110,000</b>	<b>\$ 51,165,000</b>	<b>\$ 120,770,000</b>	<b>\$ 78,237,000</b>	<b>\$ 53,629,000</b>	<b>\$ 34,736,000</b>	<b>\$ 133,970,000</b>	<b>\$ 152,540,000</b>	<b>\$ 106,976,000</b>	<b>\$ 127,536,000</b>	<b>\$ -</b>

NOTES:

- \* For the interim configuration, it is assumed that ROW (item 4) will be acquired based on ultimate configuration except for Segment 3A and 3B.
- \*\* Costs are provided in real 2010 dollars with the exception of Debt Interest and Debt Fees, which are in nominal 2010 dollars, and are thus presented separately.
- \*\*\* Bridge Removals (item 5.2.1) for NTE 3A3B are combined and included in Roadway Removals and Preliminary Work (item 5.1.1).
- \*\*\*\* Miscellaneous (item 5.7) includes Tolling and ITS Civil Work, Environmental Mitigation, Aesthetics allowance.
- \*\*\*\*\* Others (item 5.8.2) include Overhead, Mobilization, Insurance, Payment and Performance Security, and Contingencies.
- \*\*\*\*\* Construction Cost Adjustments (item 5.8.3) include Scope Reductions, Value Engineering Considerations, and Discounts for NTE 3A and 3B.