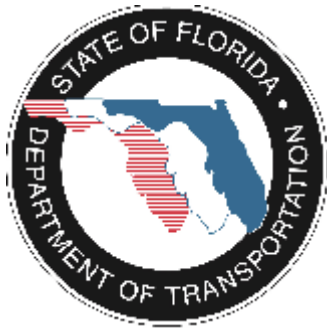


Cost Risk Assessment Final Report

Official Project Title: State Road 826/Palmetto Expressway
from SR 836/Dolphin Expressway to
State Road 932/NW 103 St

Project Location: Miami-Dade County,
Department of Transportation, District 6

Project Manager: Judy Solaun-Gonzalez, P.E.
Risk Lead: Tarek Bahgat, PMA Consultants LLC



INITIAL RISK WORKSHOP: May 7th- May 9th 2012

Richard L. Johnson, PE No. 38681

July 9, 2012



Table of Contents

Executive Summary	3
Identification and Qualification:	3
Quantitative Analysis	3
Contingency Management	5
Mitigation Planning	6
1. Background.....	7
1.1. Project Overview	7
1.2. Risk Management Workshop Overview	8
2. Risk Identification and Quantification	8
2.1. Identification	8
2.2. Qualification.....	10
2.2.1. Probability Scale.....	10
2.2.2. Top Threats.....	11
2.2.3. Top Opportunities	13
3. Quantitative Analysis.....	14
3.1. Risk Model.....	14
3.1.1. Project Budget	14
3.1.2. Line Item Ranging	15
3.2. Results:	17
3.2.1. Results for Scenario 1 - Threats Only Model:	17
3.2.2. Results for Scenario 2 - Opportunities Only	21
3.2.3. Results for Scenario 3- Overall Model	24
4. Contingency Management	28
4.1 Line Item contingency:.....	28
4.2 Management Reserve.....	29
5. Mitigation Planning.....	30

Appendices

Qualitative Risk Register

Quantitative Risk Impacts on Budget

Presentation



Executive Summary

PMA Consultants LLC (PMA) was retained by FDOT to conduct a Cost Risk Assessment and facilitate a Risk Assessment Workshop in advance of a Value Engineering study for the SR 826 Managed Lanes Project. The study is intended to identify, qualify and quantify project risks and develop a draft mitigation plan for identified project risks. The project will provide two managed lanes in each direction of SR 826/Palmetto Expressway from SR 836/Dolphin Expressway to SR 932/NW 103rd Street, physically separated from the existing mainline travel lanes. The new managed lanes system along the median of SR 826 will be connecting to the I-75 managed lanes system under development in Miami-Dade and Broward Counties. PMA’s Risk Management process follows the FTA methodology. Over three days of workshop, the workshop team reviewed the project, identified, qualified and quantified the project Risks. The team also developed project mitigation plans for the top risks identified.

Identification and Qualification:

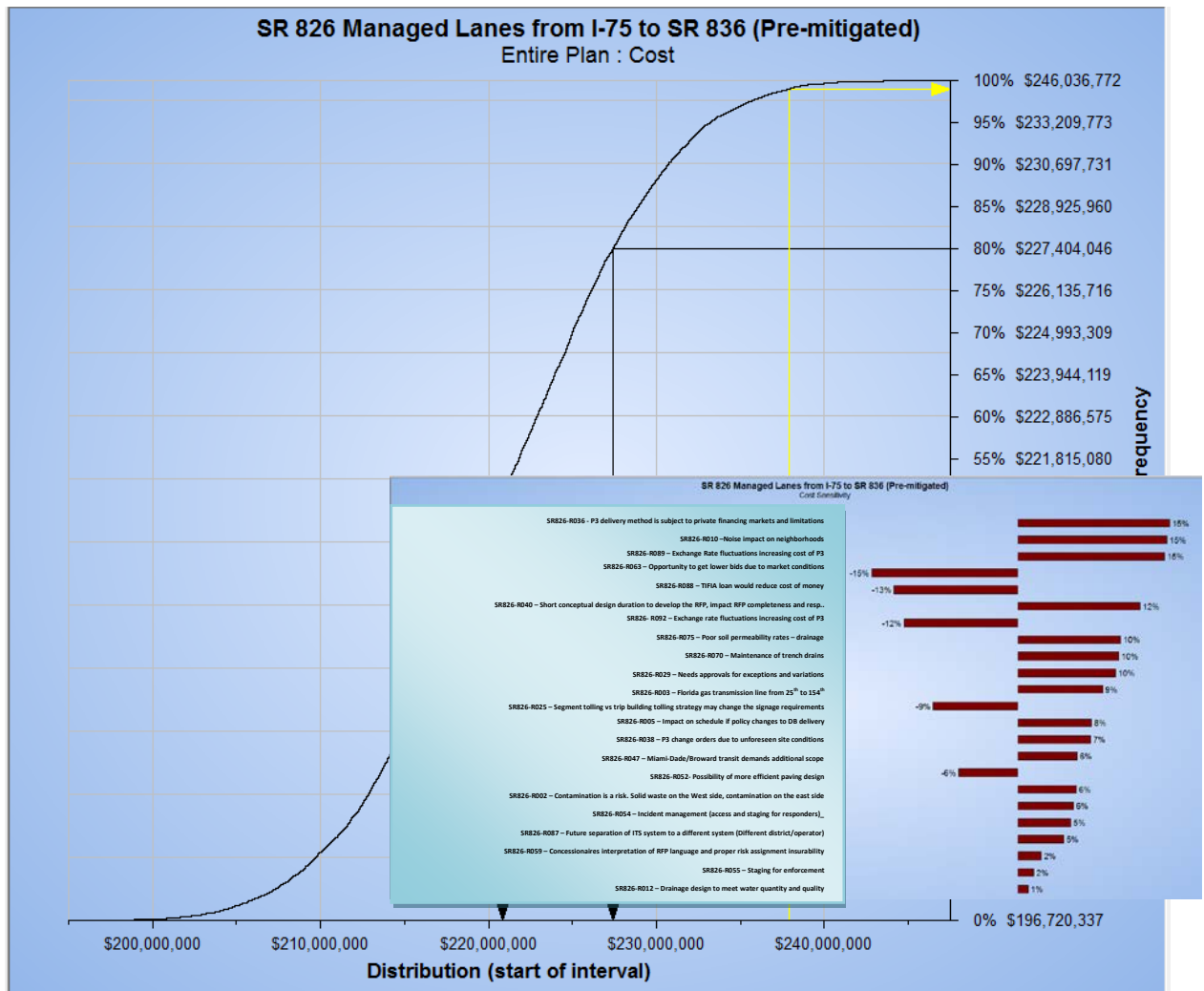
The first session of the workshop the team had vibrant discussions and round robin brain storming that resulted in identifying 92 risks of which 81 were carried forward. Of the 81 risks identified, 69 were threats with negative impact on the project cost and 12 were opportunities with potential cost savings, if materialized. During the second session of the workshop the team qualified the risks as High, Medium, or Low based on a scoring matrix measuring probability of risk occurrence and the gravity of impact the risk has on the project.

	Impact				
Probability	Very Low	Low	Medium	High	Very High
Very High			(2)	(8)	(6)
High		(2)	(2)	(4)	(4)
Medium		(2)	(4)	(4)	(6)
Low	(3)	(1)	(2)	(6)	(3)
Very Low	(2)	(3)		(3)	(2)

Quantitative Analysis

During the next session, the team began quantifying the risks and applying probabilistic cost ranges to the project budget and the identified risks. The risk model was then subjected to a Monte Carlo simulation of 10,000 randomized iterations. Based on the simulation, the baseline Budget of \$200,692,496 (Project budget less contingency) has less than 5% probability of occurrence. On the other hand considering the potential savings from the opportunities the project has a 99% chance of completion within the overall budget of \$237,876,127 (Industry practice is to use a 90% confidence level). The 90% percentile cost probability is \$230,697,731 which indicates that at this level of confidence, \$30,005,235 is needed for contingency compared to the \$37,183,631 considered in the estimate.

The overall model scenario assumes that both threats and opportunities may materialize on the project and the total project cost distribution is shown below:



The top ten risk threats are:

SR826-R036 P3 private financing markets and limitations

P3 delivery method is subject to private financing markets and limitations
 Impacts project costs and, in worst case, resulting in inability to fund project.

SR826-R010 Noise impact on neighborhoods

Increased noise level due to added traffic, adding noise walls would not reduce noise levels sufficient to warrant walls, resulting in increased noise level.

SR826-R089 Exchange rate fluctuations increasing cost of P3

P3 delivery methods will involve multinational firms and the currency market fluctuations may impact P3 pricing resulting in increased P3 Cost

SR826-R003 Florida Gas Transmission Line from 25th to 154th

20 inch Gas line: Widening may encroach closer to the gas line. Compensation for relocation for gas utility line resulting in increased project cost.

SR826-R029 Threat Needs Approvals for exceptions and variations

Exceptions and variation needed from FDOT & FHWA to avoid right of way acquisitions, risk of additional costs for acquiring right of way and schedule delay and negative impacts to the community.

**SR826-R075 Poor Soil Permeability Rates - Drainage**

Poor soil may require additional drainage treatment and right of way resulting in additional construction cost and right of way acquisition and increase maintenance cost.

SR826-R040 Short conceptual design duration to develop the RFP

Short conceptual design duration to develop the RFP will impact RFP completeness and response risks.

Short time to develop RFP may result in higher bids or additional change orders.

SR826-R070 Maintenance of trench drains

O&M cost of maintaining trench drains with overall increase in Life Cycle Cost and higher P3 bid price.

SR826-R038 P3 Change orders due to unforeseen site conditions

Conceptual investigations are limited and Concessionaire's design process may capture unforeseen site conditions resulting in longer and more costly change orders due to P3 delivery method.

SR826-R005 Impact on schedule if policy changes to DB delivery

Department has to come up with entire project funding if DB is selected. Major schedule impact and high cost impact on this project

The top risk opportunities are:

SR826-R063 Opportunity to get lower bids due to market conditions

Current global market slowdown may increase competitive bidding from multinational firms which would result in lower bid prices for the project

SR826-R088 Transportation Infrastructure Finance and Innovation Act (TIFIA) loan would reduce cost of money

If the project qualifies for a TIFIA loan, the project will have access to lower cost of financing loans resulting in lower project cost.

SR826-R092 Exchange rate fluctuations reducing cost of P3

Exchange rates fluctuation provides global concessionaires the opportunity to take advantage of hedging on currency prices resulting in lower bids.

SR826-R025 Segment tolling versus trip building tolling

Strategy may change for the signage requirements for the project. Basis of Estimate considers segment tolling, design may adopt trip building tolling which may reduce initial and maintenance costs for signals.

SR826-R052 Possibility of more efficient paving design

Concessionaire may develop a more efficient paving design resulting in project cost savings.

Contingency Management

The current project contingency is **\$37,183,631** and is consistent with a 95% confidence level (P95) in overall project budget. Since this value is higher than the P90 it is our recommendation to maintain the overall project contingency. The total probabilistic line item contingency for the project is **\$30,645,289.00**. This contingency is managed by the project team and is drawn-down if the risk expires.

Based on the fact the probabilistic contingency is less than the budgeted contingency, it is our recommendation that the project maintain the budget and allocate a management reserve to address the "Unknown Unknowns".

Management Reserve = **\$37,183,631 – \$30,645,289 = \$6,538,342**



Mitigation Planning

The last session of the risk workshop focused on developing mitigation plans for the identified risks. The facilitator of the workshop was impressed by the project team’s awareness of many of the risks identified in the process, and by the fact that mitigations are already underway for some of the risks identified. It is our recommendation that the risk register and the mitigation plans developed during the workshop be maintained by the project team throughout the project duration to ensure adequate and satisfactory management of the project risks and budget.

The following table shows 10 of the mitigation actions developed, which could recognize cost savings if implemented

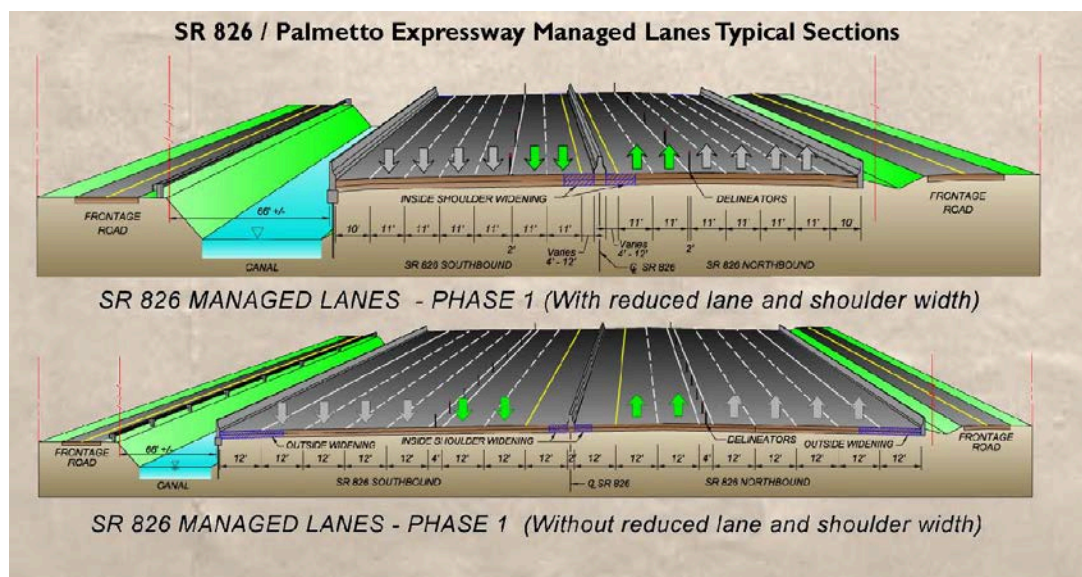
Mitigation Details			
Action	Name	Risk ID	Description
1	Ongoing mitigations with utilities with a \$7.9M cost bucket in the estimate.	SR826-R003	Negotiation with utilities is ongoing.
2	Early coordination with the RRs to acquire an MOU on the aerial right	SR826-R018	Incorporate MOU criteria in the RFP for P3
3	Team already conducting percolation tests to investigate soil conditions	SR826-R075	Include in RFP all drainage calculations and investigation results
4	Egress and ingress is already provided in the current design	SR826-R047	Continue coordination with MDT and county managers
5	Educate public and garner support	SR826-R013	Independent PIO consultant is already hired to educate the public and garner the support
6	Additional conduit infrastructure for potential future ITS system to be specified in the RFP	SR826-R087	Specify additional conduits for future Communication runs in the RFP
7	Persistence and diligence in pursuing TIFIA loan	SR826-R088	Department to develop a strategy to have a better application
8	Pursue other funding sources	SR826-R030	Continue to pursue TIFIA loan
		SR826-R030	Seek funding through turnpike Bonds
		SR826-R030	Seek federal funding and Grants
9	Obtain conceptual approval for drainage	SR826-R012	More meetings with the agency to seek approval and expedite process
10	Design alternative	SR826-R070	RFP to specify No Trench drains

1. Background

1.1. Project Overview

SR 826/Palmetto Expressway is one of the most traveled transportation corridors in Miami-Dade County. This multi-lane expressway extends from US-1 to the Golden Glades Interchange (GGI) for a distance of approximately 25 miles. Within the project study limits described above, the Palmetto Expressway corridor is an eight-lane divided limited access facility from SR 836 to NW 25th Street, and a ten-lane divided limited access facility from NW 25th Street to NW 103rd Street. The Palmetto Expressway provides system-level connections to SR 836, SR 924 and I-75. In addition, the Palmetto Expressway is designated as a Florida Intrastate Highway System (FIHS) and Strategic Intermodal System (SIS) facility.

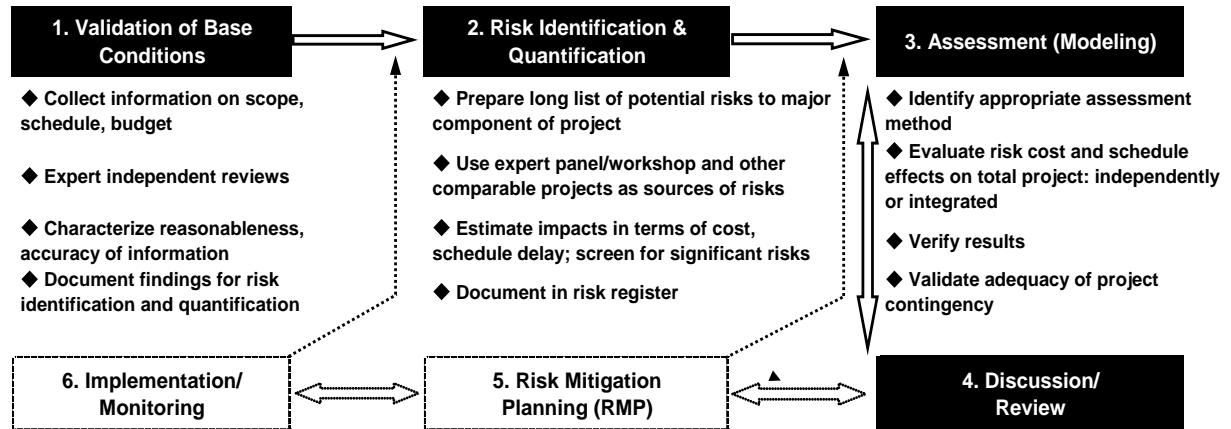
The purpose of this project is to add two tolled managed lanes to the SR 826 corridor in each direction from SR 836 to NW 103rd Street, and then continue the tolled managed lanes system connection through I-75. Constrained right-of-way presents challenges for accommodating future traffic growth by widening the SR 826 mainline. However, managed lanes could be incorporated along the corridor with moderate widening of the mainline or by restriping existing general purpose lanes.





1.2 Risk Management Workshop overview

PMA was retained by FDOT to conduct a Cost Risk Assessment and facilitate a risk assessment workshop in advance of a value engineering study. The Risk Assessment is intended to identify, qualify and quantify project risks and develop a draft mitigation plan for identified project risks. The workshop was organized in the following stages consistent with the Federal Transit Administration (FTA) Risk Analysis methodology:



This report describes the process and results of the cost risk analysis for the SR- 826 Managed Lanes Project.

- **Section 2:** Discusses the Risk Identification and quantification,
- **Section 3:** Presents the results of the risk assessment.
- **Section 4:** Presents an evaluation of the project contingencies in light of the risk assessment
- **Section 5:** Examines Risks Mitigation planning.

2. Risk Identification and Quantification

2.1. Identification

The FDOT project team, design consultants and FDOT subject matter experts (SMEs) convened for a facilitated three day risk workshop during the period of May 7th – May 9th. During the first session of the workshop 92 risks were identified of which 11 were subsequently dropped. Of the remaining 81 risks; 69 were identified as threats while 12 were considered opportunities. (*Usage of the term “risk” includes both threats and opportunities. “Threat risk” incidences have a negative impact on the project while “opportunities” have a positive outcome.*)

The Threats were grouped into the following categories identified by the workshop team:

- Construction (6)¹
- Contracting and Procurement (6)
- Design and PS&E (7)
- Environmental and Hydraulics (7)
- Maintenance (1)
- Management Funding (1)

¹ Numbers in parentheses indicate the number of items in each category.
SR 826 Managed Lanes Risk Assessment Final Report.docx



- Permitting (2)
- Political Issues (7)
- Project Management (6)
- Right of Way (1)
- Structural and Geotechnical (2)
- Traffic Management (8)
- Utilities and Railroads (5)

The Opportunities were grouped into the following categories identified by the workshop team:

- Construction (1)
- Contracting and Procurement (2)
- Design and PS&E (3)
- Environmental and Hydraulics (1)
- Management Funding (3)
- New Technologies (1)
- Traffic Management (2)



2.2. Qualification

During the second session of the workshop, risks were further ranked based on the probability of occurrence and magnitude of impact according to the following scoring scales:

2.2.1. Probability Scale

Very Low	Low	Medium	High	Very High
Up to 10%	10% to 30%	30% to 50%	50% to 70%	70% or higher

Impact Scales and Types

	Very Low	Low	Medium	High	Very High
Schedule*	Up to 30	30 to 60	60 to 120	120 to 180	180 or higher
Cost*	Up to \$250,000	\$250,000 to \$500,000	\$500,000 to \$1,000,000	\$1,000,000 to \$1,500,000	\$1,500,000 or higher
Performance*	Failure to meet a minor acceptance criteria	Failure to meet more than one minor acceptance criteria	Shortfall in meeting acceptance criteria	Significant shortfall in meeting acceptance criteria	Failure to meet acceptance criteria

* means impact is used in scoring

Probability and Impact Scoring Diagram (PID)

Probability	Impact				
	Very Low	Low	Medium	High	Very High
Very High	6	12	18	36	72
High	4	7	14	28	56
Medium	3	5	10	20	40
Low	2	3	6	12	24
Very Low	1	1	2	4	8

Key

Up to 5	5 to 23	23 or higher
---------	---------	--------------

The Probability and Impact scoring Diagram above represents the basis for the scoring scale used on the project risks and the following Project Risks Scores Matrix was developed to identify the counts of the risks on the project that fall into each of the groupings, i.e. six risks had very high probability of occurrence and a very high impact, while only two risks had very low probability and very low impact.

Probability	Impact				
	Very Low	Low	Medium	High	Very High
Very High			(2)	(8)	(6)
High		(2)	(2)	(4)	(4)
Medium		(2)	(4)	(4)	(6)
Low	(3)	(1)	(2)	(6)	(3)
Very Low	(2)	(3)		(3)	(2)



Risks that scored 36 and higher were further considered for further evaluation, quantitative analysis, and mitigation planning. The following is a tabulation of the **Top Risks** (threats & Opportunities) that scored more than 36 on the above scale:

2.2.2. Top Threats

ID	Category	Type	Title	Description	Effect	Pre-mitigation Score
SR826-R003	Utilities and Rail Roads	Threat	Florida Gas Transmission Line from 25th to 154th	20 inch Gas line: Widening may encroach closer to the gas line	Compensation for relocation for gas utility line	72
SR826-R013	Political Issues	Threat	Never ending construction, additional Tolls	Public perception of continuing construction impact after completion of (12 projects)	Public opposition to the project, driver confusion	72
SR826-R012	Environmental & hydraulics	Threat	Drainage design to meet water quantity and quality	Design may have to meet the new permitting requirements, or meeting existing criteria. May result in added French drains or acquiring rights of way to build ponds.	Additional cost and right of way, and delayed schedule	72
SR826-R070	Environmental & hydraulics	Threat	Maintenance of trench drains	O&M cost of maintaining trench drains	Overall increase in Life Cycle Cost	72
SR826-R029	Design and PS&E	Threat	Needs Approvals for exceptions and variations	Exceptions and variation needed from FDOT & FHWA to avoid right of way acquisitions	Cost of acquiring right of way and schedule delay and negative impacts to the community	72
SR826-R040	Design and PS&E	Threat	Short time to Develop RFP	Short conceptual design duration to develop the RFP, impact RFP completeness and response risks	Impact RFP completeness and response to risk, and additional change orders	72
SR826-R036	Management Funding	Threat	P3 private financing markets and limitations	P3 delivery method is subject to private financing markets and limitations	Impacts project costs and, in worst case, inability to fund project	56
SR826-R010	Environmental & hydraulics	Threat	Noise impact on neighborhoods	Increased noise level due to added traffic. Adding noise walls would not reduce noise levels sufficient to warrant walls	Increased noise level	56



ID	Category	Type	Title	Description	Effect	Pre-mitigation Score
SR826-R005	Design and PS&E	Threat	Impact on schedule if Policy Changes to DB delivery	Department has to come up with entire project funding if DB is selected	Major schedule impact and high cost impact on the projects	56
SR826-R089	Management Funding	Threat	Exchange Rate fluctuations increasing cost of P3	P3 delivery methods will involve multinational firms and currency market fluctuations may impact P3 pricing	Increase P3 Cost	40
SR826-R080	Contracting and Procurement	Threat	Procurement Process Protests	P3 Bidders contest procurement process	Delay the award	40
SR826-R018	Utilities and Rail Roads	Threat	Crossing several railroads, Metro Rail, aerial rights and TCEs	Acquire aerial rights over RR tracks prior to issuance of RFP	Delay in RFP, increased construction costs	36
SR826-R006	Traffic Management	Threat	Ramp signaling implementation	Queuing and backup on the arterials may be more than designed	Queuing, additional cost to ramp widening and may need to adjust signal phasing	36
SR826-R055	Traffic Management	Threat	Staging for Enforcement	Reduced shoulders does not allow sufficient room for Police enforcement	Cannot regulate speed on managed lanes	36
SR826-R054	Traffic Management	Threat	Incident management (access and staging for responders)	Reduced shoulder does not allow for refuge to disabled vehicles and responders	Closed lanes and loss of revenue, and traffic congestion, life safety issue	36
SR826-R030	Management Funding	Threat	Construction funds only \$5 M identified	By 2017, need to make available the shortfall in financing gap	Cannot move forward with the project without impact on capital program and support for it	36
SR826-R002	Environmental & hydraulics	Threat	Contamination is a risk	Solid wastes on the west side, chemical contamination on the east side	High remediation and cleanup cost	36
SR826-R059	Contracting and Procurement	Threat	Concessionaires interpretation of RFP	Concessionaires different interpretation of RFP language and proper risk assignment and insurability	Increased Project cost of the project	36



2.2.3. Top Opportunities

ID	Category	Type	Title	Description	Effect	Pre-mitigation Score
SR826-R063	Contracting and Procurement	Opportunity	Opportunity to get lower bids due to market conditions		Lower Project Cost	56
SR826-R041	Traffic Management	Opportunity	Increase capacity for thru traffic at the interchange of 826 & 836		Improved Project Performance	40
SR826-R092	Management Funding	Opportunity	Exchange Rate fluctuations reducing cost of P3		Lower project cost	40
SR826-R088	Management Funding	Opportunity	TIFIA loan would reduce cost of money	Pursue TIFIA funding for the project	Lower project cost	40
SR826-R056	Design and PS&E	Opportunity	Reduce gantry locations			40
SR826-R052	Design and PS&E	Opportunity	Possibility of more efficient paving design			36



3. Quantitative Analysis

3.1. Risk Model

3.1.1. Project Budget

The risk cost model is based on the project budget as provided by the Project Team for the last session of the workshop. The total project budget of **\$237,876,127** included direct construction costs of **\$139,683,060**, and contingency of **\$37,183,631**. Initial budget was reviewed by PMA’s risk analyst and estimator and the quantities appear to be consistent with the project scope and the pricing is within range of the low and high construction unit rates historic records by district 4 and in the state of Florida. Contingency represents 27% of construction costs and is consistent with the preliminary design stage contingency levels in the industry. Initial budget less contingency, **\$200,692,496**, was used as the basis of the risk model.

ID	Description	Budget
	Direct Construction Costs	Deterministic
30	Clearing and Grubbing	\$1,287,968
40	Roadwork	\$20,326,059
45	Bulkhead	\$2,378,247
130	Storm Drain Structures	\$2,235,156
120	Storm Drain Piping	\$1,329,668
50	French Drains	\$6,279,844
60	Concrete	\$1,985,096
70	Steel, Reinforcement & Sheet Piling	\$3,320,351
80	Traffic Barrier/Retaining Walls	\$22,788,347
90	Road Markings	\$389,214
100	Bridges	\$53,673,880
140	Lighting	\$240,200
160	Signing & Marking	\$3,117,036
170	Noise Wall	\$0
180	ITS & Tolling	\$13,199,988
190	Environmental Mitigation	\$300,000
200	Landscaping	\$1,000,000
210	Utilities	\$5,400,000
220	Fire Suppression Systems	\$432,006
	Direct Construction Costs Total	\$139,683,060
	Proforma Costs	
310	Contamination	\$1,200,000
320	Mobilization	\$15,365,137
330	Maintenance of Traffic	\$13,968,306
340	Contingency	\$37,183,631
350	CEI	\$14,776,239
360	DB Designing Fees	\$15,699,754
	Proforma Costs Total	\$98,193,067
	Total Project	\$237,876,127



3.1.2. Line Item Ranging

The detailed project budget was ranged based on the historic records of the unit prices for projects performed by FDOT in District 4, District 6, and State-wide. Three values for each line item were assessed:

Low: Lowest possible unit price for the line item based on unit prices data bases

Most Likely: Budget’s estimated unit prices

High: Highest possible rates for the line item based on the unit prices data base

During the workshop the team evaluated the ranges and accepted or modified the ranges. The following table represents the final ranging that was used for the risk model:

ID	Description	Budget	Ranging			Ranging % Budget		
		Deterministic	Low	Likely	High	Low %	Likely %	High %
A000	Direct Construction Costs							
30	Clearing and Grubbing	\$1,287,968	\$605,151	\$1,287,968	\$1,540,432	47%	100%	120%
40	Roadwork	\$20,326,059	\$14,800,802	\$20,326,059	\$24,067,264	73%	100%	118%
45	Bulkhead	\$2,378,247	\$2,376,098	\$2,378,247	\$4,158,514	100%	100%	175%
130	Storm Drain Str.	\$2,235,156	\$2,008,104	\$2,235,156	\$2,413,387	90%	100%	108%
120	Sorm Drain Piping	\$1,329,668	\$1,190,533	\$1,329,668	\$1,898,670	90%	100%	143%
50	French Drains	\$6,279,844	\$5,168,144	\$6,279,844	\$7,221,821	82%	100%	115%
60	Concrete	\$1,985,096	\$1,786,586	\$1,985,096	\$2,235,371	90%	100%	113%
70	Steel, Reinforcement & sheet Piling	\$3,320,351	\$1,936,084	\$3,320,351	\$4,515,234	58%	100%	136%
80	Traffic Barrier/Retaining Walls	\$22,788,347	\$18,945,941	\$22,788,347	\$28,485,434	83%	100%	125%
90	Road Markings	\$389,214	\$355,572	\$389,214	\$712,086	91%	100%	183%
100	Bridges	\$53,673,880	\$46,964,645	\$53,673,880	\$61,054,038	88%	100%	114%
140	Lighting	\$240,200	\$180,150	\$240,200	\$300,250	75%	100%	125%
160	Signing & Marking	\$3,117,036	\$2,805,332	\$3,117,036	\$3,428,740	90%	100%	110%
170	Noise Wall	\$0						
180	ITS & Tolling	\$13,199,988	\$11,879,989	\$13,199,988	\$14,519,987	90%	100%	110%
190	Environmental Mitigation	\$300,000	\$281,250	\$375,000	\$468,750	94%	125%	156%
200	Landscaping	\$1,000,000	\$750,000	\$1,000,000	\$2,127,870	75%	100%	213%
210	Utilities	\$5,400,000	\$5,625,000	\$7,500,000	\$9,375,000	104%	139%	174%
220	Fire Suppression Systems	\$432,006	\$324,005	\$432,006	\$540,008	75%	100%	125%
	Direct Construction Costs Total	\$139,683,060						
B000	Proforma Costs							
310	Contamination	\$1,200,000	\$1,125,000	\$1,200,000	\$1,875,000	94%	100%	156%
320	Mobilization	\$15,365,137	\$12,890,963	\$14,185,806	\$15,971,842	84%	92%	104%
330	Maintenance of Traffic	\$13,968,306	\$14,180,060	\$15,604,387	\$17,569,026	102%	112%	126%
340	Contingency	\$37,183,631	\$31,196,132	\$34,329,651	\$38,651,857	84%	92%	104%
350	CEI	\$14,776,239	\$13,839,738	\$15,229,882	\$17,147,369	94%	103%	116%
360	DB Desinging Fees	\$15,699,754	\$17,229,673	\$19,037,352	\$21,434,212	110%	121%	137%
	Proforma Costs Total	\$98,193,067						
	Total Project	\$237,876,127						

Please note that the probabilistic ranged items cannot be subtotaled. Randomization for analysis uses modified BetaPert distribution.

Risk Events impacts

The second component of the risk model is the impacts of the risk events identified during the qualitative sessions of the workshop. The risk events were introduced to the model in three different scenarios:



Scenario 1 - Threats Only Model: Simulates only threat risks that will impact the budget, i.e. assumes that no opportunities would materialize, and the project may not benefit of any potential savings due to these opportunities. This model will yield a more pessimistic outcome for the project.

Scenario 2 - Opportunities Only Model: Simulates a very optimistic model assumes that none of the threats will materialize. This simulation is also used to evaluate the effect on cost of the mitigation of project threats.

Scenario 3- Overall Model: This is the more realistic model which simulates the possibility of both threats and opportunities impacting the project costs.

The table below shows the ranging for the risk threats and opportunities impacting the project:

Risk ID	Title	Probability	Line Item Impacted	Minimum Impact \$	Likely Impact \$	Maximum Impact \$
SR826-R002	Contamination is a risk. Solid waste on the west side, contamination on the east side	85.00%	0310	1,000,000.00	1,250,000.00	1,500,000.00
SR826-R003	Florida Gas Transmission Line from 25th to 154th	85.00%	0210	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R005	Impact on schedule if Policy Changes to DB delivery	60.00%	0010	1,000,000.00	1,250,000.00	1,500,000.00
SR826-R010	Noise impact on neighbourhoods	60.00%	0170	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R012	Drainage design to meet water quantity and quality	85.00%	0050	-	41,666.67	83,333.33
			0130	-	41,666.67	83,333.33
			0120	-	41,666.67	83,333.33
SR826-R018	Crossing several rail roads, Metro Rail, aerial rights and TCEs	85.00%	0100	-	62,500.00	125,000.00
			0210	-	62,500.00	125,000.00
SR826-R025	Segment tolling vs trip buildingTolling strategy may change the signage requirements for the projects	60.00%	0160	500,000.00	625,000.00	750,000.00
			0180	500,000.00	625,000.00	750,000.00
SR826-R029	Needs Approvals for exceptions and variations	85.00%	0010	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R030	Construction funds only \$ 5 M identified	85.00%	0010	-	125,000.00	250,000.00
SR826-R036	P3 delivery method is subject to private financing markets and limitations	60.00%	0010	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R038	P3 Change orders due to unforeseen site conditions	60.00%	0210	250,000.00	312,500.00	375,000.00
			0080	250,000.00	312,500.00	375,000.00
			0100	250,000.00	312,500.00	375,000.00
			0040	250,000.00	312,500.00	375,000.00
SR826-R040	Short conceptual design duration to develop the RFP, impact RFP completeness and response risks	85.00%	0010	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R047	Miami-Dade/Broward transit demands additional scope	20.00%	0010	1,000,000.00	1,250,000.00	1,500,000.00
SR826-R052	Possibility of more efficient paving design	85.00%	0040	1,000,000.00	1,250,000.00	1,500,000.00
SR826-R054	incident management (access and staging for responders)_	85.00%	0040	250,000.00	375,000.00	500,000.00
			0180	250,000.00	375,000.00	500,000.00
SR826-R055	staging for Enforcement	85.00%	0180	250,000.00	375,000.00	500,000.00
			0040	250,000.00	375,000.00	500,000.00
SR826-R059	Concessionaires interpretation of RFP language and proper risk assignment insurability	85.00%	0010	1,000,000.00	1,250,000.00	1,500,000.00
SR826-R070	maintenance of trench drains	85.00%	0120	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R075	Poor Soil Permeability Rates- Drainage	20.00%	0120	500,000.00	750,000.00	1,000,000.00
			0130	500,000.00	750,000.00	1,000,000.00
			0050	500,000.00	750,000.00	1,000,000.00
SR826-R087	Future Separation of ITS sytem to a different system (Different District/Operator)	60.00%	0160	250,000.00	375,000.00	500,000.00
			0180	250,000.00	375,000.00	500,000.00
SR826-R088	TIFIA loan would reduce cost of money	40.00%	0010	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R089	Exchange Rate fluctuations increasing cost of P3	40.00%	0010	1,500,000.00	2,250,000.00	3,000,000.00
SR826-R092	Exchange Rate fluctuations increasing cost of P3	40.00%	0010	1,500,000.00	2,250,000.00	3,000,000.00



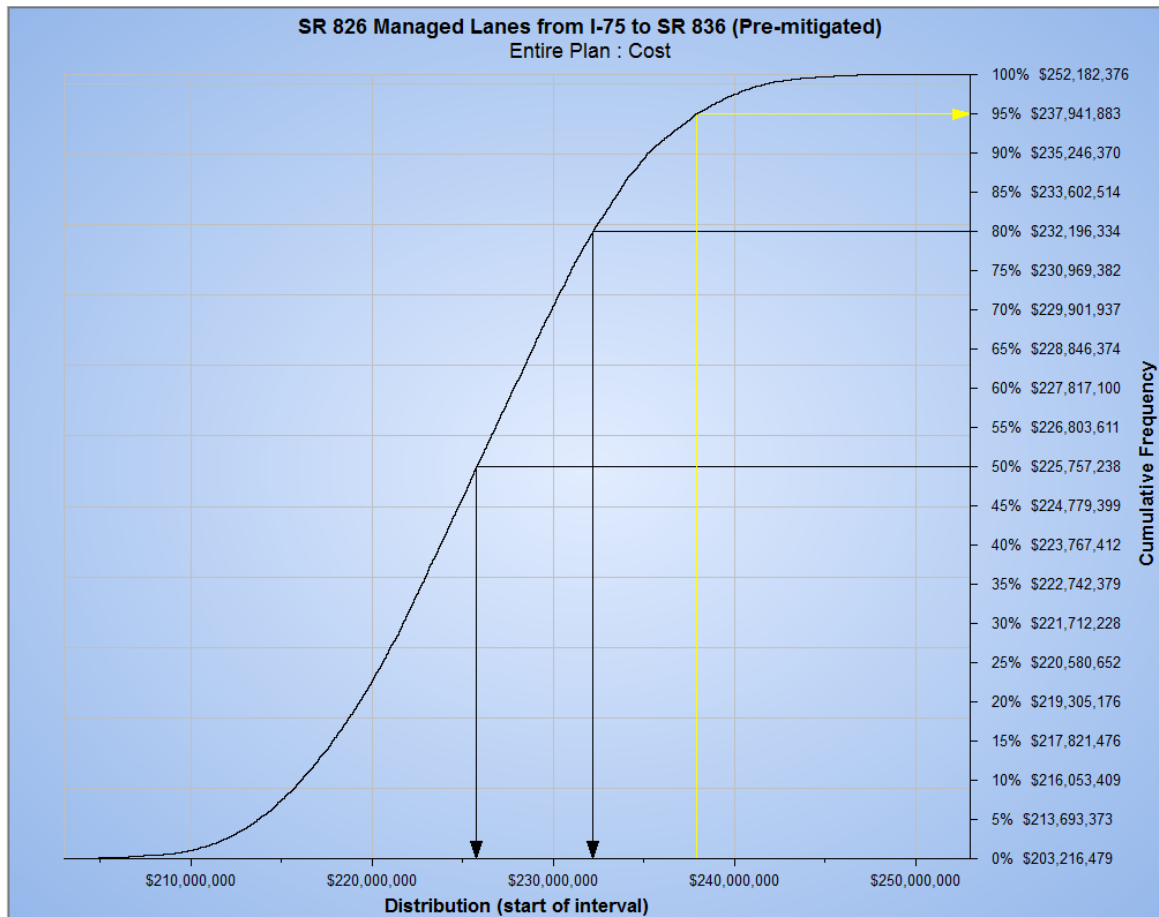
3.2. Results:

A Monte Carlo simulation of 10,000 iterations was performed on the risk model using Latin Hyperbole sampling method to generate randomized calculations of the project budget. This section details the results of the simulation on three different scenarios; Threats only, Opportunities only, and Overall model.

3.2.1. Results for Scenario 1 - Threats Only Model:

Based on the simulation, the baseline budget of **\$200,692,496** (less contingency) has 0% probability of occurrence. On the other hand the project has a 95% chance of completion within the overall budget of **\$237,876,127** (Industry practice is to use a 90% confidence level). The 90% percentile cost probability is **\$235,246,370** which indicates that at this level of confidence, **\$34,553,874** is needed for contingency compared to the **\$37,183,631** considered in the estimate.

The Threats Only scenario assumes that the risk opportunities may not materialized on the project and the total project cost distribution is shown below.

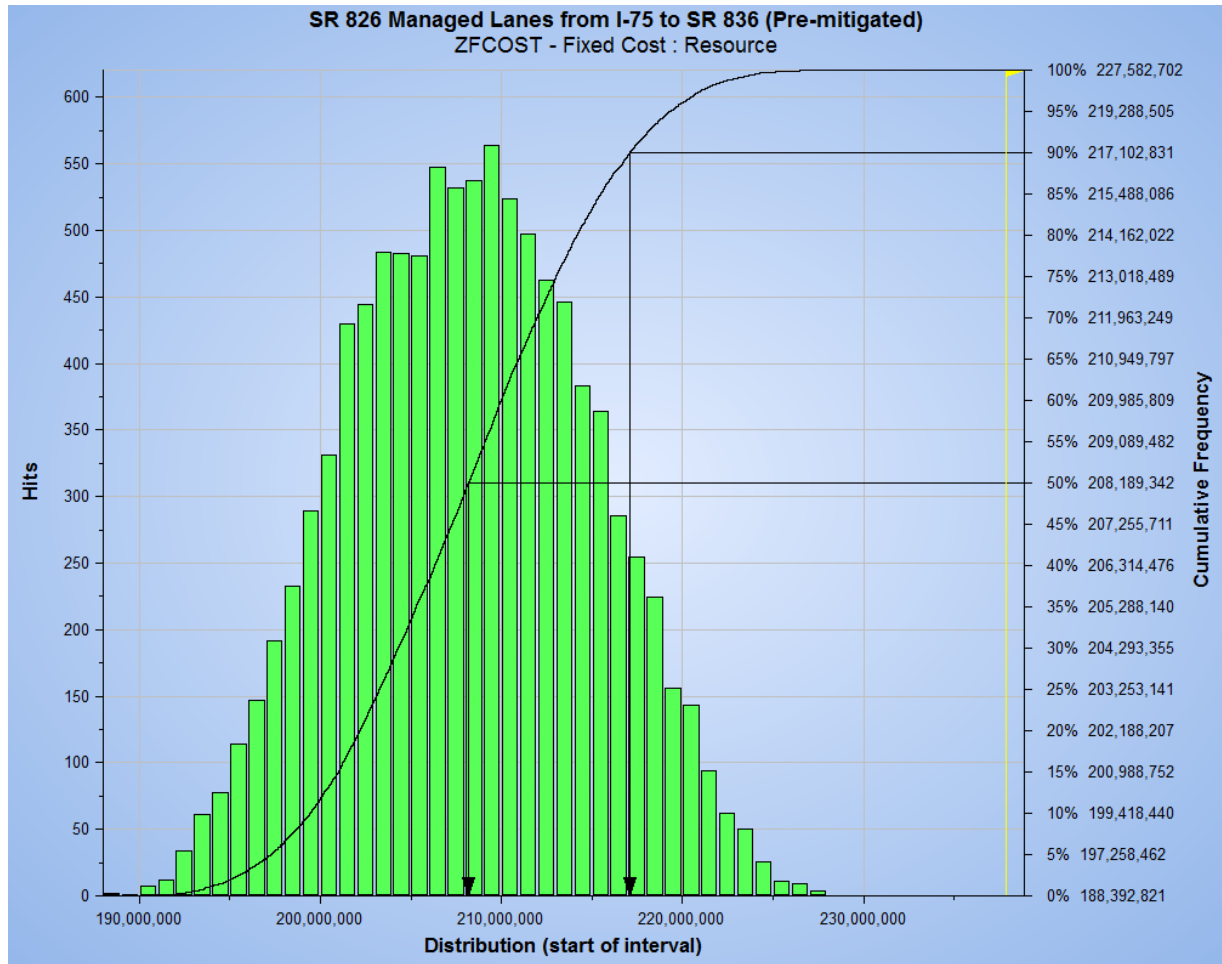


The total cost distribution shown above consists of two risk inputs: probabilistic ranging on the fixed costs, and the range of impact of risk incidents from the risk register.

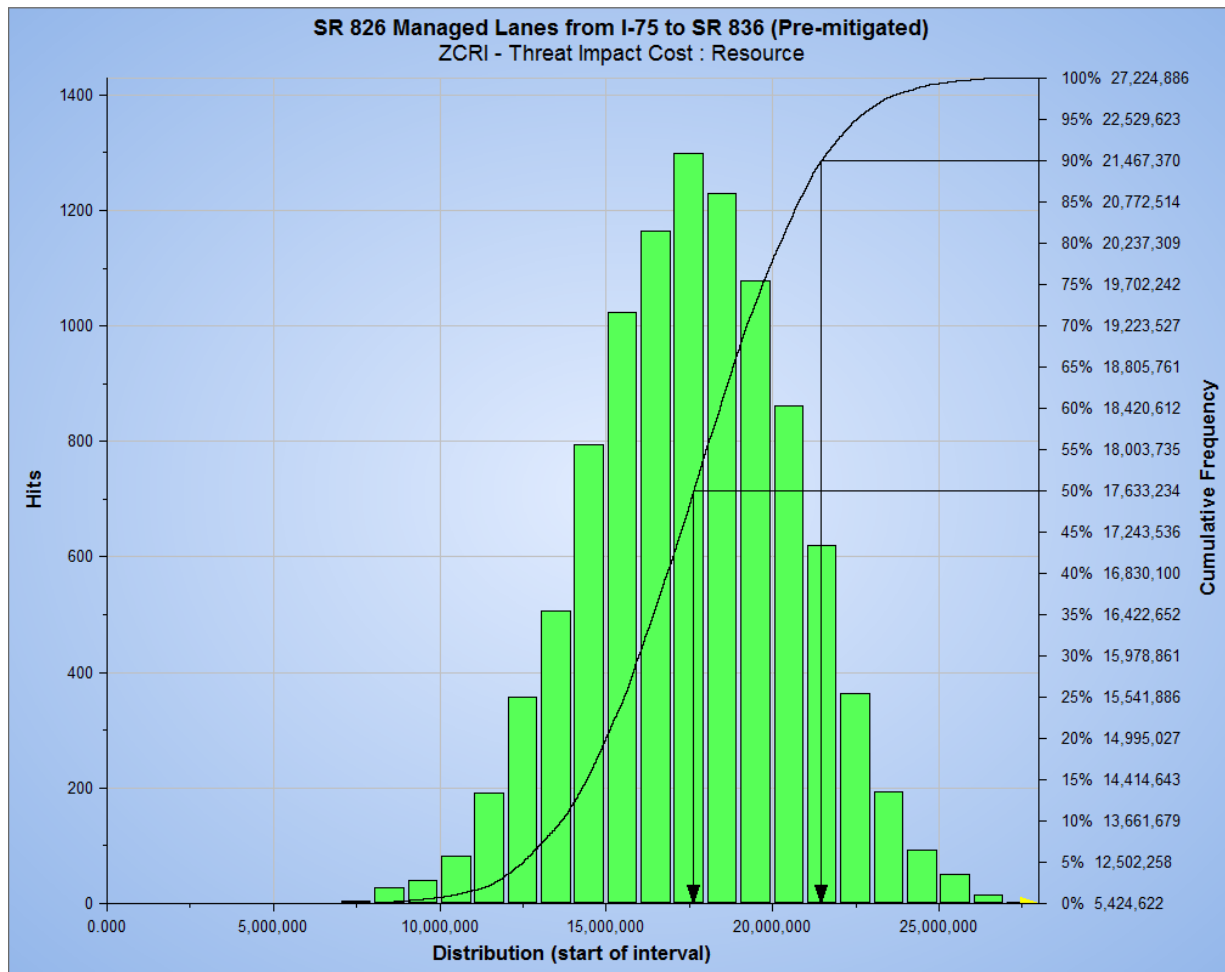
The following curve shows the distribution for the ranging on the fixed costs only. The deterministic fixed costs excluding contingency is **\$200,692,496**. The 90% cost probability for the



fixed costs is \$217,102,831 which indicates the need for \$16,410,335 to offset the risks associated with the estimate pricing.



The following chart shows the cost distribution associated with the risks identified on the risk register and impacts the project. These risks have a \$0 budget with a 90% probability of reaching \$21,476,370.



Cost Sensitivity:

Cost sensitivity is key measure of the correlation between the occurrence of any risk and its impact on the project cost. Higher sensitivity factor for a risk indicates higher impact on the total project.

The top ten Risk threats are:

SR826-R036 P3 private financing markets and limitations

P3 delivery method is subject to private financing markets and limitations impacts project costs and in worst case resulting in inability to fund project.

SR826-R010 Noise impact on neighborhoods

Increased noise level due to added traffic, adding Noise walls would not reduce noise levels sufficient to warrant walls, resulting in increased noise level.

SR826-R089 Exchange Rate fluctuations increasing cost of P3

P3 delivery methods will involve multinational firms and the currency market fluctuations may impact P3 pricing resulting in increased P3 Cost.

SR826-R003 Florida Gas Transmission Line from 25th to 154th

inch gas line: Widening may encroach closer to the gas line. Compensation for relocation for gas utility line resulting in increased project cost.



SR826-R029 Threat needs approvals for exceptions and variations

Exceptions and variation needed from FDOT & FHWA to avoid right of way acquisitions, risk of additional costs for acquiring right of way and schedule delay and negative impacts to the community.

SR826-R075 Poor soil permeability rates-drainage

Poor soil may require additional drainage treatment and right of way resulting in additional construction cost and right of way acquisition and increase maintenance cost.

SR826-R040 Short conceptual design duration to develop the RFP

Short conceptual design duration to develop the RFP will impact RFP completeness and response risks . Short time to Develop RFP and may result higher bids or additional change orders.

SR826-R070 Maintenance of trench drains

O&M cost of maintaining trench drains with overall increase in Life Cycle Cost and higher P3 bid price.

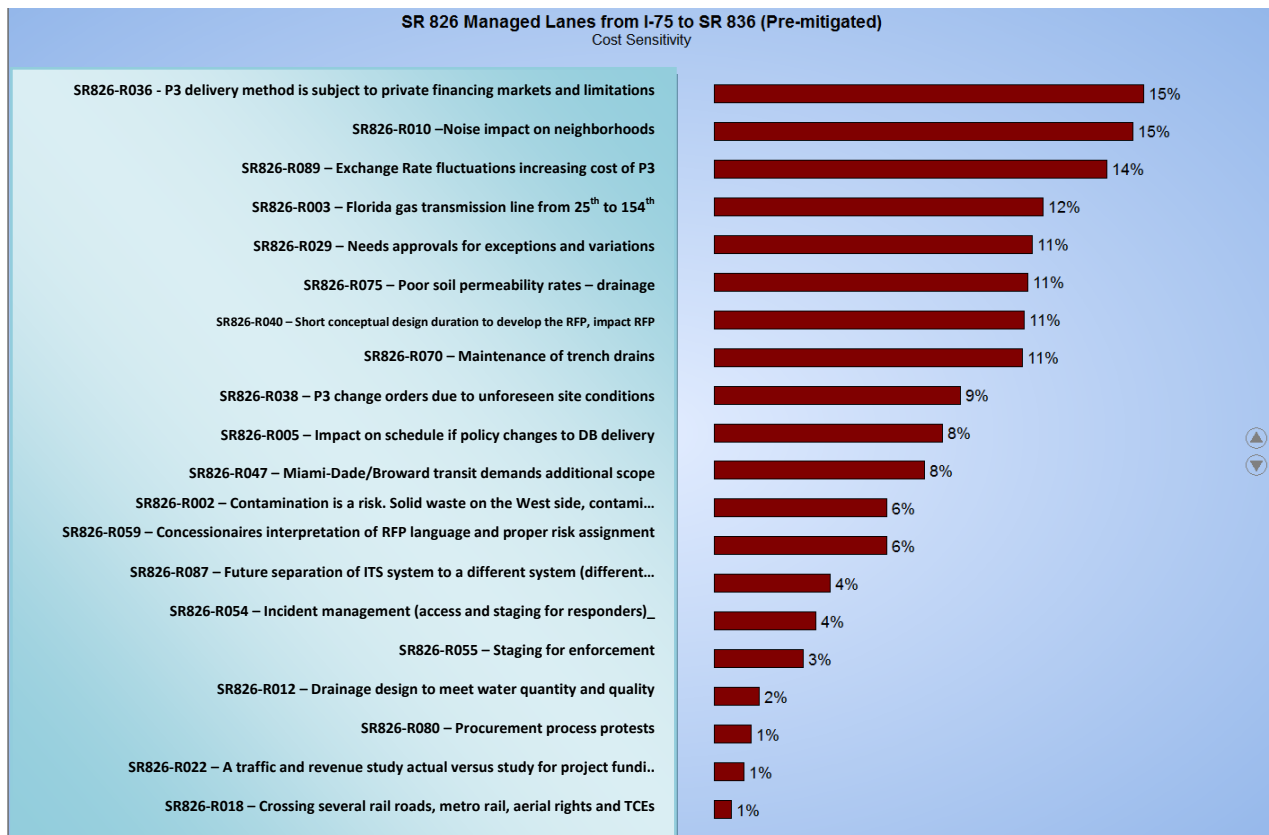
SR826-R038 P3 Change orders due to unforeseen site conditions

Conceptual investigations are limited and Concessionaire’s design process may capture unforeseen site conditions resulting in longer and more costly change orders due to P3 delivery method.

SR826-R005 Impact on schedule if policy changes to DB delivery

Department has to come up with entire project funding if DB is selected Major schedule impact and high cost impact on this project

The following **Tornado diagram** shows a top down sorting of the risks based on their sensitivity factor and their impact on the project.

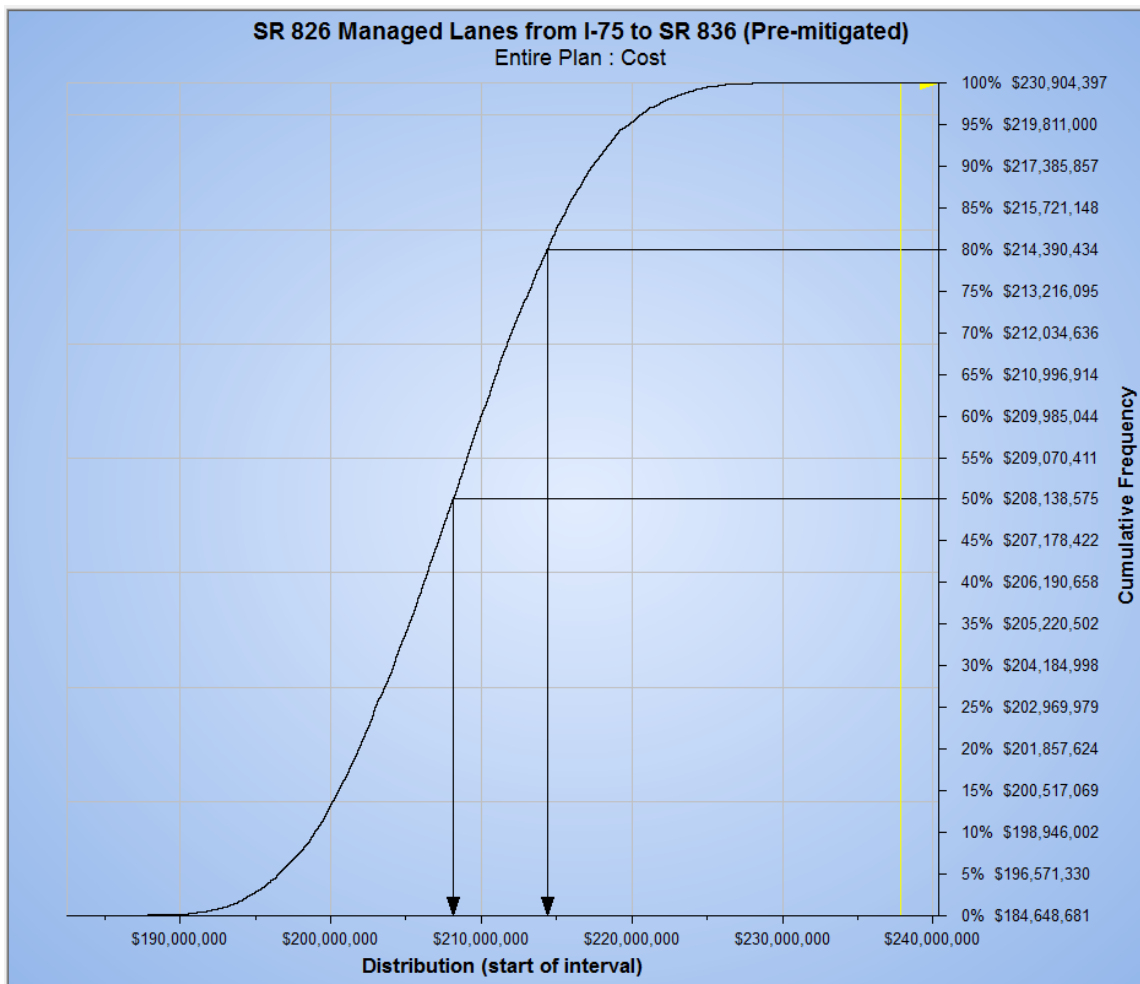




3.2.2. Results for Scenario 2 - Opportunities only

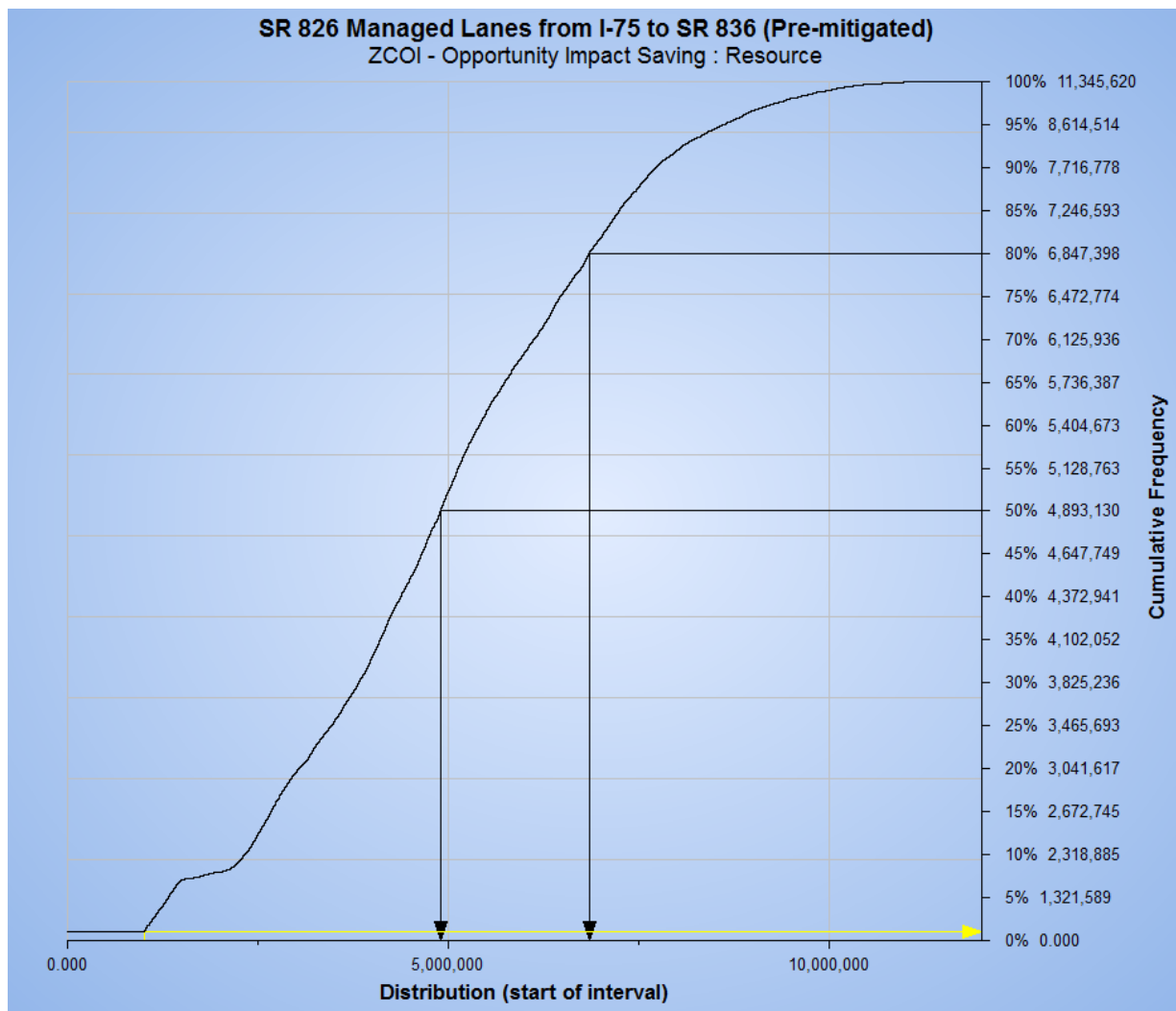
Based on the simulation, the baseline Budget of **\$200,692,496** (less contingency) has less than 5% probability of occurrence. On the other hand under this scenario and considering no threat impacts and the potential savings from the opportunities the project has a 100% chance of completion within the overall budget of **\$237,876,127** (Industry practice is to use a 90% confidence level). The 90% percentile cost probability is **\$217,385,857**, which indicates that at this level of confidence, **\$16,693,361** is needed for contingency compared to the **\$37,183,631** considered in the estimate.

The threats only scenario assumes that the risk opportunities may not materialized on the project and the total project cost distribution is shown below



The distribution for the ranging on the fixed costs only is similar to the first scenario and indicates the need for **\$16,410,335** to offset the risks associated with the estimate pricing. The chart is not included in the report for brevity.

The cost distribution associated with the Risk Opportunities identified on the risk register and impacts the project are shown on the next page. These risks have a **\$0** budget with a 90% probability of reaching **\$7,716,778**.



Cost Sensitivity:

The top risk opportunities are:

SR826-R063 Opportunity to get lower Bids due to market conditions

Current global market slowdown may increase competitive bidding from multinational firms which would result in lower bid prices for the project.

SR826-R088 TIFIA loan would reduce cost of money

If the project qualifies for a TIFIA loan, the project will have access to lower cost of financing loans resulting in lower project cost.

SR826-R092 Exchange Rate fluctuations reducing cost of P3

Exchange rates fluctuation provides global confectionaries the opportunity to take advantage of hedging on currency prices resulting in lower bids.

SR826-R025 Segment tolling versus trip building tolling

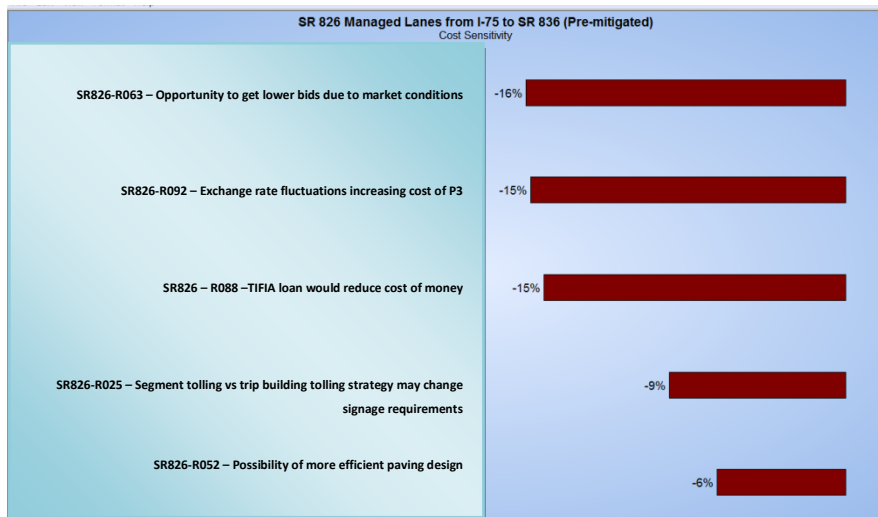
Strategy may change for the signage requirements for the project. Basis of Estimate considers segment tolling, design may adopt trip building tolling which may reduce initial and maintenance costs for signals.



SR826-R052 Possibility of more efficient paving design

Concessionaire may develop a more efficient paving design resulting in project cost savings.

The following **Tornado diagram** shows a top down sorting of the risks based on their sensitivity factor and their impact on the project.

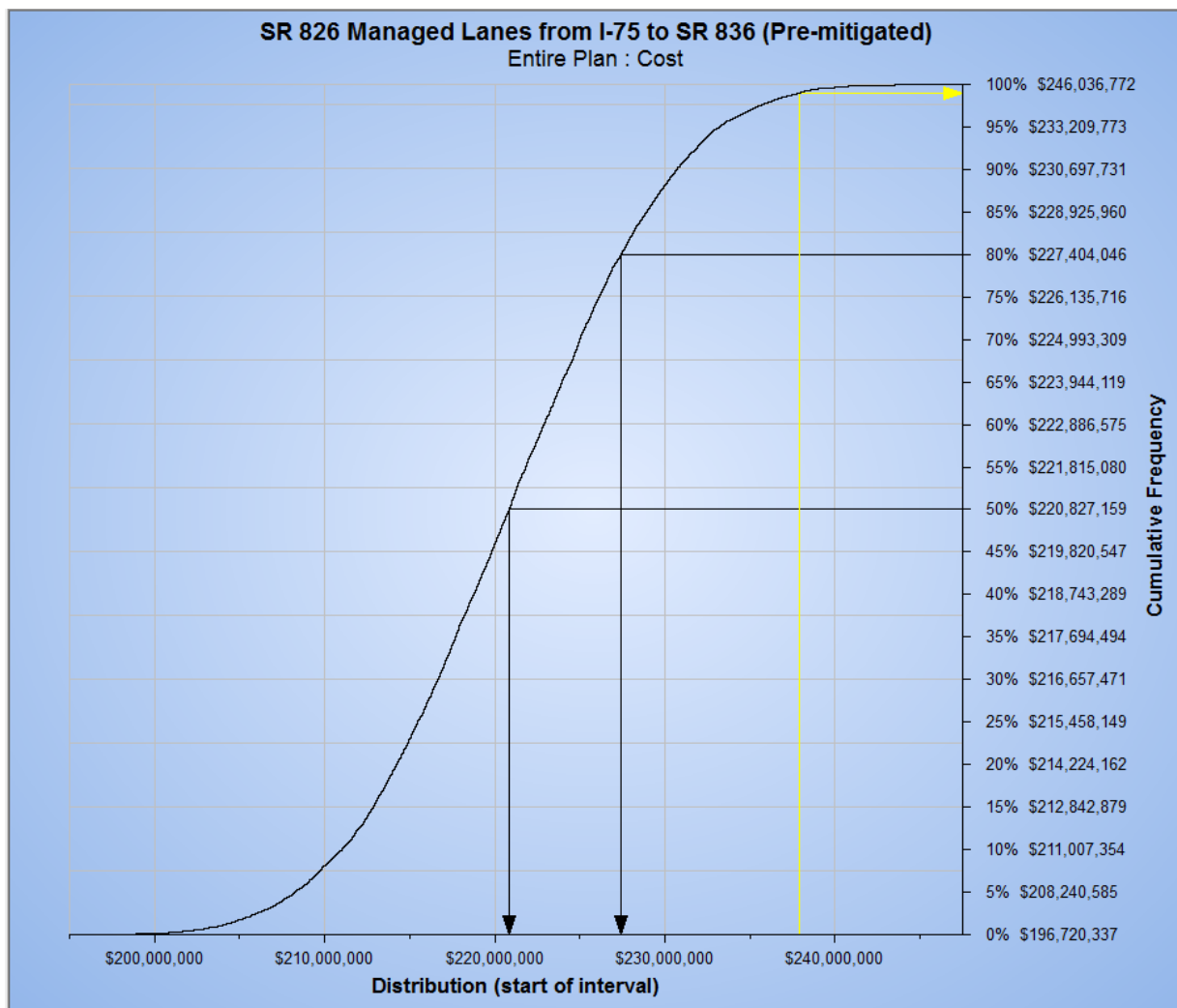




3.2.3. Results for Scenario 3- Overall Model

Based on the simulation, the baseline Budget of **\$200,692,496** (less contingency) has less than 5% probability of occurrence. On the other hand under this scenario and considering the potential savings from the opportunities the project has a 99% chance of completion within the overall budget of **\$237,876,127** (Industry practice is to use a 90% confidence level). The 90% percentile cost probability is **\$230,697,731** which indicates that at this level of confidence, **\$30,005,235** is needed for contingency compared to the **\$37,183,631** considered in the estimate.

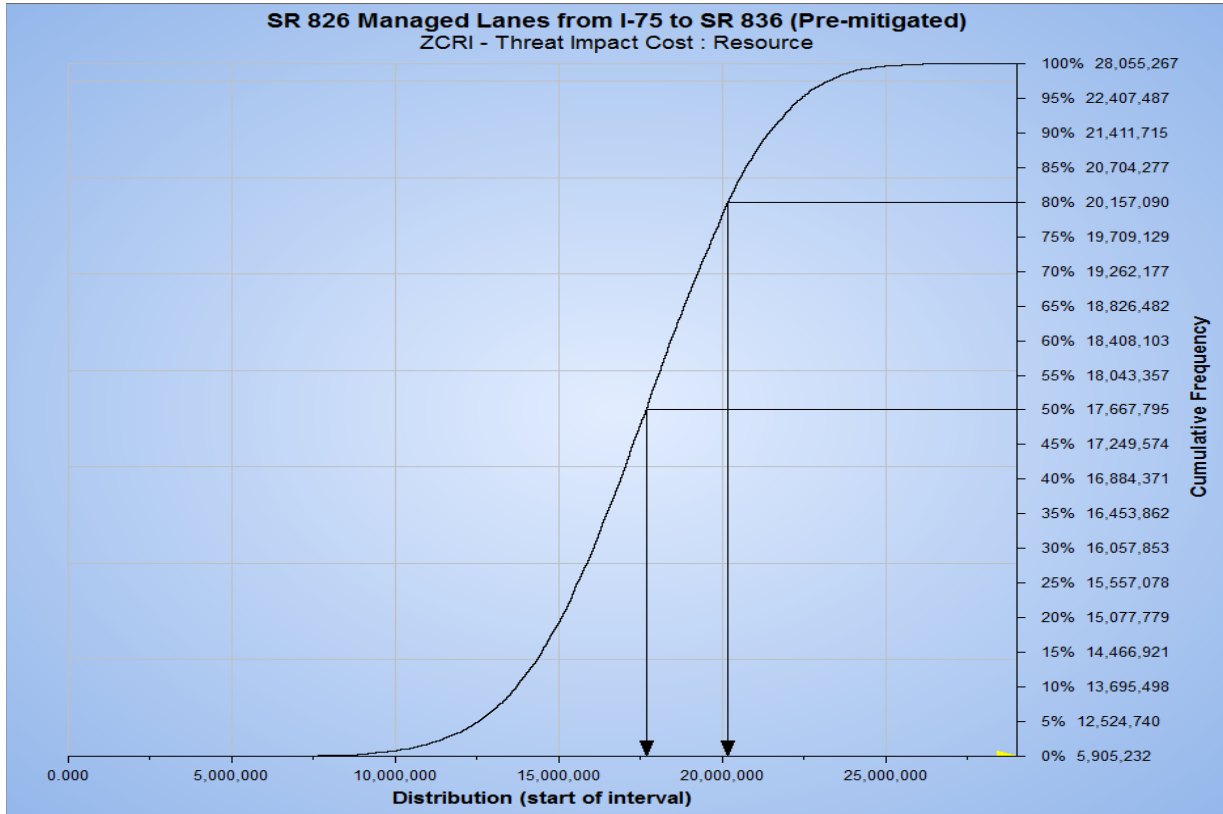
The overall model scenario assumes that both threats and opportunities may materialize on the project and the total project cost distribution is shown below:



The distribution for the ranging on the fixed costs only is similar to the first scenario and indicates the need for **\$16,410,335** to offset the risks associated with the estimate pricing. The chart is not included in the report for brevity.

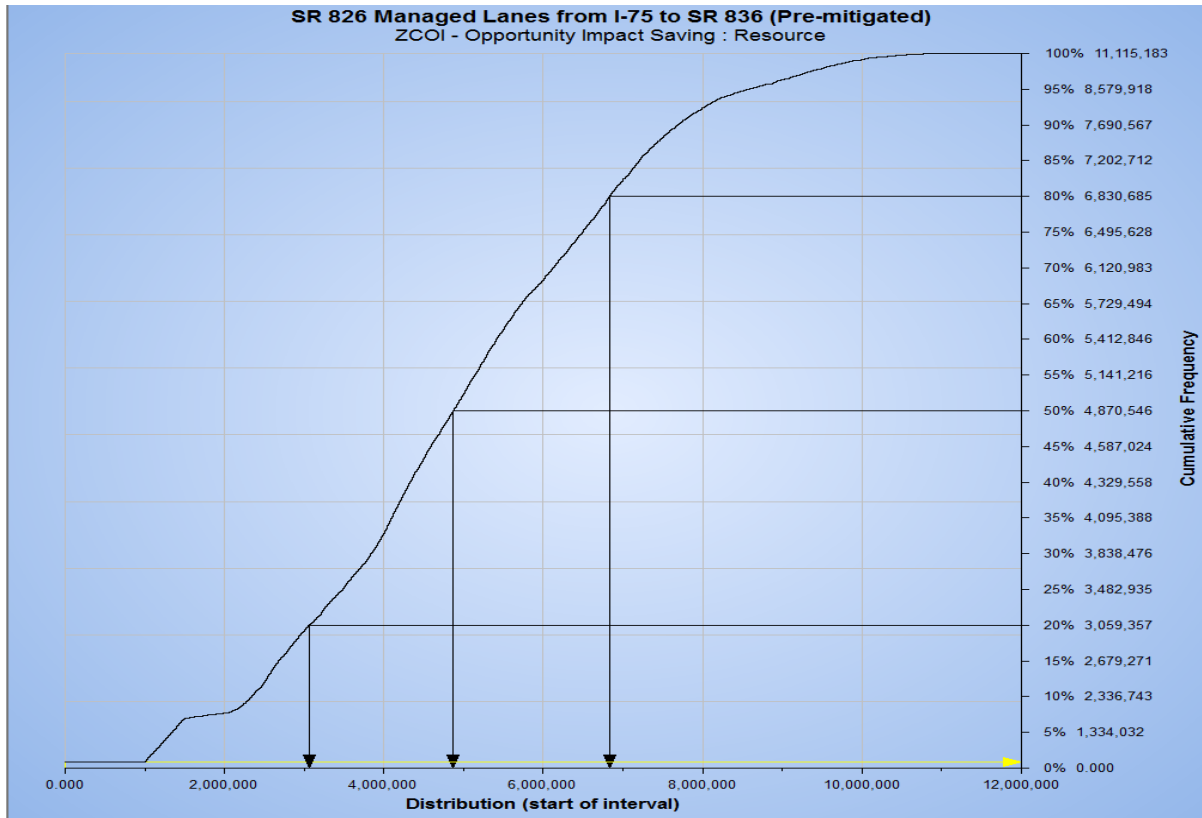


The cost distribution associated with the risk threats identified on the risk register and impacts the project is shown below. These risks have a \$0 budget with a 90% probability of reaching \$20,157,090.





The cost distribution associated with the risk opportunities identified on the risk register and impacts the project is shown below. These risks have a \$0 budget with a 90% probability of reaching \$7,690,567.

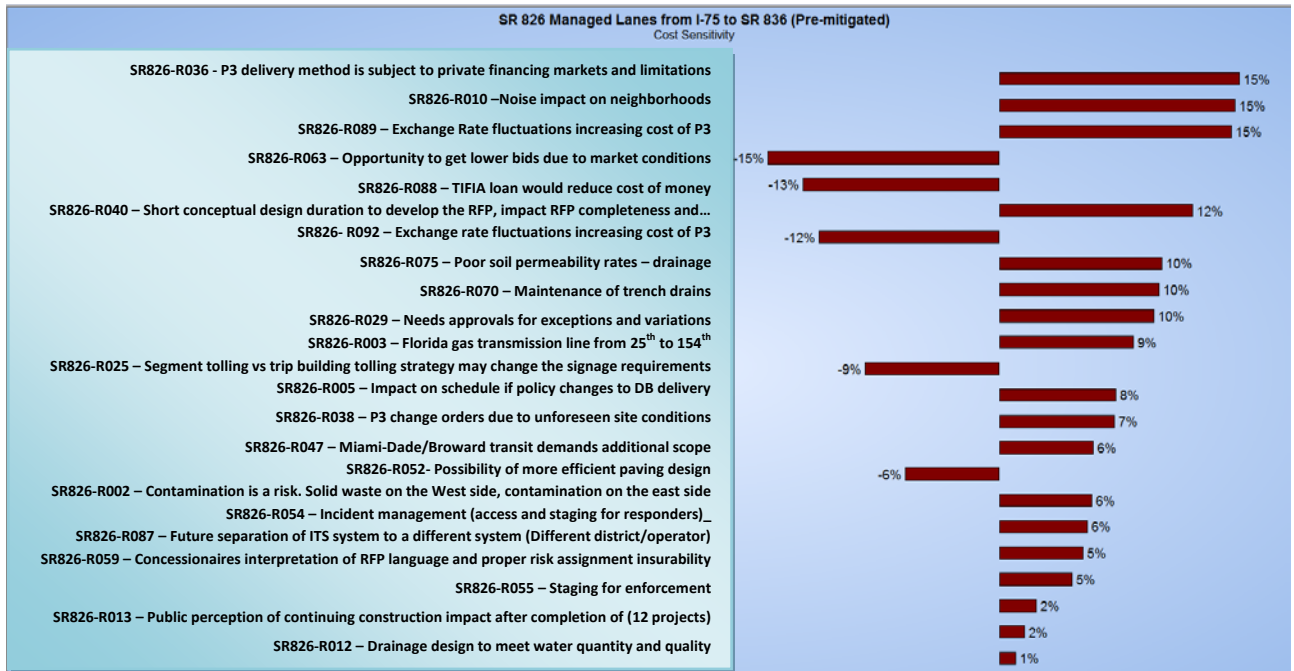




Cost Sensitivity:

In this scenario cost sensitivity for risk threats are similar to the first scenario. List of top risk threats is not included for brevity.

The following **Tornado diagram** shows a top down sorting of the risks based on their sensitivity factor and their impact on the project.





4. Contingency Management

One of the key results of the Cost Risk Analysis is the amount of contingency that is needed for the project cost baseline to guarantee that the budget is not exceeded at a certain confidence level (90% confidence). Good project risk management strategies must take this into account. The assessment of contingency is a two-step process:

Line Item contingency: The general practice is to allow for the individual budget line item baseline cost (BC) contingency (C) that equals the difference between the expected cost of the line item (P50). Or $C = P50 - BC$. As the project advances and actual expenditures on the line item start, project contingencies could be drawn-down allowing the project team full control of the line item contingency.

Overall Project Contingency: or Management Reserve (MR), brings the total project cost to a certain confidence level (P90) or $MR = P90 - P50$ at the overall project level. During the project execution this Management Reserve is held by management and could be allocated at management's discretion to line items or changes as needed.

4.1 Line Item contingency:

The total line item contingency for the project is **\$30,645,289.00**. The following table shows the contingency needed for each line item on the project:

Line Item/Risk	Description	Budget	P50	Contingency
380	Total Project	\$237,876,127		
A000	Direct Construction Costs	\$139,683,060		
10	Risk Impacts	\$0		
0010:SR826-R005	Impact on schedule if Policy Changes to DB delivery	\$0	1,152,139.00	\$1,152,139.00
0010:SR826-R029	Needs Approvals for exceptions and variations	\$0	2,179,768.00	\$2,179,768.00
0010:SR826-R030	Construction funds only \$ 5 M identified	\$0	112,871.00	\$112,871.00
0010:SR826-R036	P3 delivery method is subject to private financing markets and limitations	\$0	1,951,125.00	\$1,951,125.00
0010:SR826-R040	Short conceptual design duration to develop the RFP, impact RFP completeness and response risks	\$0	2,179,384.00	\$2,179,384.00
0010:SR826-R047	Miami-Dade/Broward transit demands additional scope	\$0	0	\$0.00
0010:SR826-R059	Concessionaires interpretation of RFP language and proper risk assignment insurability	\$0	1,226,556.00	\$1,226,556.00
0010:SR826-R089	Exchange Rate fluctuations increasing cost of P3	\$0	0	\$0.00
30	Clearing and Grubbing	\$1,287,968	1,233,987.00	\$0.00
40	Roadwork	\$20,326,059	20,934,390.00	\$608,331.00
45	Bulkhead	\$2,378,247	2,611,637.00	\$233,390.00
50	French Drains	\$6,279,844	6,412,509.00	\$132,665.00
60	Concrete	\$1,985,096	1,992,132.00	\$7,036.00
70	Steel, Reinforcement & sheet Piling	\$3,320,351	3,298,776.00	\$0.00
80	Traffic Barrier/Retaining Walls	\$22,788,347	23,231,193.00	\$442,846.00
90	Road Markings	\$389,214	426,731.00	\$37,517.00
100	Bridges	\$53,673,880	54,023,427.00	\$349,547.00
120	Sorm Drain Piping	\$1,329,668	3,702,661.00	\$2,372,993.00
130	Storm Drain Str.	\$2,235,156	2,290,294.00	\$55,138.00
140	Lighting	\$240,200	240,320.00	\$120.00
160	Signing & Marking	\$3,117,036	3,343,021.00	\$225,985.00
180	ITS & Tolling	\$13,199,988	14,059,881.00	\$859,893.00
190	Environmental Mitigation	\$300,000	375,180.00	\$75,180.00
200	Landscaping	\$1,000,000	1,113,620.00	\$113,620.00
210	Utilities+B35	\$432,006	9,804,851.00	\$9,372,845.00
220	Fire Suppression Systems	\$432,006	432,222.00	\$216.00
B000	Proforma Costs	\$96,993,067		
310	Contamination	\$1,200,000	2,507,278.00	\$1,307,278.00
320	Mobilization	\$15,365,137	14,251,355.00	\$0.00
330	Maintenance of Traffic	\$13,968,306	15,676,450.00	\$1,708,144.00
340	Contingency	\$37,183,631	0	
350	CEI	\$14,776,239	15,300,298.00	\$524,059.00
360	DB Desinging Fees	\$15,699,754	19,116,397.00	\$3,416,643.00
				\$30,645,289.00



4.2 Management Reserve

The current project contingency is **\$37,183,631** and is consistent with a 95% confidence level (P95) in overall project budget. Since this value is higher than the P90 it is our recommendation to maintain the overall project contingency. In this case the management reserve will calculate as follows:

$$\text{Management Reserve} = \$37,183,631 - \$30,645,289 = \$6,538,342.00$$



5. Mitigation Planning

The last session of the risk workshop focused on developing mitigation plans for the identified risks. The facilitator of the workshop was impressed by the project team’s awareness of many of the risks identified in the process and by the fact that mitigations are already underway for some of the risks identified. It is our recommendation that the risk register and the mitigation plans developed during the workshop be maintained by the project team throughout the project duration to ensure adequate and satisfactory management of the project risks and budget. The following table lists the mitigation plans developed to address the risks identified during the workshop:

Mitigation Details			
Action	Name	Risk ID	Description
1	Ongoing mitigations with Utilities with a \$7.9M cost bucket in the estimate.	SR826-R003	Negotiation with Utilities is ongoing.
2	Early coordination with the RRs to acquire an MOU on the aerial right	SR826-R018	Incorporate MOU criteria in the RFP for P3
3	Team already conducting percolation tests to investigate soil conditions	SR826-R075	Include in RFP all drainage calculations and investigation results
4	Egress and ingress is already provided in the current design	SR826-R047	Continue coordination with MDT and county managers
5	Educate public and garner support	SR826-R013	Independent PIO consultant is already hired to educate the public and garner the support
6	Additional conduit infrastructure for potential future ITS system to be specified in the RFP	SR826-R087	Specify additional conduits for future Communication runs in the RFP
7	Persistence and diligence in pursuing TIFIA loan	SR826-R088	Department to develop a strategy to have a better application
8	Pursue other funding sources	SR826-R030	Continue to Pursue TIFIA loan
		SR826-R030	Seek funding through turnpike Bonds
		SR826-R030	Seek federal funding and Grants
9	Obtain conceptual approval for drainage	SR826-R012	More meetings with the agency to seek approval and expedite process



Action	Name	Risk ID	Description
10	Design alternative	SR826-R070	RFP to specify no trench drains
		SR826-R070	Develop a design concept alternative
11	Incorporate investigation information in RFP	SR826-R002	Investigation of contamination conditions is in progress
		SR826-R002	Incorporate investigation information into RFP
		SR826-R002	Design around contamination to minimize cost
12	Central Office approval	SR826-R029	Feds have been briefed and awaiting approval at central office
		SR826-R029	Central Office is currently reviewing, approval pending
		SR826-R029	Already garnered the support of the local district
13	Short RFP duration	SR826-R040	Clear delineation of discipline responsibility
		SR826-R040	Rely on expertise of people familiar with the P3 delivery process
		SR826-R040	Strong legal team involved
		SR826-R040	Close Coordination with District 4 on the RFP development,
		SR826-R040	Tight QA QC process
14	Transparent process and clear RFP language	SR826-R080	Transparent procurement process
		SR826-R080	Clear language & specifications on the RFP
15	Continue investigations	SR826-R038	Coordination with Utilities
		SR826-R038	Avoidance of contamination areas
		SR826-R038	Additional exploratory Geotech investigations
		SR826-R038	Provide in the RFP all as-built information



Appendices

Risks

ID	Type	Title	Pre-mitigation Probability	Description	Cause	Effect	RBS	Mitigation Actions	Impacted Tasks
SR826-R012	Threat	Drainage design to meet water quantity and quality	VH	Design may have to meet the new permitting requirements, or meeting existing criteria, may result in added french drains or acquiring right of way to build ponds.	Potential change to permitting Criteria, or not meeting existing criteria	Additional cost and right of way, and delayed schedule	Environmental & hydraulics	1	3
SR826-R040	Threat	Short conceptual design duration to develop the RFP, impact RFP completeness and response risks	VH	Short time to Develop RFP	Comitment to get the project as early as possible to stimulate the economy	Impact RFP completeness and response to risk, and additional change orders	Design and PS&E	5	1
SR826-R013	Threat	Public perception of continuing construction impact after completion of (12 projects)	VH	Never ending construction, Toll rates	New tolls continuing construction different traffic patterns	public opposition to the project driver confusion	Political Issues	1	1
SR826-R029	Threat	Needs Approvals for exceptions and variations	VH	exceptions and variation needed from FDOT & FHWA to avoid right of way acquisitions	Inability to meet criteria	cost of acquiring right of way and schedule delay and negtive impacts to the community	Design and PS&E	3	1
SR826-R003	Threat	Florida Gas Transmission Line from 25th to 154th	VH	20 inch Gas line.Widening may encroach closer to the gas line	Road widening	Compensation for relocation for gas utility line	Utilities and Rail Roads	1	1
SR826-R070	Threat	maintenance of trench drains	VH	O&M cost of maintaing trench drains	Inherent design of drains clogging	overall increase in Life Cycle Cost	Environmental & hydraulics	2	1
SR826-R010	Threat	Noise impact on neibourhoods	H	Increased noise level due to added traffic., Adding Noise walls would not reduce noise levels sufficient to warrant walls	Added Traffic	Increased noise level	Environmental & hydraulics		1
SR826-R063	Opportunity	Opportunity to get lower Bids due to market conditions	H				Contracting and Procurement		1
SR826-R036	Threat	P3 delivery method is subject to private financing markets and limitations	H				Management Funding		1
SR826-R005	Threat	Impact on schedule if Policy Changes to DB delivery	H	Department has to come up with entire project funding if DB is selected	CHange in delivery method	Major schedule impact and high cost impact on this projects	Design and PS&E		1
SR826-R088	Opportunity	TIFIA loan would reduce cost of money	M					1	1
SR826-R089	Threat	Exchange Rate fluctuations increasing cost of P3	M						1
SR826-R080	Threat	Procurement Process Protests	M	P3 Bidders contest procurement process		Delay the award	Contracting and Procurement	2	1
SR826-R041	Opportunity	Increase Capacity for thru traffic at the interchange of 826 & 836	M				Traffic Management		1
SR826-R092	Opportunity	Exchange Rate fluctuations increasing cost of P3	M						1
SR826-R056	Opportunity	Reduce gantry locations	M				Design and PS&E		1
SR826-R055	Threat	staging for Enforcement	VH	Reduced shoulders does not allow sufficient room for Police enforcement		Cannot regulate speed on managed lanes	Traffic Management		2
SR826-R054	Threat	incident management (access and staging for responders)_	VH	Reduced shoulder does not allow for refuge to disabled vehicles and responders		closed lanes and loss of revenue, and traffic congestion, life safety issue	Traffic Management		2
SR826-R030	Threat	Construction funds only \$ 5 M identified	VH	By 2017 Need to make available the shortfall in financing gap		Cannot move forward with the project or impact capital program and support for it.	Management Funding	3	1
SR826-R059	Threat	Concessionaires interpretation of RFP language and proper risk assignment insurability	VH				Contracting and Procurement		1
SR826-R018	Threat	Crossing several rail roads, Metro Rail, aerial rights and TCEs	VH	acquire aerial rights over RR tracks prior to issuance of RFP		Delay in RFP. increased construction costs	Utilities and Rail Roads	1	2
SR826-R002	Threat	Contamination is a risk. Solid waste on the west side, contamination on the east side	VH	Solid waste on the west side. Chemical contamination on the east side	new unknown environmental issues	High remediation and cleanup cost	Environmental & hydraulics	3	1
SR826-R052	Opportunity	Possibility of more efficient paving design	VH				Design and PS&E		1
SR826-R047	Threat	Miami-Dade/Broward transit demands additional scope	L	Requested a directed connection to the train station on 74th st. and additional parking area in that facility without providing any funding	MDT request for direct access to the train station on 74th st.	New ramp and additional parking space, Additional cost to project, Superfund site Aquisition.	Project Management	1	1
SR826-R038	Threat	P3 Change orders due to unforeseen site conditions	H	Conceptual investigations are limited and Concessionaire's design process may capture unforeseen site conditions	Level of investigations in conceptual design	Longer and more costly change orders due to P3 delivery	Contracting and Procurement	4	4
SR826-R087	Threat	Future Separation of ITS sytem to a different system (Different District/Operator)	H	Accommodating future separation of the 1-75 and SR 826 ITS systems	Concession agreements may resign concession of 826 to another consessionaire in 15 -30 years	rebuild additional infrastructures and update and change technology		1	2
SR826-R025	Opportunity	Segment tolling vs trip building.Tolling strategy may change the signage requirements for the projects	H	basis of Estimate considers Segment tolling, design may adopt trip building tolling		may reduce initial and maintenance costs for signals	Design and PS&E		2
		toll by plate in addition		Technology and enforcement is not yet		Conveniece but more expensive to user,			

SR826-R035	Opportunity	to SunPass	H	ready for managed lane facility		reduced revenue, more traffic in managed lanes.	New Technologies		1
SR826-R022	Threat	A traffic and revenue study actual versus study for project funding	L	Greater than anticipated funding short fall due to lower than expected revenues	inaccuracy in traffic and revenue study due to speculative projections	FDOT have to fund the gap	Management Funding		1
SR826-R090	Threat	RFP language and proper risk assignment /insurability	L						1
SR826-R075	Threat	Poor Soil Permeability Rates- Drainage	L	Poor soil may require additional drainage treatment and right of way	Soil conditions	additional cost for construction and right of way Increase maintenance cost	Structural and Geotechnical	1	3
SR826-R077	Threat	Changes in drainage design criteria may require additional right of way	M				Environmental & hydraulics		
SR826-R014	Threat	Permitting Issues	M				Permitting		
SR826-R004	Threat	Current Unit Prices are in Historical Lows will we see fluctuations.	M				Contracting and Procurement		
SR826-R021	Threat	Permits from the county and move limited access line.	M	County may not provide approvals on time		May delay schedule or workarounds and add cost	Permitting		
SR826-R026	Threat	Delays due to interagency coordination Turnpike MDX county, Central office, District 4	VH				Design and PS&E		
SR826-R051	Threat	last minute scope change	VH				Design and PS&E		
SR826-R039	Threat	Theft and Vandalism during and after construction	H				Maintenance		
SR826-R020	Threat	Easments and right of way with RR	H				Utilities and Rail Roads		
SR826-R057	Threat	increased cost of Petroleum products to market conditions impacting bitumenous	L				Contracting and Procurement		
SR826-R016	Threat	Public opposition to additional tolls	L				Political Issues		
SR826-R032	Threat	Political opposition of converting a free lane into a managed lane	L				Political Issues		
SR826-R006	Threat	Ramp signaling implementtion	VH	Queuing and backup on the arterials may be more than designed	backup to arterials on ramps	queuing, additional cost to ramp widening and may need to adjust signal phasing	Traffic Management		
SR826-R015	Threat	Political push back to the 2+4 alternative	L				Political Issues		
SR826-R076	Threat	Changing Geotechnical Conditions (Due to New Information) MSE Walls	L				Structural and Geotechnical		
SR826-R046	Threat	clear RFP requirements and coordination with I-75 for network wide communication system (ITS)	M				Contracting and Procurement		
SR826-R071	Threat	Maintenance and operations funding	M				Management Funding		
SR826-R048	Threat	MPO board approval for the project (Funding)	M				Management Funding		
SR826-R009	Threat	Delays in the Right of way aquisition (2+4)	M				Right of Way		
SR826-R074	Threat	Major Hurricane that would change all traffic pattern	VL				Traffic Management		
SR826-R073	Threat	Maintain political support to the project during an election year	VL				Political Issues		
SR826-R042	Threat	Challenge of educating the public for new traffic patterns	H				Traffic Management		
SR826-R019	Threat	Shortage of Flag men for RR	H				Utilities and Rail Roads		
SR826-R007	Threat	Other Major Construction projects are going on at the same time	L				Project Management		
SR826-R060	Threat	Availability of Laydown and staging areas	L				Construction		
SR826-R082	Threat	Concessionaire doesnot have skin in the game on quality and maintenance	M				Project Management		
SR826-R045	Threat	Interchange operations may affect managed lanes operations (25th, 74th.)	M				Traffic Management		
SR826-R091	Threat	Labor & Material price fluctuation risk	VL						
SR826-R028	Threat	Competition from other toll facilities may impact revenues	VL				Management Funding		
SR826-R084	Threat	Design External review delays project schedule	VL				Design and PS&E		
SR826-R083	Threat	Scope Creep	L				Project Management		
SR826-R061	Threat	Vehicle exemptions (HOV, Motorcycles, Buses, Hybrids etc.) may reduce revenue	L				Management Funding		
SR826-R086	Threat	Public revolt on Tolling	L				Political Issues		
SR826-R066	Opportunity	variable speed limits to maximize through put	L				Traffic Management		
SR826-R043	Threat	Threatening endangered species	VL				Environmental & hydraulics		
		If projects north do not							

SR826-R033	Threat	go forward this project does not make sense and vice versa	VL					Project Management		
SR826-R011	Threat	MOT conflicts w/ ongoing construction on 25th street	VL					Construction		
SR826-R053	Threat	Survey results do not match existing plans	VL					Construction		
SR826-R024	Threat	Public demand may change the egress and ingress	VL					Traffic Management		
SR826-R008	Opportunity	Excavation for the Port Tunnel can be used to backfill and low cost embankment	N					Contracting and Procurement		
SR826-R027	Threat	Retrofitting systems to systems connections at 826, 836 interchange	N					Design and PS&E		
SR826-R017	Threat	Design coordination with concurrent and future local projects	N					Project Management		
SR826-R058	Threat	potential parallel facility by MDX	N					Management Funding		
SR826-R069	Threat	Environmental justice on FHWA Funded project.	H					Environmental & hydraulics		
SR826-R050	Threat	Possibility of segmental bridges not being allowed on new projects (Not Applicable to this project)	N					Construction		
SR826-R062	Opportunity	Opportunity for additional tolling if truck are allowed	N					Management Funding		
SR826-R078	Threat	Conflict between ITS and Landscaping full coverage for ITS cameras	N					Traffic Management		
SR826-R023	Threat	FPL Oil filled High transmission conduits	N					Utilities and Rail Roads		
SR826-R031	Threat	Construction challenges relating to FAA glide path regulations	N					Construction		
SR826-R049	Threat	Managed lanes may become obsolete by policy change	N					Political Issues		
SR826-R034	Opportunity	Convert Canal to culvert and use right of way for widening (Does not Apply to this project)	N					Environmental & hydraulics		


PRIMAVERA RISK ANALYSIS
Standard Layout - Risk Impacts on tasks
SR-826 Managed Lanes ProgramAll TO.plan

Project Data	
File Name	SR-826 Managed Lanes ProgramAll TO.plan
Plan Title	SR-826 Managed Lanes ProgramAll TO.plan
Total Tasks	29
Completed	0
In Progress	0
Plan TimeNow	07 May 2012
Deterministic Finish	07 May 2012
Total Deterministic Cost	\$237,876,127
Actual Cost to Date	\$0
Deterministic Remaining Cost	\$237,876,127

Report Summary	
Report Name	Standard Layout - Risk Impacts on tasks
Date Printed	07 Jul 2012
Total Risks	81
Proposed Risks	73
Open Risks	6
High	30
Medium	23
Low	14
Negligible	14
Impacted (Closed) Risks	0
Managed (Closed) Risks	0
Rejected (Closed) Risks	2
Threats	69
Opportunities	12

Filter Options	
Sections included in report	
<i>Include in depth risk information</i>	No
<i>Include risk assessment information</i>	Yes
<i>Include risk response information</i>	No
<i>Include task impacted information</i>	Yes

ID	Title		
SR826-R012	Drainage design to meet water quantity and quality		
Status	Owner		
Open	URS		

Pre-mitigation Score	72	High	
Post-mitigation Score	72	High	

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	VL
Post-mitigation	VH	85%	Cost	Pre-mitigation	VL
			Performance	Post-mitigation	VH
				Pre-mitigation	VH
				Post-mitigation	VH

Risk Plan: Pre-mitigation				
Impacting Task: 0120 - Sorm Drain Piping				
Schedule	Uniform	0		10
Cost	BetaPert	\$0	\$41,667	\$83,333

Impacting Task: 0130 - Storm Drain Str.				
Schedule	Uniform	0		10
Cost	BetaPert	\$0	\$41,667	\$83,333

Impacting Task: 0050 - French Drains				
Schedule	Uniform	0		10
Cost	BetaPert	\$0	\$41,667	\$83,333

Risk Plan: Post-mitigation				
Impacting Task: 0120 - Sorm Drain Piping				
Schedule	Uniform	0		10
Cost	Uniform	\$500,000		\$1,000,000

Impacting Task: 0130 - Storm Drain Str.				
Schedule	Uniform	0		10
Cost	Uniform	\$500,000		\$1,000,000

Impacting Task: 0050 - French Drains				
Schedule	Uniform	0		10
Cost	Uniform	\$500,000		\$1,000,000

ID	Title			
SR826-R040	Short conceptual design duration to develop the RFP, impact RFP completeness and response risks			
Status	Owner			
Open	FDOT- PM			

Pre-mitigation Score	72	High		
Post-mitigation Score	72	High		

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VH	85%			H
Post-mitigation	VH	85%			H
			Cost	Pre-mitigation	VH
				Post-mitigation	VH
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	120		180
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	120		180
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

ID	Title				
SR826-R013	Public perception of continuing construction impact after completion of (12 projects)				
Status	Owner				
Open	B&A				

Pre-mitigation Score	72	High			
Post-mitigation Score	72	High			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Post-mitigation	Qualitative
Pre-mitigation	VH	85%				VH
Post-mitigation	VH	85%	Cost	Pre-mitigation		N
				Post-mitigation		N
			Performance	Pre-mitigation		N
				Post-mitigation		N

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform		180		360
Cost	BetaPert		\$0	\$0	\$0

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform		180		360
Cost	Uniform		\$0		\$0

ID	Title			
SR826-R029	Needs Approvals for exceptions and variations			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	72	High			
Post-mitigation Score	72	High			

	Qualitative	Quantitative				
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	VH	
Post-mitigation	VH	85%	Cost	Pre-mitigation	VH	
			Performance	Pre-mitigation	VL	
				Post-mitigation	VL	

Risk Plan: Pre-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	180	360	
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	180	360	
Cost	Uniform	\$1,500,000	\$3,000,000	

ID	Title			
SR826-R003	Florida Gas Transmission Line from 25th to 154th			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	72	High			
Post-mitigation Score	72	High			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	VH
Post-mitigation	VH	85%	Cost	Pre-mitigation	VH
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: Pre-mitigation				
Impacting Task: 0210 - Utilities				
Schedule	Uniform	180		360
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0210 - Utilities				
Schedule	Uniform	180		360
Cost	Uniform	\$1,500,000		\$3,000,000

ID	Title			
SR826-R070	maintenance of trench drains			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	72	High		
Post-mitigation Score	72	High		

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	N
Post-mitigation	VH	85%	Cost	Pre-mitigation	VH
			Performance	Pre-mitigation	L
				Post-mitigation	L

Risk Plan: Pre-mitigation				
Impacting Task: 0120 - Sorm Drain Piping				
Schedule	Uniform	0		0
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0120 - Sorm Drain Piping				
Schedule	Uniform	0		0
Cost	Uniform	\$1,500,000		\$3,000,000

ID	Title		
SR826-R010	Noise impact on neibourhoods		
Status	Owner		
Proposed	Unassigned		

Pre-mitigation Score	56	High	
Post-mitigation Score	56	High	

	Qualitative	Quantitative			Qualitative
Pre-mitigation	H	60%	Schedule	Pre-mitigation	L
Post-mitigation	H	60%	Cost	Pre-mitigation	L
				Post-mitigation	VH
			Performance	Pre-mitigation	VH
				Post-mitigation	N
					N

Risk Plan: Pre-mitigation				
Impacting Task: 0170 - Noise Wall				
Schedule	Uniform	30		60
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0170 - Noise Wall				
Schedule	Uniform	30		60
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

ID	Title			
SR826-R063	Opportunity to get lower Bids due to market conditions			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	56	High		
Post-mitigation Score	56	High		

	Qualitative	Quantitative				Qualitative
Pre-mitigation	H	60%	Schedule	Pre-mitigation		L
Post-mitigation	H	60%	Cost	Pre-mitigation		L
				Post-mitigation		VH
			Performance	Pre-mitigation		VH
				Post-mitigation		N
						N

Risk Plan: Pre-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	30		60
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	30		60
Cost	Uniform	\$1,500,000		\$3,000,000

ID	Title			
SR826-R036	P3 delivery method is subject to private financing markets and limitations			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	56	High			
Post-mitigation Score	56	High			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	H	60%	Schedule	Pre-mitigation	H
Post-mitigation	H	60%	Cost	Pre-mitigation	VH
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: Pre-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	120		180
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	120		180
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

ID	Title			
SR826-R005	Impact on schedule if Policy Changes to DB delivery			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	56	High			
Post-mitigation Score	56	High			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	H	60%	Schedule	Pre-mitigation	VH
Post-mitigation	H	60%	Cost	Pre-mitigation	H
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: Pre-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	180		360
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

Risk Plan: Post-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	180		360
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

ID	Title			
SR826-R088	TIFIA loan would reduce cost of money			
Status	Owner			
Open	FDOT- PM			

Pre-mitigation Score	40	High			
Post-mitigation Score	40	High			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	M	40%	Schedule	Pre-mitigation	N
Post-mitigation	M	40%	Cost	Pre-mitigation	VH
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: Pre-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	0		0
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	0		0
Cost	Uniform	\$1,500,000		\$3,000,000

ID	Title			
SR826-R089	Exchange Rate fluctuations increasing cost of P3			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	40	High		
Post-mitigation Score	40	High		

	Qualitative	Quantitative							
Pre-mitigation	M	40%	Schedule	Pre-mitigation	L				
				Post-mitigation	L				
Post-mitigation	M	40%	Cost	Pre-mitigation	VH				
				Post-mitigation	VH				
			Performance	Pre-mitigation	N				
				Post-mitigation	N				

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	30		60
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	30		60
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

ID	Title				
SR826-R080	Procurement Process Protests				
Status	Owner				
Proposed	FDOT- PM				

Pre-mitigation Score	40	High			
Post-mitigation Score	40	High			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	M	40%	Schedule	Pre-mitigation	VH
Post-mitigation	M	40%	Cost	Post-mitigation	VH
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform		180		360
Cost	BetaPert		\$0	\$0	\$0

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform		180		360
Cost	Uniform		\$0		\$0

ID	Title			
SR826-R041	Increase Capacity for thru traffic at the interchange of 826 & 836			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	40	High		
Post-mitigation Score	40	High		

	Qualitative	Quantitative			Qualitative
Pre-mitigation	M	40%	Schedule	Pre-mitigation	N
				Post-mitigation	N
Post-mitigation	M	40%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	VH
				Post-mitigation	VH

Risk Plan: Pre-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$0	\$0	\$0

Risk Plan: Post-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	Uniform	\$0		\$0

ID	Title			
SR826-R092	Exchange Rate fluctuations increasing cost of P3			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	40	High		
Post-mitigation Score	40	High		

	Qualitative	Quantitative			Qualitative
Pre-mitigation	M	40%	Schedule	Pre-mitigation	L
Post-mitigation	M	40%	Cost	Pre-mitigation	VH
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: Pre-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	30		60
Cost	BetaPert	\$1,500,000	\$2,250,000	\$3,000,000

Risk Plan: Post-mitigation				
Impacting Task: 0010 - Risk Impacted Activity				
Schedule	Uniform	30		60
Cost	Uniform	\$1,500,000		\$3,000,000

ID	Title		
SR826-R056	Reduce gantry locations		
Status	Owner		
Proposed	Unassigned		

Pre-mitigation Score	40	High	
Post-mitigation Score	40	High	

	Qualitative	Quantitative					
Pre-mitigation	M	40%	Schedule	Pre-mitigation	N		
Post-mitigation	M	40%	Cost	Pre-mitigation	N		
			Performance	Pre-mitigation	VH		
				Post-mitigation	VH		

Risk Plan: **Pre-mitigation**
 Impacting Task: **0180 - ITS & Tolling**

Schedule	Uniform	0		0
Cost	BetaPert	\$0	\$0	\$0

Risk Plan: **Post-mitigation**
 Impacting Task: **0180 - ITS & Tolling**

Schedule	Uniform	0		0
Cost	Uniform	\$0		\$0

ID	Title			
SR826-R055	staging for Enforcement			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	36	High		
Post-mitigation Score	36	High		

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	N
Post-mitigation	VH	85%	Cost	Pre-mitigation	M
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: Pre-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

Impacting Task: 0180 - ITS & Tolling				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

Risk Plan: Post-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

Impacting Task: 0180 - ITS & Tolling				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

ID	Title		
SR826-R054	incident management (access and staging for responders)_		
Status	Owner		
Proposed	Unassigned		

Pre-mitigation Score	36	High	
Post-mitigation Score	36	High	

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	N
Post-mitigation	VH	85%	Cost	Pre-mitigation	M
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: Pre-mitigation				
Impacting Task: 0180 - ITS & Tolling				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

Risk Plan: Post-mitigation				
Impacting Task: 0180 - ITS & Tolling				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$250,000	\$375,000	\$500,000

ID	Title			
SR826-R030	Construction funds only \$ 5 M identified			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	36	High			
Post-mitigation Score	36	High			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	N
Post-mitigation	VH	85%	Cost	Pre-mitigation	VL
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	0		0
Cost	BetaPert	\$0	\$125,000	\$250,000

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	0		0
Cost	BetaPert	\$0	\$125,000	\$250,000

ID	Title			
SR826-R059	Concessionaires interpretation of RFP language and proper risk assignment insurability			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	36	High		
Post-mitigation Score	36	High		

	Qualitative	Quantitative			
Pre-mitigation	VH	85%	Schedule	Pre-mitigation	M
Post-mitigation	VH	85%	Cost	Pre-mitigation	H
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	60		120
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	60		120
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

ID	Title			
SR826-R052	Possibility of more efficient paving design			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	36	High		
Post-mitigation Score	36	High		

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VH	85%		Post-mitigation	N
Post-mitigation	VH	85%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: Pre-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

Risk Plan: Post-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	0		0
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

ID	Title			
SR826-R047	Miami-Dade/Broward transit demands additional scope			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	12	Medium		
Post-mitigation Score	12	Medium		

	Qualitative	Quantitative			Qualitative
Pre-mitigation	L	20%	Schedule	Pre-mitigation	M
Post-mitigation	L	20%	Cost	Pre-mitigation	H
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	60		120
Cost	BetaPert	\$1,000,000	\$1,250,000	\$1,500,000

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	60		120
Cost	Uniform	\$1,000,000		\$1,500,000

ID	Title		
SR826-R038	P3 Change orders due to unforeseen site conditions		
Status	Owner		
Proposed	Unassigned		

Pre-mitigation Score	28	High	
Post-mitigation Score	28	High	

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	H	60%	Cost	Pre-mitigation	L
Post-mitigation	H	60%	Performance	Post-mitigation	L
				Pre-mitigation	H
				Post-mitigation	H
				Pre-mitigation	N
				Post-mitigation	N

Risk Plan: Pre-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	7		15
Cost	BetaPert	\$250,000	\$312,500	\$375,000

Impacting Task: 0100 - Bridges				
Schedule	Uniform	7		15
Cost	BetaPert	\$250,000	\$312,500	\$375,000

Impacting Task: 0080 - Traffic Barrier/Retaining Walls				
Schedule	Uniform	7		15
Cost	BetaPert	\$250,000	\$312,500	\$375,000

Impacting Task: 0210 - Utilities				
Schedule	Uniform	7		15
Cost	BetaPert	\$250,000	\$312,500	\$375,000

Risk Plan: Post-mitigation				
Impacting Task: 0040 - Roadwork				
Schedule	Uniform	7		15
Cost	Uniform	\$250,000		\$375,000

Impacting Task: 0100 - Bridges				
Schedule	Uniform	7		15
Cost	Uniform	\$250,000		\$375,000

Impacting Task: 0080 - Traffic Barrier/Retaining Walls				
Schedule	Uniform	7		15
Cost	Uniform	\$250,000		\$375,000

Impacting Task: 0210 - Utilities				
Schedule	Uniform	7		15
Cost	Uniform	\$250,000		\$375,000

ID	Title		
SR826-R025	Segment tolling vs trip building Tolling strategy may change the signage requirements for the projects		
Status	Owner		
Proposed	Unassigned		

Pre-mitigation Score	28	High	
Post-mitigation Score	28	High	

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	H	60%		Post-mitigation	N
Post-mitigation	H	60%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

Risk Plan: Pre-mitigation				
Impacting Task: 0180 - ITS & Tolling				
Schedule	Uniform	0		0
Cost	BetaPert	\$500,000	\$625,000	\$750,000

Impacting Task: 0160 - Signing & Marking				
Schedule	Uniform	0		0
Cost	BetaPert	\$500,000	\$625,000	\$750,000

Risk Plan: Post-mitigation				
Impacting Task: 0180 - ITS & Tolling				
Schedule	Uniform	0		0
Cost	Uniform	\$500,000		\$750,000

Impacting Task: 0160 - Signing & Marking				
Schedule	Uniform	0		0
Cost	Uniform	\$500,000		\$750,000

ID	Title			
SR826-R035	toll by plate in addition to SunPass			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	28	High		
Post-mitigation Score	28	High		

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	H	60%		Post-mitigation	L
Post-mitigation	H	60%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	H
				Post-mitigation	H

Risk Plan: **Pre-mitigation**
 Impacting Task: **0180 - ITS & Tolling**

Schedule	Uniform	30		60
Cost	BetaPert	\$0	\$0	\$0

Risk Plan: **Post-mitigation**
 Impacting Task: **0180 - ITS & Tolling**

Schedule	Uniform	30		60
Cost	Uniform	\$0		\$0

ID	Title			
SR826-R022	A traffic and revenue study actual versus study for project funding			
Status	Owner			
Proposed	Unassigned			

Pre-mitigation Score	24	High		
Post-mitigation Score	24	High		

	Qualitative	Quantitative			Qualitative
Pre-mitigation	L	20%	Schedule	Pre-mitigation	N
Post-mitigation	L	20%	Cost	Pre-mitigation	N
			Performance	Pre-mitigation	VH
				Post-mitigation	VH

Risk Plan: **Pre-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	0		0
Cost	BetaPert	\$0	\$0	\$0

Risk Plan: **Post-mitigation**
 Impacting Task: **0010 - Risk Impacted Activity**

Schedule	Uniform	0		0
Cost	BetaPert	\$0	\$0	\$0

ID	Title				
SR826-R090	RFP language and proper risk assignment /insurability				
Status	Owner				
Rejected(Closed)	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%			N
					N
Post-mitigation	L	20%	Cost	Pre-mitigation	VH
				Post-mitigation	VH
			Performance	Pre-mitigation	N
				Post-mitigation	N

Risk Plan: Pre-mitigation			
Impacting Task: 0010 - Risk Impacted Activity			
Schedule	Uniform	0	0
Cost	Uniform	\$1,500,000	\$3,000,000

Risk Plan: Post-mitigation			
Impacting Task: 0010 - Risk Impacted Activity			
Schedule	Uniform	0	0
Cost	Uniform	\$1,500,000	\$3,000,000

ID	Title				
SR826-R077	Changes in drainage design criteria may require additional right of way				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	20	Medium			
Post-mitigation Score	20	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	M	40%			M
				Post-mitigation	M
Post-mitigation	M	40%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	SR826-R014				
Title	Permitting Issues				
Status	Proposed				
Owner	Unassigned				

Pre-mitigation Score	20	Medium			
Post-mitigation Score	20	Medium			

	Qualitative	Quantitative		Pre-mitigation	Post-mitigation	Qualitative
Pre-mitigation	M	40%	Schedule			M
						M
Post-mitigation	M	40%	Cost			H
						H
			Performance			N
						N

ID		Title			
SR826-R004		Current Unit Prices are in Historical Lows will we see fluctuations.			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	20	Medium			
Post-mitigation Score	20	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	M	40%			N
					N
Post-mitigation	M	40%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R021		Permits from the county and move limited access line.			
Status		Owner			
Open		FDOT- PM			
Pre-mitigation Score		20	Medium		
Post-mitigation Score		20	Medium		
	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	M	40%		Post-mitigation	M
Post-mitigation	M	40%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R026	Delays due to interagency coordination Turnpike MDX county, Central office, District 4				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	18	Medium			
Post-mitigation Score	18	Medium			

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	M
Pre-mitigation	VH	85%	Cost	Pre-mitigation	N
Post-mitigation	VH	85%		Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R051	last minute scope change				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	18	Medium			
Post-mitigation Score	18	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VH	85%			VL
Post-mitigation	VH	85%			VL
			Cost	Pre-mitigation	M
				Post-mitigation	M
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R039	Theft and Vandalism during and after construction				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	14	Medium			
Post-mitigation Score	14	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	H	60%			VL
Post-mitigation	H	60%			VL
			Cost	Pre-mitigation	M
				Post-mitigation	M
			Performance	Pre-mitigation	L
				Post-mitigation	L

ID	Title				
SR826-R020	Easements and right of way with RR				
Status	Owner				
Proposed	Unassigned				
Pre-mitigation Score	14	Medium			
Post-mitigation Score	14	Medium			
				Qualitative	
	Qualitative	Quantitative	Schedule	Pre-mitigation	M
Pre-mitigation	H	60%		Post-mitigation	M
Post-mitigation	H	60%	Cost	Pre-mitigation	L
				Post-mitigation	L
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R057	increased cost of Petroleum products to market conditions impacting bitumenous				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	12	Medium			
Post-mitigation Score	12	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%	Cost	Pre-mitigation	N
	L	20%		Post-mitigation	N
Post-mitigation	L	20%	Performance	Pre-mitigation	H
	L	20%		Post-mitigation	H
				Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R016		Public opposition to additional tolls			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	12	Medium			
Post-mitigation Score	12	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%			H
					H
Post-mitigation	L	20%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R032		Political opposition of converting a free lane into a managed lane			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		12	Medium		
Post-mitigation Score		12	Medium		
				Qualitative	
Pre-mitigation	Qualitative	Quantitative	Schedule	Pre-mitigation	H
	L		20%	Post-mitigation	H
Post-mitigation	L	20%	Cost	Pre-mitigation	N
	L	20%	Post-mitigation	Post-mitigation	N
			Performance	Pre-mitigation	N
			Post-mitigation	Post-mitigation	N

ID		Title			
SR826-R006		Ramp signaling implementation			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		36	High		
Post-mitigation Score		36	High		
		Schedule		Pre-mitigation	Qualitative
				Post-mitigation	L
Pre-mitigation		VH			L
		85%			H
Post-mitigation		VH	Cost		H
		85%	Pre-mitigation		H
			Post-mitigation		L
			Performance		L
			Pre-mitigation		L
			Post-mitigation		L

ID		Title			
SR826-R015		Political push back to the 2+4 alternative			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		12	Medium		
Post-mitigation Score		12	Medium		
		Schedule		Pre-mitigation	Qualitative
				Post-mitigation	H
Pre-mitigation		Qualitative	Cost		H
		L	Pre-mitigation		N
Post-mitigation		Quantitative	Post-mitigation		N
		20%	Performance		N
		20%	Pre-mitigation		N
			Post-mitigation		N

ID		Title			
SR826-R076		Changing Geotechnical Conditions (Due to New Information) MSE Walls			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	12	Medium			
Post-mitigation Score	12	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%			N
					N
Post-mitigation	L	20%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

ID	Title	
SR826-R046	clear RFP requirements and coordination with I-75 for network wide communication system (ITS)	
Status	Owner	
Proposed	Unassigned	

Pre-mitigation Score	10	Medium
Post-mitigation Score	10	Medium

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	M
Pre-mitigation	Qualitative	Quantitative	Cost	Pre-mitigation	M
	M	40%		Post-mitigation	M
Post-mitigation	M	40%	Performance	Pre-mitigation	M
				Post-mitigation	M

ID	Title				
SR826-R071	Maintenance and operations funding				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	10	Medium			
Post-mitigation Score	10	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	M	40%			N
					N
Post-mitigation	M	40%	Cost	Pre-mitigation	M
				Post-mitigation	M
			Performance	Pre-mitigation	M
				Post-mitigation	M

ID		Title			
SR826-R048		MPO board approval for the project (Funding)			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	10	Medium			
Post-mitigation Score	10	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	M	40%			M
					M
Post-mitigation	M	40%	Cost	Pre-mitigation	M
				Post-mitigation	M
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R009	Delays in the Right of way aquisition (2+4)				
Status	Owner				
Rejected(Closed)	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	M	40%			M
				Post-mitigation	M
Post-mitigation	M	40%	Cost	Pre-mitigation	M
				Post-mitigation	M
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R074	Major Hurricane that would change all traffic pattern				
Status	Owner				
Proposed	Unassigned				
Pre-mitigation Score	8	Medium			
Post-mitigation Score	8	Medium			
		Schedule		Pre-mitigation	Qualitative
Pre-mitigation	VL	5%	Cost	Pre-mitigation	N
Post-mitigation	VL	5%	Performance	Pre-mitigation	N
				Post-mitigation	N
				Post-mitigation	VH
				Post-mitigation	VH

ID		Title			
SR826-R073		Maintain political support to the project during an election year			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	8	Medium			
Post-mitigation Score	8	Medium			

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	VH
Pre-mitigation	Qualitative	Quantitative	Cost	Pre-mitigation	N
	VL	5%		Post-mitigation	N
Post-mitigation	VL	5%	Performance	Pre-mitigation	VH
				Post-mitigation	VH

ID	Title				
SR826-R042	Challenge of educating the public for new traffic patterns				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	7	Medium			
Post-mitigation Score	7	Medium			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	H	60%			N
Post-mitigation	H	60%			N
			Cost	Pre-mitigation	L
				Post-mitigation	L
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

ID		Title			
SR826-R019		Shortage of Flag men for RR			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		7	Medium		
Post-mitigation Score		7	Medium		
		Schedule		Pre-mitigation	Qualitative
				Post-mitigation	L
Pre-mitigation		Qualitative	Cost		N
		H	Pre-mitigation		N
Post-mitigation		Quantitative	Post-mitigation		N
		60%	Performance		N
		60%	Post-mitigation		N

ID		Title			
SR826-R007		Other Major Construction projects are going on at the same time			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		6	Medium		
Post-mitigation Score		6	Medium		
				Qualitative	
	Qualitative	Quantitative	Schedule	Pre-mitigation	VL
Pre-mitigation	L	20%		Post-mitigation	VL
			Cost	Pre-mitigation	M
Post-mitigation	L	20%		Post-mitigation	M
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R060		Availability of Laydown and staging areas			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		6	Medium		
Post-mitigation Score		6	Medium		
				Qualitative	
Pre-mitigation	Qualitative	Quantitative	Schedule	Pre-mitigation	N
	L		20%	Post-mitigation	N
Post-mitigation	L	20%	Cost	Pre-mitigation	M
	L	20%	Post-mitigation	Post-mitigation	M
			Performance	Pre-mitigation	N
			Post-mitigation	Post-mitigation	N

ID	Title				
SR826-R082	Concessionaire doesnot have skin in the game on quality and maintenance				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	5	Low			
Post-mitigation Score	5	Low			

			Schedule	Pre-mitigation	Qualitative
	Qualitative	Quantitative		Post-mitigation	N
Pre-mitigation	M	40%	Cost	Pre-mitigation	N
Post-mitigation	M	40%		Post-mitigation	N
			Performance	Pre-mitigation	L
				Post-mitigation	L

ID	SR826-R045				
Title	Interchange operations may affect managed lanes operations (25th, 74th,)				
Status	Proposed				
Owner	Unassigned				

Pre-mitigation Score	5	Low			
Post-mitigation Score	5	Low			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	M	40%	Schedule	Pre-mitigation	L
				Post-mitigation	L
Post-mitigation	M	40%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

ID	SR826-R091				
Title	Labor & Material price fluctuation risk				
Status	Proposed				
Owner	Unassigned				

Pre-mitigation Score	4	Low			
Post-mitigation Score	4	Low			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VL	5%	Schedule	Pre-mitigation	N
				Post-mitigation	N
Post-mitigation	VL	5%	Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R028		Competition from other toll facilities may impact revenues			
Status		Owner			
Proposed		Unassigned			
Pre-mitigation Score		4	Low		
Post-mitigation Score		4	Low		
				Qualitative	
	Qualitative	Quantitative	Schedule	Pre-mitigation	N
Pre-mitigation	VL	5%		Post-mitigation	N
			Cost	Pre-mitigation	N
Post-mitigation	VL	5%		Post-mitigation	N
			Performance	Pre-mitigation	H
				Post-mitigation	H

ID		Title			
SR826-R084		Design External review delays project schedule			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	4	Low			
Post-mitigation Score	4	Low			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VL	5%			H
Post-mitigation	VL	5%			H
			Cost	Pre-mitigation	H
				Post-mitigation	H
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title	
SR826-R083	Scope Creep	
Status	Owner	
Proposed	Unassigned	

Pre-mitigation Score	3	Low
Post-mitigation Score	3	Low

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%		Post-mitigation	N
Post-mitigation	L	20%	Cost	Pre-mitigation	L
				Post-mitigation	L
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R061		Vehicle exemptions (HOV, Motorcycles, Buses, Hybrids etc.) may reduce revenue			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	2	Low			
Post-mitigation Score	2	Low			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%			N
	L	20%			N
Post-mitigation	L	20%	Cost	Pre-mitigation	N
	L	20%		Post-mitigation	N
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

ID		Title			
SR826-R086		Public revolt on Tolling			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	2	Low			
Post-mitigation Score	2	Low			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	L	20%			N
Post-mitigation	L	20%			N
			Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

ID	Title				
SR826-R066	variable speed limits to maximize through put				
Status	Owner				
Proposed	Unassigned				
Pre-mitigation Score	2	Low			
Post-mitigation Score	2	Low			
					Qualitative
	Qualitative	Quantitative	Schedule	Pre-mitigation	N
Pre-mitigation	L	20%		Post-mitigation	N
Post-mitigation	L	20%	Cost	Pre-mitigation	VL
				Post-mitigation	VL
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R043	Threatening endangered species				
Status	Owner				
Proposed	Unassigned				
Pre-mitigation Score	1	Low			
Post-mitigation Score	1	Low			
			Schedule	Pre-mitigation	Qualitative
	Qualitative	Quantitative			N
Pre-mitigation	VL	5%	Cost	Pre-mitigation	L
Post-mitigation	VL	5%		Post-mitigation	L
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R033	If projects north do not go forward this project does not make sense and vice versa				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	1	Low			
Post-mitigation Score	1	Low			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VL	5%			N
Post-mitigation	VL	5%			N
			Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	VL
				Post-mitigation	VL

ID	Title				
SR826-R011	MOT conflicts w/ ongoing construction on 25th street				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	1	Low			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VL	5%	Cost	Pre-mitigation	L
Post-mitigation	N	0%	Performance	Post-mitigation	VL
				Pre-mitigation	L
				Post-mitigation	VH
				Pre-mitigation	L
				Post-mitigation	VH

ID	SR826-R053				
Title	Survey results do not match existing plans				
Status	Proposed				
Owner	Unassigned				

Pre-mitigation Score	1	Low			
Post-mitigation Score	1	Low			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	VL	5%	Schedule	Pre-mitigation	VL
				Post-mitigation	VL
Post-mitigation	VL	5%	Cost	Pre-mitigation	VL
				Post-mitigation	VL
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R024		Public demand may change the egress and ingress			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	1	Low			
Post-mitigation Score	1	Low			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	VL	5%	Cost	Pre-mitigation	N
	VL	5%		Post-mitigation	N
Post-mitigation	VL	5%	Performance	Pre-mitigation	L
	VL	5%		Post-mitigation	L

ID	Title				
SR826-R008	Excavation for the Port Tunnel can be used to backfill and low cost embankment				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	N	0%		Post-mitigation	L
Post-mitigation	N	0%	Cost	Pre-mitigation	L
				Post-mitigation	L
			Performance	Pre-mitigation	L
				Post-mitigation	L

ID	Title				
SR826-R027	Retrofitting systems to systems connections at 826, 836 interchange				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	N
Pre-mitigation	N	0%	Cost	Pre-mitigation	N
Post-mitigation	N	0%		Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R017	Design coordination with concurrent and future local projects				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative			Qualitative
Pre-mitigation	N	0%	Schedule	Pre-mitigation	N
				Post-mitigation	N
Post-mitigation	N	0%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R058		potential parallel facility by MDX			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	N	0%			N
					N
Post-mitigation	N	0%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R069		Environmental justice on FHWA Funded project.			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	H	60%			N
					N
Post-mitigation	H	60%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title	
SR826-R050	Possibility of segmental bridges not being allowed on new projects (Not Applicable to this project)	
Status	Owner	
Proposed	Unassigned	

Pre-mitigation Score	0	Negligible
Post-mitigation Score	0	Negligible

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	N	0%		Post-mitigation	N
Post-mitigation	N	0%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R062		Opportunity for additional tolling if truck are allowed			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	N	0%			N
					N
Post-mitigation	N	0%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R078	Conflict between ITS and Landscaping full coverage for ITS cameras				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	N	0%			N
					N
Post-mitigation	N	0%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R023		FPL Oil filled High transmission conduits			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	N
Pre-mitigation	N	0%	Cost	Pre-mitigation	N
Post-mitigation	N	0%		Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID		Title			
SR826-R031		Construction challenges relating to FAA glide path regulations			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	N
Pre-mitigation	N	0%	Cost	Pre-mitigation	N
Post-mitigation	N	0%		Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

ID	Title				
SR826-R049	Managed lanes may become obsolete by policy change				
Status	Owner				
Proposed	Unassigned				

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

	Qualitative	Quantitative	Schedule	Pre-mitigation	Qualitative
Pre-mitigation	N	0%			N
					N
Post-mitigation	N	0%	Cost	Pre-mitigation	N
				Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N

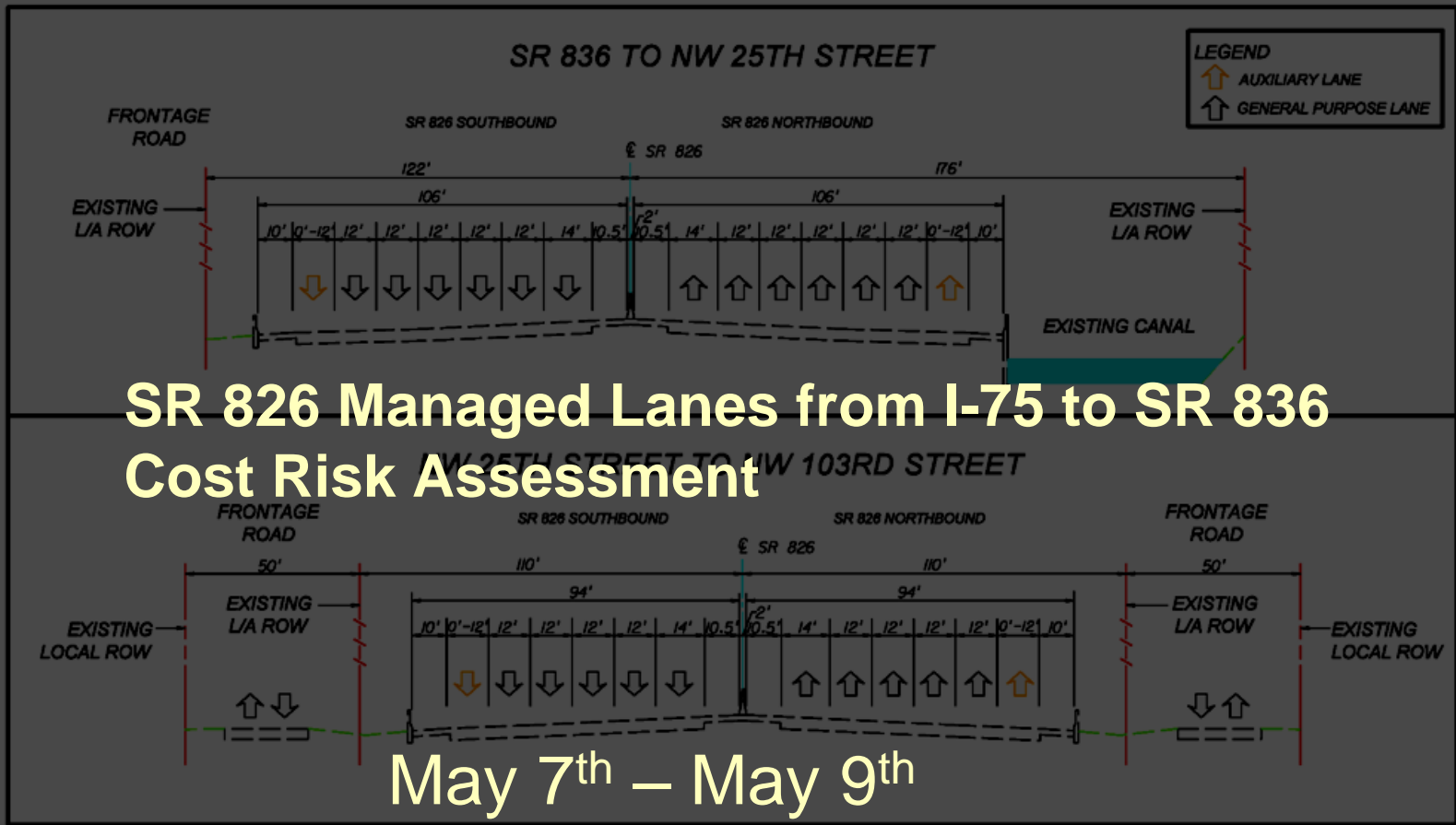
ID		Title			
SR826-R034		Convert Canal to culvert and use right of way for widening (Does not Apply to this project)			
Status		Owner			
Proposed		Unassigned			

Pre-mitigation Score	0	Negligible			
Post-mitigation Score	0	Negligible			

			Schedule	Pre-mitigation	Qualitative
				Post-mitigation	N
Pre-mitigation	N	0%	Cost	Pre-mitigation	N
Post-mitigation	N	0%		Post-mitigation	N
			Performance	Pre-mitigation	N
				Post-mitigation	N



Presentation





EST. 1971

- Process
- Workshop Agenda
- Ground Rules

Qualitative

- Identification of Risks
- Ranking of Risks
- Mitigation Plans

Quantitative

- Definition of Risk Model
- Ranging Session
- Team input
- Simulations and statistical Analysis
- Results, Identification of Probable completion dates
- Report/Presentation



Tentative Risk Analysis Agenda

May 7 – 9, 2012

Day One	Kickoff and introduction of RA team	8:00 am – 8:15 am
	Steering Committee Meeting	8:15 am – 12:00 pm
	Lunch	12:00 pm – 1:00 pm
	Identify threats and Opportunities	1:00 pm – 3:00 pm
	Risk Ranking and Grouping	3:00 pm – 5:00 pm
Day Two	Risk Model, begin ranging	8:00 am – 12:00 pm
	Lunch	12:00 pm – 1:00 pm
	<i>Ranging</i> (run analysis after session)	1:00 pm – 5:00 pm
Day Three	Summarize Results	8:00 am – 9:00 am
	Risk Mitigation Plan	9:00 am – 12:00 pm
	Lunch	12:00 pm – 1:00 pm
	Refine Risk Mitigation Plan	1:00 pm – 5:00 pm



EST. 1971

- Creative Ideas; No Idea is a bad idea
- One discussion at a time
- Respect others ideas,
- Active Participation from everyone
- No hierarchy, no intimidation no inhibitions

Qualitative Analysis Risk Martix

- 92 Risk Identified
- 81 Risks carried forward
 - 69 Risks
 - 12 Opportunities
- 30 High Risks
- 23 Medium Risks
- 14 Low Risks
- 14 negligible Risks

Risk Matrix

	Impacts				
	Very Low	Low	Medium	High	Very High
Very High %			2	8	6
High %		2	2	4	4
Medium %		2	4	4	6
Low %	3	1	2	6	3
Very Low %	2	3		3	2



ID	Type	RBS	Title	Description	Effect	Pre-mitigation Score	Mitigation Actions	Impacted Tasks
SR826-R012	Threat	Environmental & hydraulics	Drainage design to meet water quantity and quality	Design may have to meet the new permitting requirements, or meeting existing criteria. may result in added french drains or acquiring right of way to build ponds,	Additional cost and right of way, and delayed schedule	72	1	3
SR826-R040	Threat	Design and PS&E	Short conceptual design duration to develop the RFP, impact RFP completeness and response risks	Short time to Develop RFP	Impact RFP completeness and response to risk, and additional change orders	72	5	1
SR826-R013	Threat	Political Issues	Public perception of continuing construction impact after completion of (12 projects)	Never ending construction, Toll rates	public opposition to the project driver confusion	72	1	1
SR826-R029	Threat	Design and PS&E	Needs Approvals for exceptions and variations	exceptions and variation needed from FDOT & FHWA to avoid right of way acquisitions	cost of acquiring right of way and schedule delay and negative impacts to the community	72	3	1
SR826-R003	Threat	Utilities and Rail Roads	Florida Gas Transmission Line from 25th to 154th	20 inch Gas line: Widening may encroach closer to the gas line	Compensation for relocation for gas utility line	72	1	1
SR826-R070	Threat	Environmental & hydraulics	maintenance of trench drains	O&M cost of maintaining trench drains	overall increase in Life Cycle Cost	72	2	1
SR826-R010	Threat	Environmental & hydraulics	Noise impact on neighbourhoods	Increased noise level due to added traffic., Adding Noise walls would not reduce noise levels sufficient to warrant walls	Increased noise level	56		1



Risk Model Ranging

Budget **\$237,876,127**

Contingency **\$37,183,631**

Risk Model Net **\$200,692,496**

SR 826 Managed Lanes from I-75 to SR 836

							Costs			
ID	Description	Probability of occurrence	Deterministic cost	Remaining Cost	Min Fixed Cost	Likely Fixed Cost	Max Fixed Cost	Minimum %	Likely %	Maximum %
0380	Total Project		\$237,876,127	\$237,876,127						
A000	Direct Construction Costs		\$139,683,060	\$139,683,060						
0010	Risk Impacted Activity	100%	\$0	\$0						
0030	Clearing and Grubbing	100%	\$1,287,968	\$1,287,968	\$605,151	\$1,287,968	\$1,540,432	47%	100%	120%
0040	Roadwork	100%	\$20,326,059	\$20,326,059	\$14,800,802	\$20,326,059	\$24,067,264	73%	100%	118%
0045	Bulkhead	100%	\$2,378,247	\$2,378,247	\$2,376,098	\$2,378,247	\$4,158,514	100%	100%	175%
0130	Storm Drain Str.	100%	\$2,235,156	\$2,235,156	\$2,008,104	\$2,235,156	\$2,413,387	90%	100%	108%
0120	Sorm Drain Piping	100%	\$1,329,668	\$1,329,668	\$1,190,533	\$1,329,668	\$1,898,670	90%	100%	143%
0050	French Drains	100%	\$6,279,844	\$6,279,844	\$5,168,144	\$6,279,844	\$7,221,821	82%	100%	115%
0060	Concrete	100%	\$1,985,096	\$1,985,096	\$1,786,586	\$1,985,096	\$2,235,371	90%	100%	113%
0070	Steel, Reinforcement & sheet Piling	100%	\$3,320,351	\$3,320,351	\$1,936,084	\$3,320,351	\$4,515,234	58%	100%	136%
0080	Traffic Barrier/Retaining Walls	100%	\$22,788,347	\$22,788,347	\$18,945,941	\$22,788,347	\$28,485,434	83%	100%	125%
0090	Road Markings	100%	\$389,214	\$389,214	\$355,572	\$389,214	\$712,086	91%	100%	183%
0100	Bridges	100%	\$53,673,880	\$53,673,880	\$46,964,645	\$53,673,880	\$61,054,038	88%	100%	114%
0140	Lighting	100%	\$240,200	\$240,200	\$180,150	\$240,200	\$300,250	75%	100%	125%
0160	Signing & Marking	100%	\$3,117,036	\$3,117,036	\$2,805,332	\$3,117,036	\$3,428,740	90%	100%	110%
0170	Noise Wall	100%	\$0	\$0						
0180	ITS & Tolling	100%	\$13,199,988	\$13,199,988	\$11,879,989	\$13,199,988	\$14,519,987	90%	100%	110%
0190	Environmental Mitigation	100%	\$300,000	\$300,000	\$281,250	\$375,000	\$468,750	94%	125%	156%
0200	Landscaping	100%	\$1,000,000	\$1,000,000	\$750,000	\$1,000,000	\$2,127,870	75%	100%	213%
0210	Utilities	100%	\$5,400,000	\$5,400,000	\$5,625,000	\$7,500,000	\$9,375,000	104%	139%	174%
0220	Fire Suppression Systems	100%	\$432,006	\$432,006	\$324,005	\$432,006	\$540,008	75%	100%	125%
B000	Proforma Costs		\$98,193,067	\$98,193,067						
0310	Contamination	100%	\$1,200,000	\$1,200,000	\$1,125,000	\$1,200,000	\$1,875,000	94%	100%	156%
0320	Mobilization	100%	\$15,365,137	\$15,365,137	\$12,890,963	\$14,185,806	\$15,971,842	84%	92%	104%
0330	Maintenance of Traffic	100%	\$13,968,306	\$13,968,306	\$14,180,060	\$15,604,387	\$17,569,026	102%	112%	126%
0340	Contingency	0%	\$37,183,631	\$37,183,631	\$31,196,132	\$34,329,651	\$38,651,857	84%	92%	104%
0350	CEI	100%	\$14,776,239	\$14,776,239	\$13,839,738	\$15,229,882	\$17,147,369	94%	103%	116%
0360	DB Desinging Fees	100%	\$15,699,754	\$15,699,754	\$17,229,673	\$19,037,352	\$21,434,212	110%	121%	137%
TOTALS			\$237,876,127	\$237,876,127						

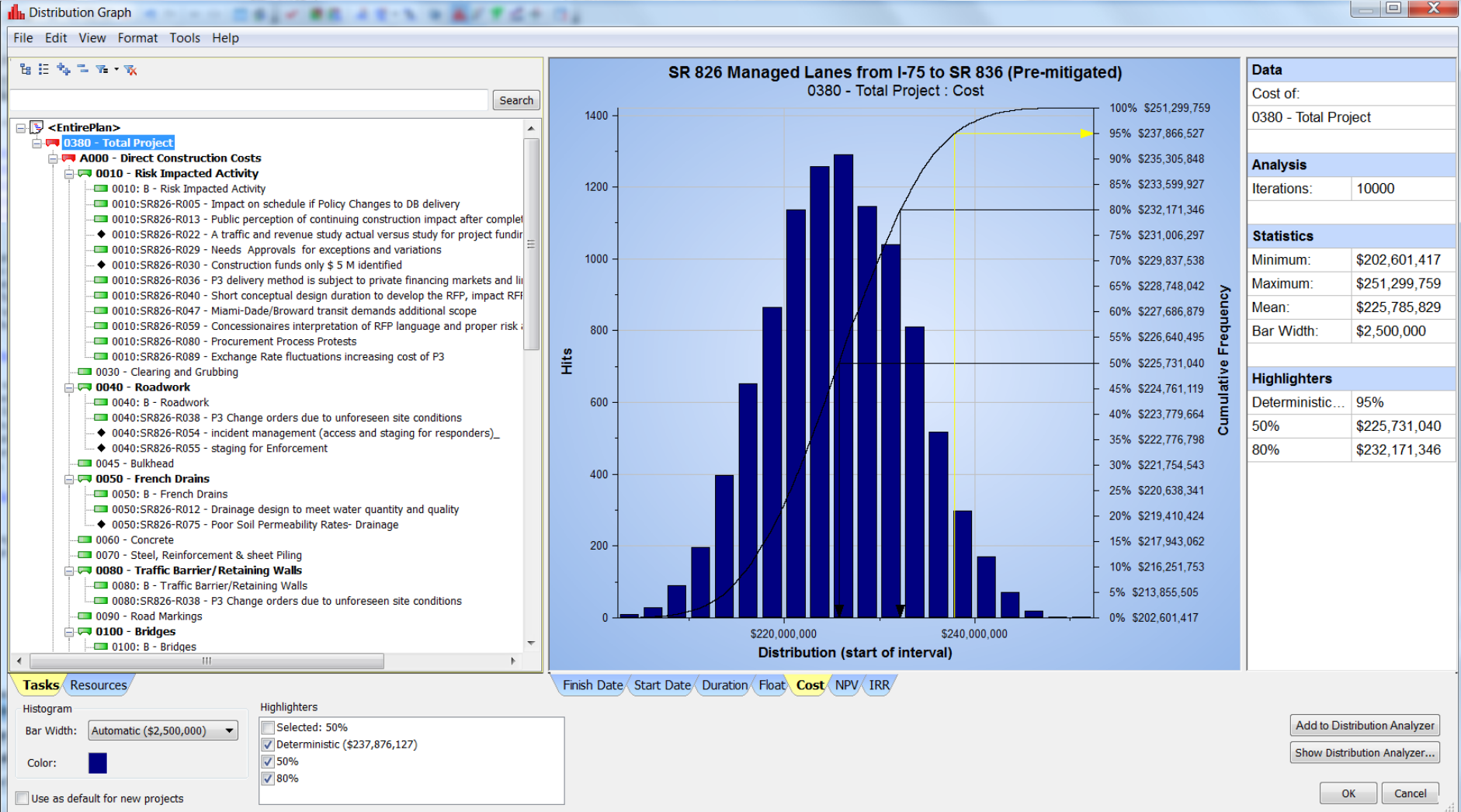


Risk Analysis Risk Impacts

SR 826 Managed Lanes from I-75 to SR 836 (Pre-mitigated)

ID	Description	Remaining Cost	P10 Cost	P50 Cost	P80 Cost	P90 Cost	Cost Sensitivity	Risk Outputs
0380	Total Project	\$237,876,127	\$216,251,753	\$225,731,040	\$232,171,346	\$235,305,848	100%	
A000	Direct Construction Costs	\$139,683,060	\$150,745,949	\$158,918,510	\$164,541,266	\$167,190,833	99%	
0010	Risk Impacted Activity	\$0	\$5,439,590	\$8,325,056	\$10,086,274	\$11,052,307	30%	
0010	Risk Impacted Activity	\$0	\$0	\$0	\$0	\$0	0%	
0010	Impact on schedule if Policy Changes to DB deliver	\$0	\$0	\$1,151,265	\$1,295,701	\$1,349,862	9%	
0010	Public perception of continuing construction impact	\$0	\$0	\$0	\$0	\$0	0%	
0010	A traffic and revenue study actual versus study for	\$0	\$0	\$0	\$0	\$0	0%	
0010	Needs Approvals for exceptions and variations	\$0	\$0	\$2,181,235	\$2,477,303	\$2,608,981	12%	
0010	Construction funds only \$ 5 M identified	\$0	\$0	\$112,936	\$162,727	\$184,458	1%	
0010	P3 delivery method is subject to private financing m	\$0	\$0	\$1,954,897	\$2,387,621	\$2,549,332	16%	
0010	Short conceptual design duration to develop the RF	\$0	\$0	\$2,180,897	\$2,475,517	\$2,606,754	10%	
0010	Miami-Dade/Broward transit demands additional sc	\$0	\$0	\$0	\$0	\$1,251,033	5%	
0010	Concessionaires interpretation of RFP language an	\$0	\$0	\$1,226,440	\$1,325,035	\$1,369,380	7%	
0010	Procurement Process Protests	\$0	\$0	\$0	\$0	\$0	0%	
0010	Exchange Rate fluctuations increasing cost of P3	\$0	\$0	\$0	\$2,243,565	\$2,452,575	17%	
0030	Clearing and Grubbing	\$1,287,968	\$981,321	\$1,233,987	\$1,372,786	\$1,427,582	3%	
0040	Roadwork	\$20,326,059	\$18,453,717	\$20,933,320	\$22,473,182	\$23,141,706	76%	
0040	Roadwork	\$0	\$0	\$0	\$0	\$0	0%	
0040	P3 Change orders due to unforeseen site condition:	\$0	\$0	\$288,060	\$324,079	\$337,339	8%	
0040	incident management (access and staging for res	\$0	\$0	\$353,299	\$441,700	\$470,795	3%	
0040	staging for Enforcement	\$0	\$0	\$363,742	\$412,906	\$434,452	4%	
0045	Bulkhead	\$2,378,247	\$2,417,268	\$2,611,637	\$2,871,649	\$3,038,849	3%	
0050	French Drains	\$6,279,844	\$5,809,316	\$6,412,509	\$6,842,568	\$7,077,233	12%	
0050	French Drains	\$0	\$0	\$0	\$0	\$0	0%	
0050	Drainage design to meet water quantity and quality	\$0	\$0	\$35,309	\$53,010	\$60,629	1%	
0050	Poor Soil Permeability Rates- Drainage	\$0	\$0	\$0	\$0	\$747,200	11%	
0060	Concrete	\$1,985,096	\$1,882,365	\$1,992,132	\$2,071,271	\$2,108,975	1%	
0070	Steel, Reinforcement & sheet Piling	\$3,320,351	\$2,633,147	\$3,298,776	\$3,739,371	\$3,938,041	7%	
0080	Traffic Barrier/Retaining Walls	\$22,788,347	\$20,953,904	\$23,233,906	\$24,911,895	\$25,754,612	77%	
0080	Traffic Barrier/Retaining Walls	\$0	\$0	\$0	\$0	\$0	0%	
0080	P3 Change orders due to unforeseen site condition:	\$0	\$0	\$288,529	\$323,867	\$337,226	8%	
0090	Road Markings	\$389,214	\$373,396	\$426,731	\$484,770	\$518,976	1%	
0100	Bridges	\$53,673,880	\$50,485,331	\$54,006,162	\$56,478,022	\$57,629,061	81%	
0100	Bridges	\$0	\$0	\$0	\$0	\$0	0%	
0100	Crossing several rail roads, Metro Rail, aerial rights	\$0	\$0	\$56,794	\$81,372	\$92,290	3%	
0100	P3 Change orders due to unforeseen site condition:	\$0	\$0	\$288,189	\$323,717	\$337,326	8%	
0120	Sorm Drain Piping	\$1,329,668	\$1,563,783	\$3,694,449	\$4,118,871	\$4,385,067	14%	
0120	Sorm Drain Piping	\$0	\$0	\$0	\$0	\$0	0%	
0120	Drainage design to meet water quantity and quality	\$0	\$0	\$34,954	\$52,992	\$60,623	1%	

	Contingency Needed	
Det. Net	\$200,692,496	0
P50	\$225,731,040	\$25,038,544
P80	\$232,171,346	\$31,478,850
P90	\$235,305,848	\$34,613,352
Project Contingency		\$37,183,631

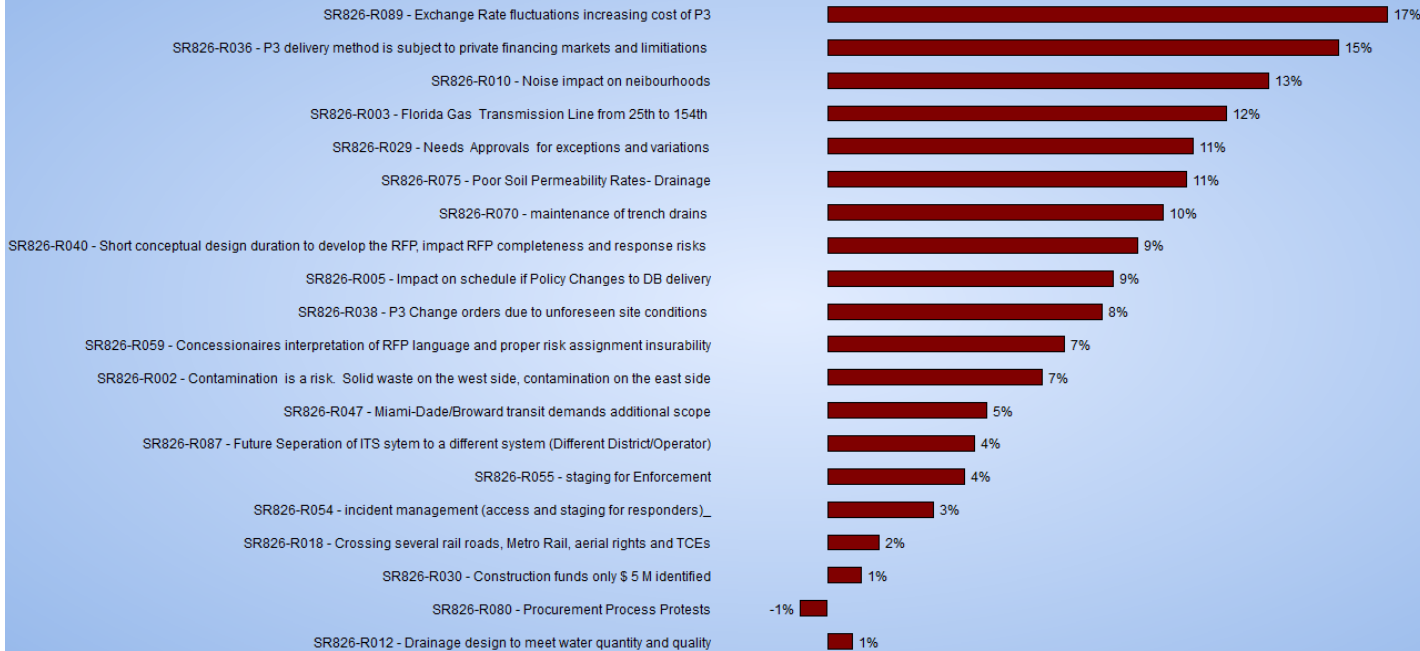




Tornado

File Edit View Format Help

SR 826 Managed Lanes from I-75 to SR 836 (Pre-mitigated) Cost Sensitivity



Definition of Cost Sensitivity

The cost sensitivity of a risk event is a measure of the correlation between the occurrence of any of its impacts and the cost of the project (or a key task).

Analysis

Simulation	Latin Hypercube
Iterations	10000

Sensitivity calculation

Correlation between:
 Cost of Entire Plan
 And:
 Existence of each risk.
 Using: Pearson's product moment.

Display

Risks only
 Showing 20 highest values
 Values greater t... 0

Duration Sensitivity Cost Sensitivity

Display mode: Tasks Risks

Task types to display:

- Normal tasks
- Summary tasks
- Milestone tasks
- Monitor tasks
- Hammock task
- Risk summary tasks
- Base tasks
- Risk impacts

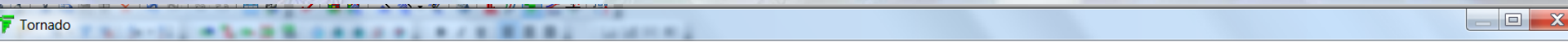
Filter:

- Show top
- Ignore values smaller than +/- %
- Ignore negative values

Use as default for new projects

Bookmark Visible Tasks

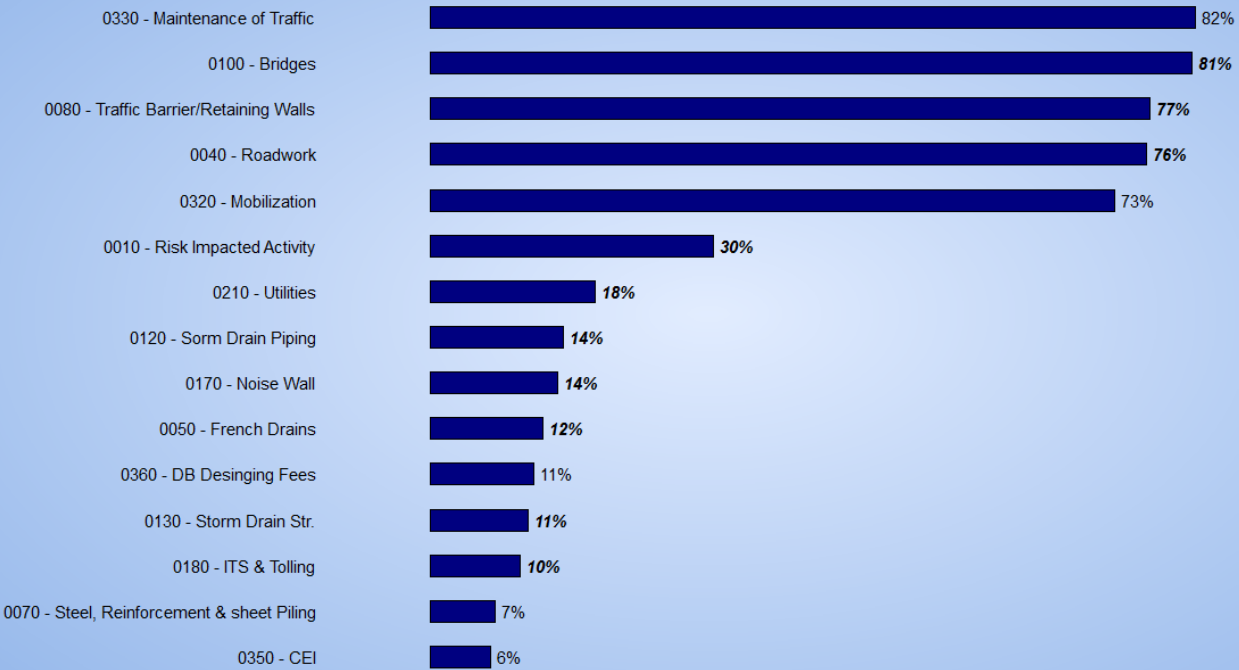
OK Cancel



File Edit View Format Help

SR 826 Managed Lanes from I-75 to SR 836 (Pre-mitigated)

Cost Sensitivity: Entire Plan - All tasks



Definition of Cost Sensitivity

The cost sensitivity of a task is a measure of the correlation between its cost and the cost of the project (or a key task or summary).

Analysis

Simulation	Latin Hypercube
Iterations	10000

Sensitivity calculation

Correlation between:

Cost of Entire Plan

And:

Cost of each task in the plan

Using: Pearson's product moment.

Display

Normal tasks only

Showing 15 highest values

Values greater than: 0

Duration Sensitivity **Cost Sensitivity** Criticality Index Duration Cruciality Schedule Sensitivity Index

Display mode: Tasks Risks

Task types to display:

- Normal tasks
- Summary tasks
- Milestone tasks
- Monitor tasks
- Hammock task
- Risk summary tasks
- Base tasks
- Risk impacts

Filter:

- Show top: 15
- Ignore values smaller than +/-: 0 %
- Ignore negative values

Bookmark Visible Task

OK Cancel

