

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

## Chapter 12: Risk Management



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## 12. Risk Management

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The early management and allocation of risks is the cornerstone of a successful project. Also, a good assessment of the risks associated with undertaking any kind of infrastructure project can facilitate and increase the probability of funding the project. These two statements can be applied to any of the Facilities within the North Tarrant Express Project.

The managing procedure to minimize risk effects is based on the following:

- Risk Identification. Identification of risks that could produce either a loss in revenue or an increase in costs.
- Risk Analysis. Once the potential risks have been identified, they are analyzed to determine the consequences, likelihood and mitigation strategies using the proper coverage instruments available in the market.
- Risk Allocation. Allocation criteria are developed upon the capacity to manage each risk in the most effective manner, minimizing its impact.

Independent of the delivery method chosen to develop a project, the different parties involved in the development have to understand which risks they will be responsible for, how the risks will be managed, the consequences these risks may carry and how the risks can be mitigated.

The main project risks can be divided into the following three groups:

- Technical, design, construction and completion risks;
- operation and maintenance risks and environmental or other liabilities; and
- financial, market/price and political risks.

Failure to understand, control, and mitigate any of these risks can undermine the commercial performance of a Facility. Uncertainty about these risks can easily prevent the Facility from being funded in the first place. Therefore, it is very important to have a consistent strategy to minimize these risks, which will make the Facility easier to fund. This could make the difference between a viable and non-viable Facility.

Certain risks are associated with concession projects with an upfront concession fee. Throughout the term of a concession for a specific Facility, a Developer may be exposed to the risk of a number of adverse events, which may affect the Developer's ability to meet its obligations under the Facility Agreement (or Concession Agreement). In general, these risks may arise during the following periods:

- Design and Construction: Facility is not completed to schedule, to specification or to cost.

- Operation: Revenues are lower than forecasted or operating expenses or debt service obligations exceed the levels assumed at closing.

In addition, the following categories of risks are common to both periods and are typically allocated among infrastructure project lenders and sponsors:

- Political/Legal
- Economic/Financing
- Environmental

Adverse events may arise as a result of facts or failures to act on the part of the parties to the Facility Agreement (or those for whom they are responsible) or may be due to factors entirely external to the Project. In either case, such risks should be mitigated, in part, by allocating them to the parties most able to bear them.

## 12.1 Project Risk Identification

The risk matrix provided in Table 12-1 sets out a synopsis of principal risk areas and typical strategies for allocating, managing or eliminating these risks in concession projects. Table 12-1 also includes a brief explanation of potential consequences, their likelihood and an indicative sensitivity analysis methodology.

For NTE Project development purposes and future MDP Update Work, risk allocation is subject to TxDOT's Programmatic Term Sheet, additional risk analysis based on Facility-specific characteristics and negotiations between TxDOT and the potential Facility Developer.

Table 12-1: Risk Matrix

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
<b>Key Facility-Specific Risks for NTE 2-4</b>					
Before	ROW acquisition – Relocation ( <b>Segment 3A</b> )	High percentage of parcels affected by the project are commercial and could result in higher relocation costs. Significant parcels include Fort Worth Independent School District, Chesapeake Natural Gas Facility, Land of Lakes Purina and Tarrant County 911.	Developer	Provide appropriate funding to expedite relocations when necessary.	Analysis with different schedules and impact on acquisition and delay costs.
Before/ After	Concession term start date is date for execution of the North Tarrant Express Segments 2 Through 4 CDA ( <b>Segment 3A and 3B, other segments in future</b> )	Facility Financial Plan is not applicable and project is not financially feasible	TxDOT	Risk is mitigated by using execution of the Facility Agreement as the concession term start date or increasing public funds for the project.	NA
Before/ After	Trinity River Bridge South Abutments over the Trinity River levees not approved by the floodplain administrator ( <b>Segments 3B and 3C</b> )	Delays, additional costs	TxDOT	TxDOT works closely with appropriate third parties (i.e. Army Corp of Engineers for Trinity River) to clearly define requirements and allow Developer to fully evaluate extent of impact. Compensation if floodplain administrator requires a Vertical Alignment revision, and/or restrictions on bridge column placement.	N/A
Before	ROW acquisition – Relocation ( <b>Segment 2E</b> )	High percentage of parcels affected by the project are commercial and could result in higher relocation costs. Significant parcels include First Methodist Church.	Developer	Provide appropriate funding to expedite relocations when necessary.	Analysis with different schedules and impact on acquisition and delay costs.
<b>Risks Pertinent to All NTE Facilities</b>					
<b>Environmental Risks</b>					
Before	NEPA Approval and other environmental approval(s); NEPA Delays	Termination of Facility Agreement;	TxDOT	Timely completion of the Project schematics	N/A
Before/ After	Archeological sites, paleontological sites, and/or cultural resources existing within, at, or near the Facility Right of Way	Delay in schedule and increased project costs	Developer/ TxDOT	Make event a Relief Event and a Compensation Event under the terms of the Facility Agreement	N/A
Before/ After	Discovery of hazardous/contaminated materials; remediation and liabilities	Clean up costs; additional removal costs, delay	Developer/ TxDOT	Back-to-back contract with contractor; Insurance; due-diligence	N/A
After	Community/business impacts (Access, visibility, dust, noise, visual, airborne pollution, etc)	Mitigation costs, additional costs; redesign; additional costs; delay; legal liability; damages payable; penalties; fines	Developer/ TxDOT	Back-to-back contract with contractor; Insurance; due-diligence	N/A
Before/ After	Ground & soil conditions; Biological resources, endangered species	Delay, additional costs, redesign	Developer/ TxDOT	Back-to-back contract with contractor; Compensation; time extension; rights to termination; Adequate surveying during design stage	N/A

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
After	Contamination of third party land / property	Legal liabilities, damages payable	Developer	Back-to-back contract with contractor; Insurance; due-diligence	N/A
After	Contamination of project facilities / contract works	Own site cleanup costs; Delay/inability to accept traffic; Damage to Project Facilities	Developer	Compensation; time extension; rights to termination	N/A
<b>Design / Construction Risks</b>					
Before	ROW acquisition - Condemnation	High percentage of parcels are expected to enter the condemnation process	Developer	Identify high-risk parcels prior to NTP1 through review of NEPA documents, discussion with TxDOT and public meetings. During Facility Development Work, strategies for acquisition of specific high-risk parcels shall be developed.	NA
After	Increase in the number of General Purpose Lanes from existing configuration	Project is not financeable	TxDOT	Make event a Compensation Event under the terms of the Facility Agreement	NA
After	Failure/ Inadequate design and/or non compliance with Design Standards and Criteria	Damage to works, delays, design, construction and/or O&M additional costs; penalties	Developer	Back-to-back contract with contractor; Design audit by an independent consultant; Professional indemnity cover	N/A
After	Overloaded design and engineering market capacity	Delays, additional costs.	Developer/ TxDOT	Rational sequencing and phasing of the facilities	N/A
After	Ability to meet established design milestones; Performance / efficiency shortfalls	Delay; increased costs; penalties; cancellation and costs	Developer	Back-to-back contract with contractor; Adequate quality management plan	Analysis with different process lengths
After	Owner directed changes and design reviews	Delays, additional costs.	Developer/ TxDOT	Adequate analysis prior to Facility Agreement	N/A
After	Changes in Design Standards and Criteria	Delays, additional costs.	Developer/ TxDOT	Compensation if changes occur after Execution of Facility Agreement	N/A
After	Noncompliance with Design Standards and Criteria due to the use of inadequate Technology	Delays, additional costs.	Developer	Back-to-back contract with contractor; Audit by an independent consultant.	N/A
After	Geotechnical and other data inaccuracies (input/output)	Damage to works, delays, additional costs.	Developer	Back-to-back contract with contractor; Adequate quality management plan; Audit by an independent consultant	N/A
After	Design defects affecting constructability	Delays, additional costs	Developer	Back-to-back contract with contractor; Audit by an independent consultant	N/A
After	Latent defects in property following hand back – transfer of title	Damage and costs of reinstatement/repair Delay; penalties; inability to accept traffic; loss of revenue.	Developer	Back-to-back contract with contractor; Adequate quality management plan; Audit by an independent consultant	N/A
After	Failures; Non conforming work and defects discovered prior and post-Acceptance	Delays; additional costs; Total/partial Interruption in infrastructure service	Developer	Back-to-back contract with contractor; Construction oversight by an independent consultant; Insurance	Analysis of impact of different construction period lengths and different construction prices
After	Loss, destruction or damage to existing property, project facilities or construction plant and equipment; Theft	Debris removal, construction delay, additional costs, penalties	Developer	Back-to-back contract with contractor; Insurance, time extension	Analysis of impact of different construction period lengths and different construction prices

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
After	Differing Subsurface (Ground water level and contamination, geologic formations, etc) and Surface Conditions	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Adequate quality control during design stage	Analysis of impact of different construction period lengths and different construction prices
After	Incorrect control survey data	Delays, additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate quality control	Analysis of impact of different construction period lengths
After	Adequacy of construction access	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate construction planning and schedule	Analysis of impact of different construction period lengths
After	Early construction/Design changes affecting construction already underway	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate construction planning and schedule	Analysis of impact of different construction period lengths
After	Coordination with other projects and with adjacent property owners	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate management, construction planning and schedule	Analysis of impact of different construction period lengths
After	Lack of general maintenance during construction; maintenance of traffic requirements	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor adequate management, construction planning	N/A
After	Adverse weather	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Identification, requirements, agreements and relocation of utilities	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Contractual non-performance	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Breach of site - Health and Safety	Injuries of workers; increased costs; delays	Developer	Back-to-back contract with contractor; Insurance	N/A
After	Breach of site - Security	Increased costs and delays	Developer	Back-to-back contract with contractor; Insurance	N/A
After	Quality and availability of Equipment, Materials and Labor	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Quality and availability of Equipment, Materials and Labor	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
<b>Political/ Legal Risks</b>					
Before/ After	Change sales tax	Increased costs	TxDOT	Compensation	Analysis with different sales tax rates
Before/ After	Breach of existing legislation	Penalties, delay, consequential losses, additional costs, loss of revenue	Developer	Adequate legal advice; experienced management	N/A

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
Before/ After	Breach of obligations/ agreements by private sector	Penalties, suspension of payment, suspension of performance, application of sums to credit of retention account, termination and costs	Developer	Back-to-back contract with contractor; experienced management	N/A
Before/ After	Breach of obligations by public sector	Penalties/ suspension/ termination and costs	TxDOT	Compensation; rights to termination	N/A
Before/ After	Breach of third party intellectual property rights	Penalties, damages	Developer	Adequate legal advice	N/A
Before/ After	Force majeure (natural catastrophes, war, sabotage, terrorism)	Delay additional costs; Parties relieved from liabilities to the extent they are not able to perform their obligations under the agreement; termination; Cancellation; costs to date; damage/reinstatement/rectification costs	TxDOT	Typically borne by the public sector, the Developer is provided with adequate compensation; relief with respect to certain contractual obligations; time extension; rights to termination. To minimize cost impact, implement and train staff to respond according to operation and maintenance management plans. Establish mobility for essential services.	N/A
After	Protestor action, Strikes/Labor disputes	Delay, additional costs, damage	TxDOT/ Developer	Compensation; time extension; rights to termination	N/A
After	Requisition/ seizure of project facilities by TxDOT	Termination; cost incurred	TxDOT	Compensation; time extension; rights to termination	N/A
<b>Financial Risks</b>					
Before	TIFIA Credit Assistance	Project is not financially feasible without TIFIA Credit Assistance	Developer/ TxDOT	When a Ready for Development Letter is issued for a project, TxDOT and the Developer collaborate to prepare letters of interest and applications for TIFIA Credit Assistance according to TIFIA Joint Program Office Schedule. Both TxDOT and the Developer, maintain contact and initiate meetings/correspondence with TIFIA Joint Program Office Schedule. Delay execution of the Facility Agreement until a project is accepted for TIFIA credit assistance. Provide a provision in the Facility Agreement that protects Developer from being in default and liable for liquidated damages if TIFIA is a part of the initial financing under the Developer's Facility Plan of Finance and TIFIA Joint Program Office does not provide TIFIA for the project.	N/A

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
Before	Private Activity Bonds (PABs) Availability	Project is not financially feasible without PABs	Developer/ TxDOT	When a Ready for Development Letter is issued for a project, TxDOT and the Developer collaborate to prepare an application for PABs amount included in financial plans presented by Developer. Identify PABs issuer prior to USDOT approval. Delay execution of the Facility Agreement until approval of the application by USDOT. Provide a provision in the Facility Agreement that protects Developer from being in default and liable for liquidated damages if PABs is a part of the initial financing under the Developer's Facility Plan of Finance and the PABs Issuer or TxDOT fails to comply with the terms of the PABs Agreement or the withdrawal, rescission or revocation of the PABs allocation by the USDOT Secretary in the amount approved by the USDOT Secretary where such failure directly causes inability to achieve Financial Close by the deadline.	N/A
Before	Public funds availability	Project is not financially feasible without amount identified in financial plan. Project scope is altered. Risks allocation is transferred from Developer to TxDOT.	Developer/ TxDOT	TxDOT should identify maximum amount of public funds available for project. TxDOT and Developer should agree on final scope during FIP and the amount of public funds required. The sufficient availability of public funds is closely related to TIFIA and PABs availability. Securing TIFIA and PABs mitigates this risk.	N/A
Before	Project being rated as investment grade	Higher debt costs	Developer	Complete thorough due diligence and maximize use of public funds	N/A
After	Traffic projections are not realized	Loss of revenues	Developer	Investment grade traffic studies are prepared and audited by an independent specialist consultant to provide enough comfort to lenders	Analysis with different traffic assumptions
After	Toll evasion	Loss of revenue	NTTA	Risk is transferred to NTTA through Tolling Services Agreement	Recourse to Tolling Services Agreement
Before / After	Competing Facilities built	Loss of revenue	TxDOT/ Developer	Clearly establish criteria in the Facility Agreement for capacity improvements and facility extensions including traffic monitoring to provide data for resolving issues.	Traffic and revenue forecasts defining competing facility scenarios
Before/ After	Connecting Facilities not built	Loss of revenues	TxDOT/ Developer	Coordination with local entities and realistic traffic and revenue forecasts considering competing facilities scenarios	Traffic and revenue forecasts defining connecting facility scenarios
Before/ After	Inflation	Increased costs	Developer	Fixed lump sum is part of Back-to-back contract with contractor. Operational costs are indexed being mostly covered through indexation of toll rates	Analysis carried out with different CPI Forecasts
Before	Interest rates (pre-Close of Finance)	Increased costs	TxDOT/ Developer	Consider various financial tools depending on the volatility of the market at that time.	N/A

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
After	Interest rates (post Close of Finance)	Increased costs	Developer	Hedging plan will be established in accordance with lenders' request. The Developer will conclude a fixed interest rate swap for all/part of the loan term. Alternatively, the Developer can borrow the funds using fixed rate instruments.	Analysis carried out with different interest rates
After	Refinancing	Additional (or lower) cost of financing	Developer	For concessions under 40 years, sufficiently long term financing can be put in place to eliminate this risk although refinancing gains can also occur as project risks typically decrease after construction, the project may outperform expectations and there may be a general decrease in rates. For longer concession period, the private sector takes a view on long-term rates and the level of refinancing risk.	Analysis carried out with alternative financing structures to the extent this risk is not already mitigated
<b>Planning and Approvals Risks</b>					
Before/ After	Procurement and performance of Federal, State Agencies and Local Agencies permits and approvals (environmental and others)	Delay, increase costs; penalties; Cancellation; costs to date	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths
After	Planning approval overturned	Delay, increase costs, penalties Cancellation; costs to date	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths
After	Planning approval not covering all works	Delay, increased costs; penalties; Cancellation; costs to date	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths
<b>Operation and Maintenance Risks</b>					
After	Operating performance	Penalties, additional costs	Developer	Operations manual that will describe the operating procedures to maintain the standard levels.	Analysis carried out with different operation costs.
After	Liability to users	User's claims.	Developer	Adequate customer service.	N/A
After	Incidents	Decreasing in level of service	Developer	Establishment of an emergency service operation procedure	N/A
After	Inadequate infrastructure maintenance	Decreasing in level of service. Close of infrastructure	Developer	Developer will establish an adequate maintenance procedure plan.	Analysis with different maintenance costs
<b>Other Events Risks</b>					
After	Identification and establishment of Right of Way limits (utility easements, temporary construction easements)	Delays, increased costs	Developer	Adequate control during the design process	N/A
After	Injury, damage or financial loss caused by or arising from the project (other than injury to own employees)	Legal liability to pay claimants costs and expenses and own costs and expenses	Developer	Insurance should include legal liability/ contractual liability	N/A
After	Unavoidable loss, destruction or damage to third party property	Legal liability to pay claimant's costs and expenses	TxDOT/ Developer	Safety training in compliance with operations and maintenance plan. Implement zero tolerance policies for safety violations.	N/A

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
After	Employees' injury, death, etc. sustained by other project participants/ staff	Legal liability to pay claimants costs and expenses and own costs and expenses	TxDOT/ Developer	Safety training in compliance with operations and maintenance plan. Implement zero tolerance policies for safety violations.	N/A
After	Employees' liabilities relating to breach of contract / wrongful dismissal / loss of earnings	Legal liability to pay claimant costs and expenses and own costs and expenses	Developer	Adequate management of human resources	N/A
After	Cost of procuring sub-contractors	Increased costs	Developer	Back-to-back contractor; Quality Procedures; monitoring supply-chain of materials and logistics of multiple subcontractors; Self-perform operation and maintenance activity previously subcontracted.	N/A

It is important to highlight that in a concession model (i.e. Design, Build, Finance and Operate delivery method) the design and construction costs are included as a firm fixed price that accounts for specific financial close and operation date. The agreement between the Developer and the Design-Build contractor, included in the previous risk matrix as “back-to-back contract with contractor,” is the tool through which the Developer manages the risks related to the design and construction process that would be borne directly by the contractor in a different delivery method. In a back-to-back contract, certain risks, obligations and liabilities under an executed Facility Agreement for the design and construction work will flow through to, and are to be borne or performed by the Design-Build Contractor. However, the Developer will remain ultimately responsible for risks, obligations, and liabilities under an executed Facility Agreement. The Design-Build Contract may pass along risks, obligations and liabilities to the extent agreed between those two parties, but nothing in the Design-Build Contract will release the Developer from its responsibilities to TxDOT under the executed Facility Agreement.

## 12.2 Risk Quantification

Once risks have been identified, a risk quantification methodology will be applied that will address the CDA requirements. Since every identified Facility on the NTE Project will have its own procurement process (e.g., its own and particular design, construction, political, legal, financing, environmental and approval singularities), the ranking process will be specific to each Facility and will relatively classify the significance of each risk item.

The quantification methodology applied is based on the multiplication of the following factors:

- Probability index or risk likelihood occurrence. It is determined in the risk matrix and it is based in the evaluator’s expertise and judgment:
  - High (3) when its probability of occurrence ranges from 75% to 100%.
  - Medium (2) when its probability of occurrence ranges from 50% to 75%.
  - Low (1) when its probability of occurrence is below 50%.
- Determination of the risk potential impact. It is based on the evaluator’s judgment and logic, quantified as follows:
  - High (3).
  - Medium (2).
  - Low (1).

As a rule, due to higher uncertainty over requirements imposed by third parties and the inability to control third parties’ decisions, risks related to third parties are often given a high impact rating. The impact is understood as negative impact either to the Developer or to TxDOT.

The ratings found in Table 12-2 are calculated by multiplying the probability index and the potential impact.

Table 12-2: Risk Quantification

Risk	Probability	Impact	Rating
<b>Key Facility-Specific Risks</b>			
ROW acquisition – Relocation (Segment 3A)	2	2	4
Concession term start date is date for execution of the North Tarrant Express Segments 2 Through 4 CDA (Segment 3A and 3B, other segments in future)	3	2	6
Trinity River Bridge South Abutments over the Trinity River levees not approved by the floodplain administrator (Segments 3B and 3C)	2	2	4
ROW acquisition – Relocation (Segment 2E)	2	2	4
<b>Risks Pertinent to All NTE Facilities</b>			
<b>Environmental Risks</b>			
NEPA Approval and other environmental approval(s); NEPA Delays	1	3	3
Archeological sites, paleontological sites, and/or cultural resources existing within, at, or near the Facility Right of Way	3	2	6
Hazardous Materials	3	3	9
Relocations/Displacements	1	2	2
Environmental Justice/Limited English Proficiency	1	2	2
Noise Impacts and Mitigation	1	2	2
Section 4(f) Resources (Publicly-owned Recreational Resources; Historic Age Properties)	1	2	2
Farmlands	1	1	1
Air Quality	1	1	1
State Listed Threatened/Endangered Species and Non-regulated Habitat	1	1	1

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Risk	Probability	Impact	Rating
Federally-Listed Threatened/ Endangered Species and MBTA	1	2	2
Wetlands/WOTUS	3	2	6
State Water Quality Certification	3	1	3
Storm Water Pollution Prevention Plan	3	1	3
Water Wells	1	1	1
Historic Properties, Archeological Sites, Projects Affecting Tribal Lands	2	3	6
Indirect and Cumulative Impacts	1	3	3
Floodplains	1	1	1
<b>Design / Construction Risks</b>			
ROW acquisition - Condemnation	2	2	4
Increase in the number of General Purpose Lanes from existing configuration	1	3	3
Failure/Inadequate design and/or noncompliance with Design Standards & Criteria	1	1	1
Overloaded design & engineering market capacity	1	1	1
Ability to meet established design milestones; Performance/ efficiency shortfalls	1	1	1
Owner directed changes and design reviews	1	2	2
Changes in Design Standards & Criteria	2	2	4
Noncompliance with Design Standards & Criteria due to the use of inadequate Technology	1	2	2
Design defects affecting constructability	1	2	2
Latent defects in property following hand back-transfer of title	1	2	2
Failures; Nonconforming work and defects discovered prior and post-Acceptance	2	2	4
Loss, destruction or damage to existing property, project facilities or construction plant and equipment; Theft	1	1	1
Differing Subsurface (Ground water level and contamination, geologic formations, etc.)	1	1	1
Incorrect survey control data	1	1	1

Risk	Probability	Impact	Rating
Adequacy of construction access	1	1	1
Early construction/ Design changes affecting construction already underway	1	2	2
Coordination with other projects and with adjacent property owners	1	2	2
Lack of general maintenance during construction; maintenance of traffic requirements	1	1	1
Adverse weather	2	2	4
Identification, requirements, agreements and relocation of utilities	1	1	1
Contractual non-performance	2	2	4
Breach of site- Health & Safety	1	3	3
Breach of site- Security	1	1	1
Quality and availability of Equipment, Materials and Labor	2	1	2
<b>Political/ Legal Risks</b>			
Change in sales tax	1	3	3
Breach of existing legislation	1	3	3
Breach of obligations/ agreements by private sector	1	2	2
Breach of obligations by public sector	1	3	3
Breach of third party intellectual property rights	1	1	1
Force majeure (natural catastrophes, war, sabotage, terrorism)	1	3	3
Protestor action, Strikes/ Labor disputes	2	1	2
Requisition/ seizure of project facilities by TxDOT	1	3	3
<b>Financial Risks</b>			
TIFIA Credit Assistance	1	3	3
Private Activity Bonds (PABs) Availability	2	2	4
Public funds availability	2	3	6
Project being rated as investment grade	1	3	3

Risk	Probability	Impact	Rating
Traffic projections are not realized	2	2	4
Toll evasion	2	1	2
Competing Facilities built	1	2	2
Connecting Facilities not built	2	1	2
Inflation	2	3	6
Interest rates (pre financial close)	3	2	6
Interest rates (post financial close)	3	2	6
Refinancing	1	2	2
<b>Planning and Approvals Risks</b>			
Procurement and performance of Federal, State and Local Agencies permits and approvals (environmental and others)	2	3	6
Planning approval overturned	1	3	3
Planning approval not covering all works	1	3	3
Defective title	1	3	3
<b>Operation and Maintenance Risks</b>			
Operating performance	1	2	2
Liability to users	2	2	4
Collisions	2	1	2
Inadequate infrastructure maintenance	1	2	2
<b>Other Events Risks</b>			
Identification and establishment of Right-of-Way limits (utility easements, temporary construction easements)	1	3	3
Injury, damage or financial loss caused by or arising from the project (other than injury to own employees)	1	2	2
Inevitable loss, destruction or damage to third party property	1	2	2
Employees' injury, death, etc. sustained by other project participants/staff	1	3	3
Employees' liabilities relating to breach of contract/ wrongful dismissal/ loss of earnings	1	1	1
Cost of procuring sub-contractors	2	1	2
Residual value risk	2	2	4