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Florida Department of Transportation
District 6

Life-Cycle Cost Analysis
Draft Report
Seven Mile Bridge Over Moser Channel
Bridge 900101

FDOT FM No. 433381-1-32-01
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EXECUTIVE SUMMARY

The Life Cycle Cost Analysis (LCCA) of the Seven Mile Bridge over the Moser Channel (Bridge No. 900101) connecting Knight's Key and Little Duck Key in Marathon, Monroe County is quantified in this report. The LCCA evaluates two scenarios for the bridge: rehabilitation of the existing bridge or a complete replacement. The existing typical section of the bridge is to remain the same, carrying the 2 lanes of traffic as originally designed. Since this is the only route in and out of the lower Keys and serves as the only evacuation route during hurricane season, the bridge will have to remain opened to traffic at all times during the construction activities. This is a very challenging engineering objective due to the importance of the structure, its unique structural system, and conditions of the environment.

Bolton Perez & Associates is pleased to present this LCCA for the Seven Mile bridge. The LCCA contained herein addresses in detail specific design issues and strategies required for the rehabilitation and replacement of the Seven Mile Bridge.

There are items and considerations that cannot be quantified and are therefore not captured in the LCCA, but should be considered when making the final decision between replacing or rehabilitating the Seven Mile Bridge. With the limitations noted above, and only to the extent of this analysis, **Bolton Perez & Associates** recommends replacing the bridge based on the life cycle cost advantages and with consideration of all the additional benefits to be gained with a new bridge structure.

SECTION 1 – PROJECT DESCRIPTION

1.1 Project Summary

This project encompasses the Life Cycle Cost Analysis (LCCA) of the Seven Mile Bridge over the Moser Channel (Bridge No. 900101) connecting Knight's Key and Little Duck Key in Marathon, Monroe County. This LCCA considers two possible scenarios consisting of (1) A rehabilitation of the existing bridge and (2) A complete replacement.

For Alternative (1) rehabilitation, the existing structure, which will remain in service, is a precast segmental bridge composed of 265 spans and built in 1983. The major components consist of substructure members, such as drilled shafts, connecting struts, and round columns in the low-level spans, and footers supporting hollow post-tensioned (PT) box columns in high-level spans. The superstructure main elements consist of the segmental boxes, deviator saddles, PT tendons, and diaphragms at piers.

For Alternative (2) replacement, a new bridge with a typical section consisting of five Florida I-84 Beams supporting an 8.5 in. reinforced concrete deck is considered. The existing roadway geometry of the bridge is assumed to remain the same, carrying the 2 lanes of traffic as originally designed. Since this bridge is the only route in and out of the lower Keys and carries essential utilities in addition to serving as part of the Hurricane Evacuation Route, the existing bridge shall remain open to traffic at all times during the construction activities of the replacement structure. It is considered that the replacement structure will be in a parallel alignment to the existing. As the existing structure supports a 36" diameter water line, we anticipate that the replacement bridge will also include a similar water line. After coordination with the District Utility Office, we consider that the existing line is attached to the bridge by permit. As a result, any costs associated to removal and installation of the water utility is not included in this study.

This LCCA performed by **Bolton Perez & Associates** considers the capital costs including operation, maintenance costs, and residual value of the respective alternatives over a timeline of analysis. The LCCA included herein considers in specific detail the costs for both the rehabilitation and the replacement alternatives of the Seven Mile Bridge.

1.2 Existing Bridge Conditions

This project is located in Marathon over the Moser Channel, Monroe County, Florida Keys. The Seven Mile Bridge encompasses a segment of the SR-5 / US-1 roadway from MP 40 to MP 46.6, which is also known as the "Overseas Highway"; the bridge connects Knight's Key and Little Duck Key. The structure was completed in 1983 to replace the old bridge structure built in 1912.

Figure 1.1 Seven Mile Bridge Location

The Seven Mile Bridge has 265 spans with a total length of 35,863.38 ft. and was built using the span-by-span method of erection with an overhead gantry, with external tendons and dry joints between segments. The bridge has 239 piers composed of two 3-ft. diameter columns connected by a precast strut and 27 vertically post-tensioned box columns piers at the high-level spans. Figures 1.2 and 1.3 show the bridge typical section at low- and high-level spans, respectively.

The bridge also supports a 36 in. diameter water main and other important utilities. The bridge typical section consists of two (2) 12 ft. travel lanes and 6 ft. shoulders at both sides with an overall width of 38'-4½".

Based on Bridge Profile, Inspection, and Comprehensive Information Data Reports ranging from 2010 to 2020, the Sufficiency Rating was observed to decrease over time from 78.0 in 2010 to 59.1 in 2019. The Health Index of the structure has remained in the 90s in 2019 and can be attributed to a recent major rehabilitation. Despite the Sufficiency Rating, the bridge has never been found to be functionally obsolete nor structurally deficient.

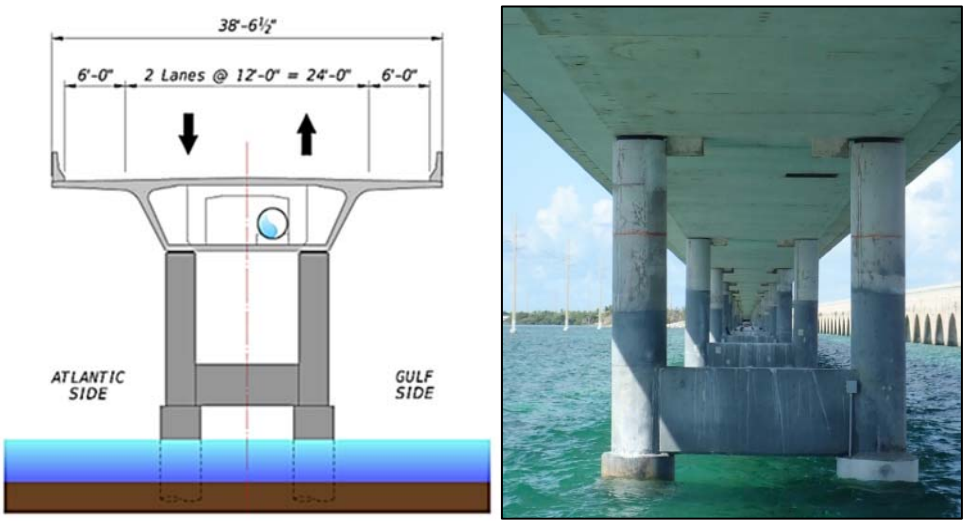


Figure 1.2 Low Level Spans – Typical Section

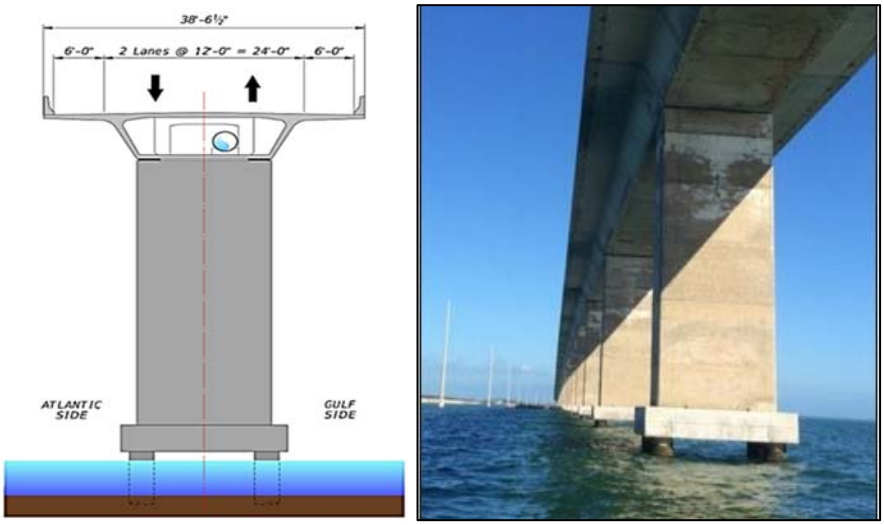


Figure 1.3 High Level Spans – Typical Section

Past superstructure rehabilitations have included epoxy injection due to cracking in superstructure elements, and cracking and spall repair due to concrete high chloride content. The latest tests performed by the FDOT State Materials Office (SMO) Corrosion Research Laboratory, in December 2020 (Appendix F), found that the samples taken on the segmental box girders contained significantly high chloride contamination, ranging 4.8 to 19.2 pounds of chlorides per cubic yard. These values

are between 4 to 16 times the threshold of 1.2 pounds of chlorides per cubic yard of concrete, enough to initiate corrosion. These high values preclude the use of cathodic protection. Therefore, special consideration for the repair of these elements has been quantified in the LCCA.

Substructure rehabilitations had been performed in the past in this bridge, the last one being in 2020; we consider that the periodic rehabilitations will continue throughout the bridge service life. The rehabilitation work has typically comprised of epoxy material injection at cracking in substructure elements, spall repairs due to severe cracking in columns, cathodic protection zinc anode system with integral jackets for drilled shafts and connecting struts, repairs of low level top columns, replacement of deteriorated composite neoprene pads, and cathodic protection with zinc aluminum spray for footers on high level box columns.

Because the Seven Mile bridge is not transversely post-tensioned, the deck has exhibited cracking along the bridge since construction was completed; this deficiency has been addressed by sealing the deck every 10 to 20 years. Past rehabilitation included expansion joint replacement using finger joints every 10 to 20 years as well.

1.3 Replacement Bridge Description

The replacement bridge typical section used for comparison is a two-lane undivided roadway meeting current FDOT design requirements. The typical section consists of two 12 ft. travel lanes, one in each direction, two 10 ft. shoulders, and two 36” single slope barriers. The overall width of the bridge is 46.67 ft. The proposed bridge length is the same as the existing bridge, 35,870 ft. The typical span for the proposed Florida I-Beam (FIB) is 170 ft with a typical bridge unit of 570 ft, resulting in a proposed bridge with 71 Units. The bridge is assumed to carry a 36” diameter water line similar to that of the existing structure. For the proposed unit lengths, we can use a pour rubber with backer rod type expansion joints. This bridge will be located adjacent to the existing Seven Mile Bridge until completion when the existing bridge will be deconstructed.

The portion of the bridge at the navigational channel will remain unchanged. For the substructure at low-level and high-level units, each pier will be made up of a hammerhead pier cap supported on a 12 ft x 6 ft rectangular column. Figure 1.4 illustrates the proposed bridge typical section.

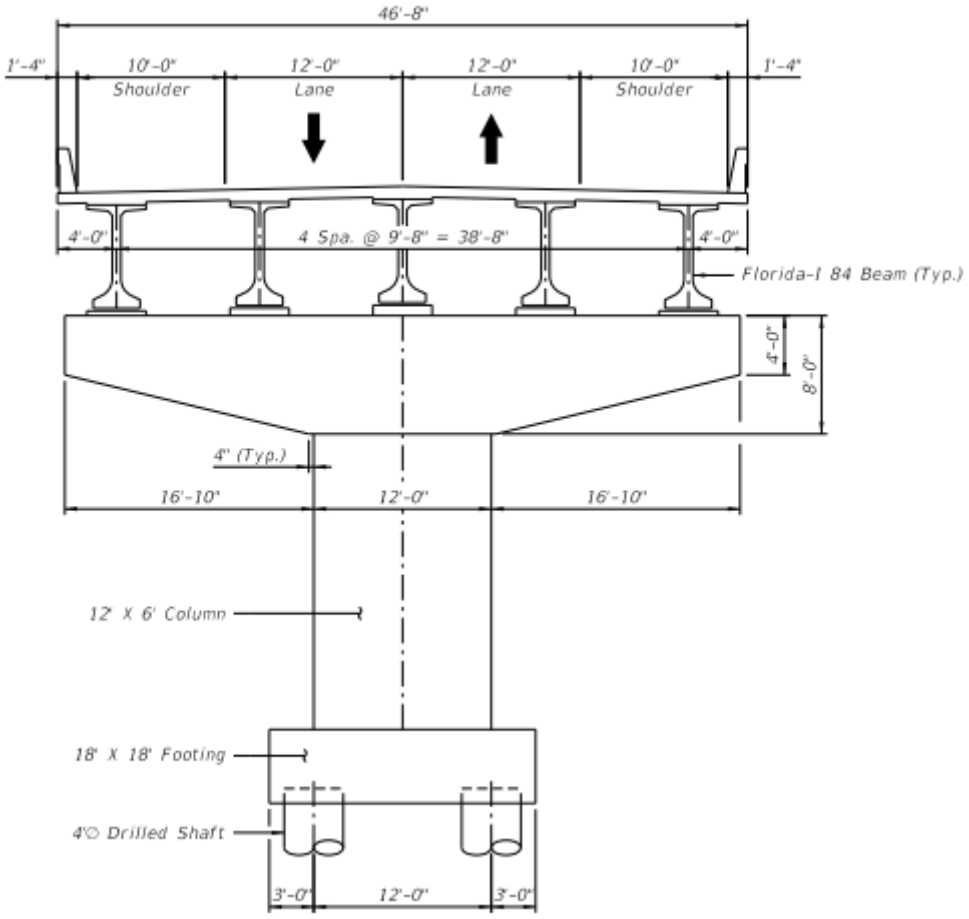


Figure 1.4 Typical section of proposed bridge

SECTION 2 – LIFE CYCLE COST ANALYSIS CONSIDERATIONS

2.1 General Considerations

This LCCA uses a deterministic approach, where a single set of cost estimates for both alternatives are used to compute a single estimated life-cycle cost. It should be noted that this method does not account for potential statistical variability with each individual pay item, rather, only the total project cost is subjected to changes due to the market rates. A sensitivity analysis is performed to determine the effect of the initial assumptions on the overall LCCA.

The LCCA does not require that all costs for each alternative are estimated for analysis. Only the costs associated with construction and agency actions are necessary to make comparisons. All cost estimates for future costs are calculated in base year dollars. Base year dollars do not include the inflation rate, i.e. the cost of materials and labor are assumed not to change.

The costs incurred in future years are discounted to present values in order to compare the cost-savings in each alternative. For each alternative, a primary scenario and sensitivity scenarios are investigated. The primary scenario assumes a 3% discount rate, as recommended by the FHWA guidelines, while the sensitivity scenarios consider lower (1%) and higher (5%) discount rates. Inflation rates are assumed to be 0% for all scenarios.

User costs are not included in this stage of the analysis. The bridge replacement will have the new bridge parallel to the existing bridge, so user costs are considered to be rather small in this alternative. However, the rehabilitation alternative will continue to have potential traffic disruptions that may lead to future considerations of these costs.

2.2 Analysis Period and Useful Service Life

According to the FDOT Office of Value Engineering and the NCHRP 12-43 Bridge Life-cycle Cost Analysis Guidance Manual (2002), the analysis period does not need to coincide with the useful service life of a bridge. The selected analysis period is 34 years, with the analysis beginning in the year 2020 and ending in 2054. It includes construction years for the replacement alternative assumed to be 5 years, starting in 2027 and ending in 2031, and 23 years of operation. For the replacement

alternative, Design-Build delivery method is assumed. The useful service life after the replacement is completed in year 2031 is assumed to be 75 years per AASHTO LRFD, 8th Edition (2017), which is used to compute the residual of the replacement alternative as 52 years. For the rehabilitation alternative, it is assumed that the 75-year useful service life since 1982 has been completed at year 2054 and there is no remaining useful service life.

2.3 Capital Costs

Capital costs computations, cost estimates and LCCA calculations are detailed in Appendices A and B of this report. The following paragraphs describe the capital costs for the rehabilitation and replacement alternatives.

Alternative 1 - Rehabilitation:

Rehabilitation capital costs referenced from the 2010, 2014, 2018, and 2020 inspection reports are considered in analysis. The costs are spent between 2020 to 2054. The rehabilitation cycles are assumed to be every 7 years, resulting in 4 cycles, and beginning in 2027. The normal yearly repairs such as operations and maintenance (O&M) along with biannual inspections will be included in the LCCA as an annual cost. It should be noted that deck surface rehabilitation and the fender

Category	Pay Item	Item Description	Cost (2020 dollars)			
			2027	2034	2041	2048
Structural Rehabilitation	-	Superstructure Repairs - Deviation saddles and Diaphragms at Piers	$3,666,000	$3,666,000	$3,666,000	$3,666,000
	103-2-1	Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01	$4,695,214	$9,390,429	$18,780,858	$18,780,858
	400-4-4	Concrete Class IV, Superstructure	$13,137	$15,765	$18,917	$22,701
	400-4-5	Concrete Class IV, Substructure	$984,421	$1,709,908	$3,057,310	$3,395,649
	400-142-3	Cathodic Protection System, Zinc Aluminum Spray	$2,287,079	$3,201,910	$4,482,674	$6,275,744
	400-147	Composite Neoprene Pads	$50,158	$100,316	$401,264	$401,264
	411-1	Epoxy Material for Crack Injection	$564,577	$694,635	$857,561	$1,062,672
	411-2	Inject and Seal Crack	$2,489,859	$3,053,108	$3,755,117	$4,634,082
	415-1-4	Reinforcing Steel- Superstructure	$510	$612	$735	$882
	415-1-5	Reinforcing Steel- Substructure	$113,603	$208,858	$392,030	$416,004
	450-82	Beam Repairs (Column)	$1,278,900	$1,278,900	$1,278,900	$1,278,900
	455-81-102	Cathodic Protection, Γ&I, Pier, Zinc Anode Assembly	$182,516	$255,523	$357,732	$500,825
	457-2-231	Cathodic Protection, Integral Pile Jacket , Structural, Greater than 30", Galvanic System	$1,048,800	$1,468,320	$2,055,648	$2,877,907
	462-20-6	Post Tensioning, Replace Tendon	$9,000,000	$12,600,000	$17,640,000	$24,696,000
Deck Surface Rehbilitation	403-1	Epoxy Concrete Overlay	$6,312,734	$0	$6,312,734	$0
	458-1-24	Bridge Deck Expansion Joint, Rehabilitation, Finger Joint	$1,207,000	$0	$1,207,000	$0
Fender System & Navigational Lights System	110-71-1	Bridge Fender System, Removal & Disposal - Rehab Projects Only	$274,196	$0	$274,196	$0
	471-1-1	Fender System - Plastic Marine Lumber, Reinforced (Wales)	$331,427	$0	$331,427	$0
	471-1-2	Fender System - Plastic Marine Lumber, Non-Reinforced	$158,919	$0	$158,919	$0
	471-2	Fender System - Polymeric Piles	$300,000	$0	$300,000	$0
	510-1	Navigational Lights - Fixed Bridge System	$49,400	$0	$49,400	$0
Mobilization	101-1	Mobilization (10% of all cost categories)	$3,815,921	$4,103,227	$7,126,248	$7,413,034
MOT including Marking and Signalization	-	MOT as percentage of total - 9%	$3,150,761	$3,387,986	$5,884,058	$6,120,854
Total	-	Cost per full cycle	**$41,975,133**	**$45,135,497**	**$78,388,728**	**$81,543,376**

Table 2.1 Categorized capital costs per cycle for Rehabilitation Alternative

and navigational lights system replacement only occur every 10 years, therefore it is only incurred in the first and third cycle of this analysis.

To protect and prevent further deterioration and spalling of the low columns, Fiber Reinforced Polymer (FRP) strip wrapping is considered for future rehabilitations. In order to replace the composite neoprene pads, a Temporary Support Structure (TSS) is necessary to lift the superstructure while the bridge continues to operate. Thus, the reconstruction of the strut is necessary to help support the TSS while maintaining permanent traffic on the bridge. For future rehabilitations, sealing of the bridge deck is considered using an epoxy deck overlay.

There are four segmental bridges in Monroe County with the same structural system, erected using the same method, and built in the 1980s. In some of these structures additional post-tensioning has been installed, either to increase capacity or to replace failed tendons. Hence, it is reasonable to assume replacement of tendons in the future. The bridge has approximately 1,100 tendons, thus, for the purpose of this analysis we consider that 18 post-tensioning tendons are replaced in the first cycle of 2027. Table 2.1 shows the capital costs incurred for rehabilitation and Figure 2.1 depicts a categorized costs events chart that breaks down the costs that occur at each year of the analysis.

Additionally, there is a penalty factor included for the quantities of the deficiencies to account for the deterioration of the repairs and of the damages at lower Condition States (CS). This considers that some of the CS-2 damages with time become CS-3 or CS-4 and so on. Based on the inspection reports, the quantity of damage increases by as much as 5% at every inspection cycle. Hence, by compounding the increase in damage to a rehabilitation cycle, this results in approximately 20% increase. As the substructure is more susceptible to damage than the superstructure, we conservatively increase its damage to 40%. As result, the penalty for superstructures is 20% percent and the penalty factor for substructures in this analysis is 40% percent in each rehabilitation cycle. This is incorporated in an increase of the appropriate pay items.

For the use of concrete in reconstruction of struts and the use of Temporary Support Structures for replacement of bearing pads, in this analysis is 40% percent in each rehabilitation cycle. This is incorporated in an increase of the appropriate pay items. For the use of concrete in reconstruction of struts and the use of Temporary Support Structures for replacement of bearing pads, the penalty factor is 100%, meaning that the quantity doubles for each cycle. This is also considered in the amount of steel used in the concrete for reconstruction of struts.

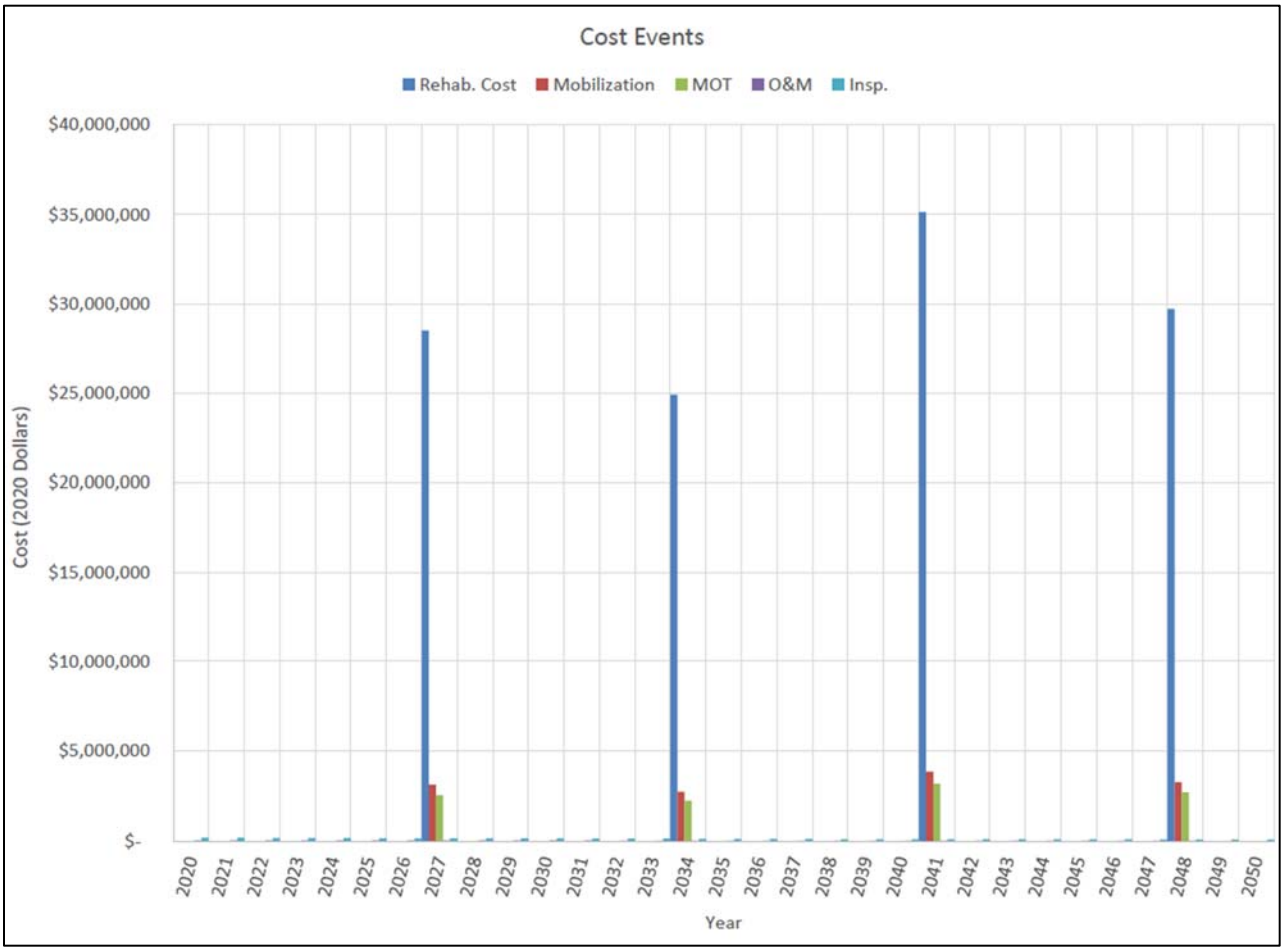


Figure 2.1 Cost events by category for Rehabilitation Alternative

Alternative 2 - Replacement:

Replacement capital costs are spent between 2027 to 2031. It is assumed that the construction costs during the 5-year period of construction are spread evenly at 20% of the total costs (excluding demolition). Demolition costs are accounted for only in the final year of construction, 2031. Table 2.2 shows the breakdown for the capital costs of the replacement alternative. The costs are derived from a calculation of quantities and considerations like any other new bridge. This information is detailed in Appendices A and B.

Cost Category	Pay Item	Cost Item Description	Cost (2020 dollars)
Superstructure	450-2-84	Prestressed Beams: Florida I-Beam 84"	$ 52,898,478
	458-1-11	Bridge Deck Expansion Joint, New Construction - F&I; Backer Rod	$ 154,451
	521-5-13	Concrete Traffic Railing - Bridge, 36" Single-Slope	$ 6,096,774
Deck	400-2-10	Concrete Class II, Approach Slab	$ 57,530
	400-4-4	Concrete Class IV, Superstructure	$ 50,898,591
	415-1-4	Reinforcing Steel- Superstructure	$ 9,181,118
	415-1-9	Reinforcing Steel - Approach Slab	$ 10,889
Substructure	400-147	Composite Neoprene Pads	$ 744,850
	400-4-5	Concrete Class IV, Substructure	$ 1,849,824
	400-4-25	Concrete Class IV, Mass - Substructure	$ 19,872,335
	415-1-5	Reinforcing Steel - Substructure	$ 5,237,506
	455-34-5	Prestressed Concrete Piling, 24" SQ	$ 61,250
	455-88-5	Drilled Shaft, 48" DIA	$ 10,500,000
	455-143-5	Test Piles - Prestressed Concrete, 24" SQ	$ 18,000
Mobilization	101-1	Mobilization	$ 15,758,159
MOT	102-1	Maintenance of Traffic	$ 15,758,159
Construction	-	Construction Over Water (3% Costs)	$ 4,727,448
Total	-	Cost per full cycle	**$ 193,825,362**
Demolition	-	Demolition Costs of Existing Bridge	**$ 41,965,317**
Bridge Only	-	Cost of Bridge excluding Construction Over Water, Mobilization, and MOT	**$ 157,581,595**
Residual	-	Residual Value of Bridge (75-23 years = 52 years) Assumed ~70% of Bridge only Cost	**$ 109,256,572**

Table 2.2 Capital costs for construction of bridge in Replacement Alternative

2.4 Operations and Maintenance Costs

The O&M costs are assumed to cover routine operations and routine maintenance. These costs are assumed to be incurred yearly for both alternatives and are estimated to be the same for both alternatives. The annual cost of inspections differs for rehabilitation and for replacement due to the superstructure cross section and structure type. The NBI inspection of the existing segmental structure is far more complex and time consuming than that of a FIB bridge.

The cost for yearly inspection including post-tensioning, based on estimate numbers provided by FDOT, is approximately $185,000 for the segmental bridge in the rehabilitation alternative. For the replacement alternative, the inspection cost is estimated to be $110,000 per inspection.

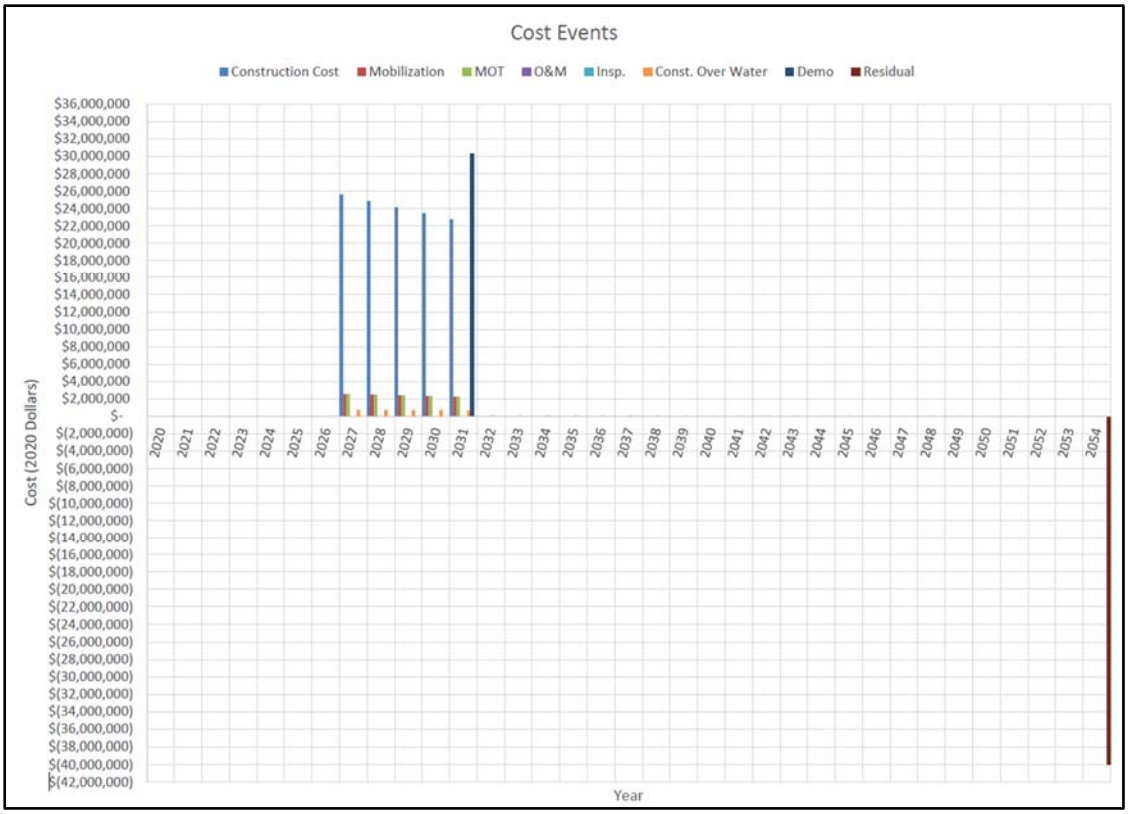


Figure 2.2 Cost events by category for Replacement Alternative

2.5 Residual Costs

The analysis period is set to be less than the useful service life of the bridge in the replacement alternative. The last year of analysis is 2054 so the residual value of the existing bridge is estimated at the end of that year in 2054. The residual value of the bridge replacement structure will have a remaining service life of 52 years when the analysis period ends, and this residual value is estimated to be approximately 69% of the bridge costs only.

SECTION 3 – LCCA PRIMARY ANALYSIS

3.1 Primary Analysis

The total capital cost in the LCCA analysis is summarized in Table 3.1. This includes structural repairs, maintenance of traffic, mobilization, and construction, as well as O&M. The total project cost is discounted using the 3% discount rate assumption. According to the analysis, the total life-cycle cost for the replacement of the bridge is $140,667,700 with a residual value of $39,992,800 and the total life cycle cost of the rehabilitation alternative is $146,506,600 both in 2020 discounted dollars.

Costs	Replacement	Rehabilitation
Capital Costs	$ 180,660,500	$ 146,506,600
Residual Value	$ (39,992,800.00)	$ -
Total Life-Cycle Cost	**$ 140,667,700**	**$ 146,506,600**

Table 3.1 Total Life-Cycle Cost comparison, in base year dollars at 3% Discount Rate

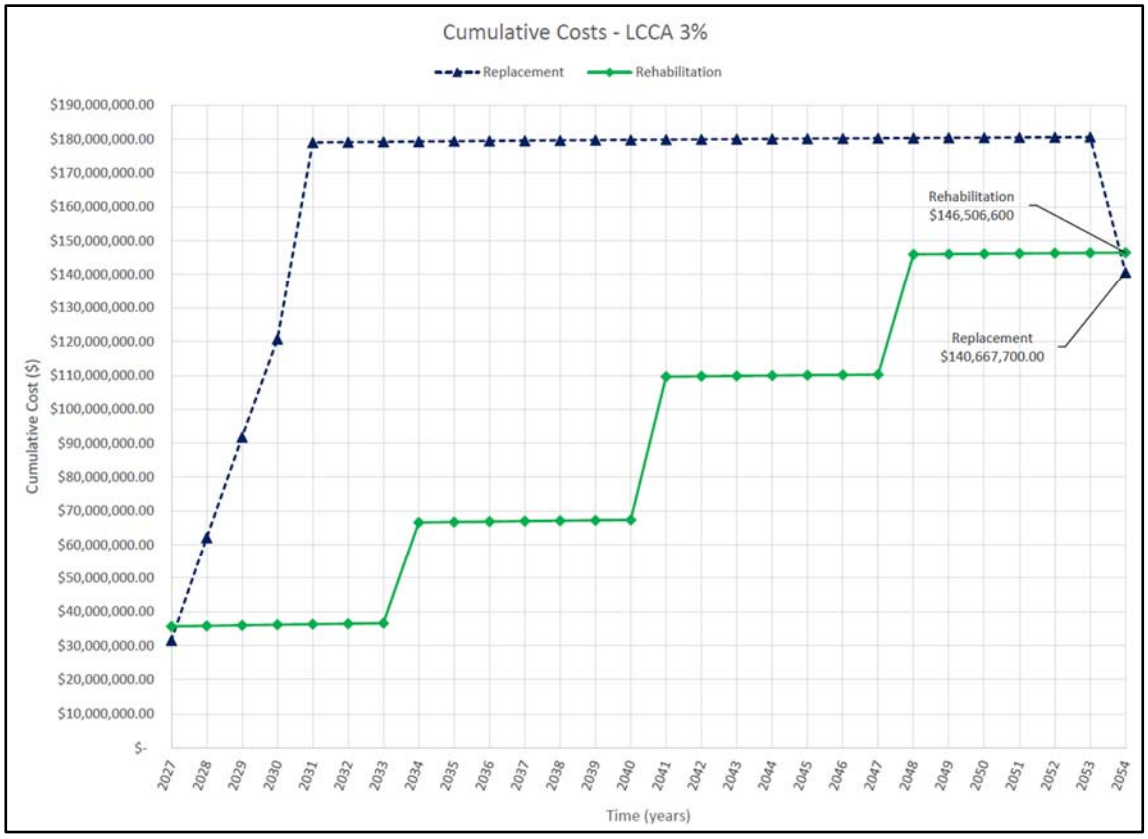


Figure 3.1 Total Life-Cycle Cost comparison, in base year dollars, 3% Discount Rate

Figure 3.1 depicts the comparison of the two alternatives with the above-mentioned assumptions and discount rate. Clearly, the comparison between the present values of the total costs of the two alternatives shows that the bridge rehabilitation is more costly than the replacement alternative.

SECTION 4 – LCCA SENSITIVITY ANALYSES

4.1 Sensitivity Analysis 1%

All capital and O&M costs, as well as inspection costs are assumed to be the same for sensitivity analyses as for the primary analysis. The sensitivity analyses only account for a change in the discount rate assumed to take place over the analysis period.

The lower discount rate favors, like the 3% rate, the replacement of the entire bridge structure. The difference in cost at 1% however is much larger than the one at 3%, indicating that the lower the change in price of capital costs and maintenance as well as inspection over the life of the analysis, the more financially beneficial the replacement becomes. Figure 4.1 graphically displays the difference in costs through the life cycle.

Costs	Replacement	Rehabilitation
Capital Costs	$ 217,421,200	$ 210,125,300
Residual Value	$ (45,012,300.00)	$ -
Total Life-Cycle Cost	**$ 172,408,900**	**$ 210,125,300**

Table 4.1 Total Life-Cycle Cost comparison, in base year dollars at 1% Discount Rate

Figure 4.1 Total Life-Cycle Cost comparison, in base year dollars at 1% Discount Rate

4.2 Sensitivity Analysis 5%

All capital and O&M costs as well as inspection costs are assumed to be the same for sensitivity analyses as for the primary analysis. Table 4.2 presents the project costs under the assumption of 5% discount rate. The higher discount rate favors the option of rehabilitation over that of replacement. This will result in continued and increasing recurring costs down the line. It is clear that the change in the discount rate has a large effect on the outcome of the LCCA and warrants careful consideration when selecting the rate.

Costs	Replacement	Rehabilitation
Capital Costs	$ 150,879,600	$ 105,262,200
Residual Value	$ (45,012,300.00)	$ -
Total Life-Cycle Cost	**$ 105,867,300**	**$ 105,262,200**

Table 4.2 Total Life-Cycle Cost comparison, in base year dollars at 5% Discount Rate

Figure 4.2 Total Life-Cycle Cost comparison, in base year dollars at 5% Discount Rate

SECTION 5 – CONCLUSIONS

5.1 Summary of LCCA

Based on the primary analysis using the 3% discount rate, the rehabilitation of the bridge every 7 years has a higher life cycle cost compared to replacing the bridge. The difference in cost is about $5,838,900. The sensitivity analysis using 1% discount rate showed that the replacement alternative is less expensive to a greater extent than the rehabilitation alternative with a difference of about $37,716,400. The 5% discount rate showed that the alternative of continued rehabilitation of the existing bridge has a lower life cycle cost than the replacement alternative by $605,100.

There are items and considerations that cannot be quantified and are therefore not captured in the LCCA but should be considered when making the final decision between replacing or rehabilitating the Seven Mile Bridge. Considerations such as commuter costs and future construction techniques as well as material improvements will have considerable impact on the costs of future maintenance cycles as well as on reconstruction costs.

With the limitations noted above, and only to the extent of this analysis, **Bolton Perez & Associates** recommends replacing the bridge based on the life cycle cost advantages and with consideration of all the additional benefits to be gained with a new bridge structure.

APPENDIX A – PRELIMINARY COST ESTIMATE

REHABILITATION

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: Rehabilitation Cost Estimate

Designed By: TD
Date: 4/21
Checked By: DAR
Date: 5/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Cost Estimate

COST ESTIMATE

Structural

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	UNIT COST	TOTAL COST 2027	TOTAL COST 2034	TOTAL COST 2041	TOTAL COST 2048
101-1	Mobilization	LS	10%	$3,815,921.19	$4,103,226.96	$7,126,248.02	$7,413,034.17
-	Superstructure Repairs - Deviation saddles and Diaphragms at Piers	LS	$3,666,000.00	$3,666,000.00	$3,666,000.00	$3,666,000.00	$3,666,000.00
103-2-1	Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01	LS	$4,695,214.40	$4,695,214.40	$9,390,428.80	$18,780,857.60	$18,780,857.60
400-4-4	Concrete Class IV, Superstructure	CY	$950.00	$13,137.13	$15,764.56	$18,917.47	$22,700.97
400-4-5	Concrete Class IV, Substructure	CY	$1,700.00	$984,420.73	$1,709,908.13	$3,057,309.61	$3,395,649.16
400-142-3	Cathodic Protection System, Zinc Aluminum Spray	SF	$28.25	$2,287,078.76	$3,201,910.26	$4,482,674.36	$6,275,744.10
400-147	Composite Neoprene Pads	CF	$1,618.00	$50,158.00	$100,316.00	$401,264.00	$401,264.00
411-1	Epoxy Material for Crack Injection	GA	$210.36	$564,577.30	$694,635.04	$857,561.24	$1,062,672.36
411-2	Inject and Seal Crack	LF	$77.00	$2,489,859.38	$3,053,107.79	$3,755,116.50	$4,634,081.81
415-1-4	Reinforcing Steel- Superstructure	LB	$1.05	$510.25	$612.30	$734.76	$881.71
415-1-5	Reinforcing Steel- Substructure	LB	$1.25	$113,602.81	$208,858.33	$392,030.46	$416,004.25
450-82	Beam Repairs (Column)	LF	$75.00	$1,278,900.00	$1,278,900.00	$1,278,900.00	$1,278,900.00
455-81-102	Cathodic Protection, F&I, Pier, Zinc Anode Assembly	EA	$1,601.02	$182,516.28	$255,522.79	$357,731.91	$500,824.67
457-2-231	Cathodic Protection, Integral Pile Jacket , Structural, Greater than 30", Galvanic System	LF	$2,300.00	$1,048,800.00	$1,468,320.00	$2,055,648.00	$2,877,907.20
462-20-6	Post Tensioning, Replace Tendon	LS	$500,000.00	$9,000,000.00	$12,600,000.00	$17,640,000.00	$24,696,000.00
			SUBTOTAL:	$26,374,775.03	$37,644,284.00	$56,744,745.91	$68,009,487.83
			TOTAL W/O PT:	$21,190,696.23	$29,147,510.96	$46,230,993.93	$50,726,522.00
			TOTAL:	$30,190,696.23	$41,747,510.96	$63,870,993.93	$75,422,522.00

Deck Surface

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	UNIT COST	TOTAL COST 2027	TOTAL COST 2034	TOTAL COST 2041	TOTAL COST 2048
403-1	Epoxy Concrete Overlay	SY	$40.00	$6,312,733.78	$0.00	$6,312,733.78	$0.00
458-1-24	Bridge Deck Expansion Joint, Rehabilitation, Finger Joint	LF	$850.00	$1,207,000.00	$0.00	$1,207,000.00	$0.00
			SUBTOTAL:	$7,519,733.78	$0.00	$7,519,733.78	$0.00
			TOTAL:	$7,519,733.78	$0.00	$7,519,733.78	$0.00

MOT including Signing and Marking

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	UNIT COST	TOTAL COST 2027	TOTAL COST 2034	TOTAL COST 2041	TOTAL COST 2048
-	MOT as percentage of total - 9%	LS	9%	$3,150,760.62	$3,387,985.56	$5,884,058.00	$6,120,853.90
			SUBTOTAL:	$3,150,760.62	$3,387,985.56	$5,884,058.00	$6,120,853.90
			TOTAL:	$3,150,760.62	$3,387,985.56	$5,884,058.00	$6,120,853.90

Fender System and Navigational Lighting System

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	UNIT COST	TOTAL COST 2027	TOTAL COST 2034	TOTAL COST 2041	TOTAL COST 2048
110-71-1	Bridge Fender System, Removal & Disposal - Rehab Projects Only	LF	$741.07	$274,195.90	$0.00	$274,195.90	$0.00
471-1-1	Fender System - Plastic Marine Lumber, Reinforced (Wales)	MB	$18,139.49	$331,427.35	$0.00	$331,427.35	$0.00
471-1-2	Fender System - Plastic Marine Lumber, Non-Reinforced	MB	$16,564.66	$158,919.25	$0.00	$158,919.25	$0.00
471-2	Fender System - Polymeric Piles	LS	$300,000.00	$300,000.00	$0.00	$300,000.00	$0.00
510-1	Navigational Lights - Fixed Bridge System	LS	$49,400.00	$49,400.00	$0.00	$49,400.00	$0.00
			SUBTOTAL:	$1,113,942.50	$0.00	$1,113,942.50	$0.00
			TOTAL:	$1,113,942.50	$0.00	$1,113,942.50	$0.00

Notes:

1. Unit costs were estimated based on the FDOT Historical Cost for Area 14 from 2019/07/01 to 2020/06/30, unless otherwise noted.
2. Unit costs were estimated based on the "FDOT Unbalanced Items Report by Pay Item Number" 1/18/2017, Average Unit Price, unless otherwise noted.
3. Unit costs were estimated based on the "FDOT Unbalanced Items Report by Pay Item Number - AECOM" 1/18/2017, Average Unit Price, unless otherwise noted.
4. Unit costs were estimated based on the "FDOT LCCA Bridge 900094 Long Key", 3/2019, unless otherwise noted.
5. Unit costs were estimated based on correspondence with Structural Technologies, 10/9/2020, unless otherwise noted.
6. Unit costs were assumed
7. Unit costs were estimated from SDG - 2021, unless otherwise noted

BPA

Designed By: TD
Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9 ***Date:*** 4/21
Project Number: 250647-2-32-05 ***Checked By:*** DAR
Description: Rehabilitation List of Pay Items ***Date:*** 5/21
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Pay Items

Structural *penalty factor (sub) =* **40.00%** *penalty factor (super) =* **20.00%**

SUMMARY OF PAY ITEMS

PAY ITEM NO.	PAY ITEM DESCRIPTION	ACCURACY	UNIT	QUANTITY 2027	QUANTITY 2034	QUANTITY 2041	QUANTITY 2048
101-1	Mobilization	LS	LS	1	1	1	1
-	Superstructure Repairs - Deviation saddles and Diaphragms at Piers	EA	EA	1	1	1	1
103-2-1	Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01	LS	LS	1	2	4	4
400-4-4	Concrete Class IV, Superstructure	1/10 CY	CY	13.8	16.59	19.91	23.90
400-4-5	Concrete Class IV, Substructure	1/10 CY	CY	579.1	1005.8	1798.4	1997.4
400-142-3	Cathodic Protection System, Zinc Aluminum Spray	SF	SF	80,959	113,342	158,679	222,150
400-147	Composite Neoprene Pads	1/10 CF	CF	31.0	62	248	248
411-1	Epoxy Material for Crack Injection	GA	GA	2,684	3,302	4,077	5,052
411-2	Inject and Seal Crack	LF	LF	32,336	39,651	48,768	60,183
415-1-4	Reinforcing Steel- Superstructure	LB	LB	486	583	700	840
415-1-5	Reinforcing Steel- Substructure	LB	LB	90,882	167,087	313,624	332,803
450-82	Beam Repairs (Column)	LF	LF	17,052	17,052	17,052	17,052
455-81-102	Cathodic Protection, F&I, Pier, Zinc Anode Assembly	EA	EA	114	160	223	313
457-2-231	Cathodic Protection, Integral Pile Jacket , Structural, Greater than 30", Galvanic System	LF	LF	456	638	894	1,251
462-20-6	Post Tensioning, Replace Tendon	LS	LS	18	25	35	49

Deck Surface

SUMMARY OF PAY ITEMS

PAY ITEM NO.	PAY ITEM DESCRIPTION	ACCURACY	UNIT	QUANTITY 2027	QUANTITY 2034	QUANTITY 2041	QUANTITY 2048
403-1	Epoxy Concrete Overlay	SY	SY	157818	0	157818	0
458-1-24	Bridge Deck Expansion Joint, Rehabilitation, Finger Joint	LF	LF	1420	0	1420	0

Fender System and Navigational Lighting System

SUMMARY OF PAY ITEMS

PAY ITEM NO.	PAY ITEM DESCRIPTION	ACCURACY	UNIT	QUANTITY 2027	QUANTITY 2034	QUANTITY 2041	QUANTITY 2048
110-71-1	Bridge Fender System, Removal & Disposal - Rehab Projects Only	LF	LF	370	0	370	0
471-1-1	Fender System - Plastic Marine Lumber, Reinforced (Wales)	1/10 MB	MB	18.3	0	18.3	0
471-1-2	Fender System - Plastic Marine Lumber, Non-Reinforced	1/10 MB	MB	9.6	0	9.6	0
471-2	Fender System - Polymeric Piles	LS	LS	1	0	1	0
510-1	Navigational Lights - Fixed Bridge System	LS	LS	1	0	1	0

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	103-2-1	***Checked By:***	DAR
	Superstructure Repairs - Deviation saddles and Diaphragms at Piers	***Date:***	5/21

Superstructure Repairs - Deviation saddles and Diaphragms at Piers

Deviation Saddles/Span

No. Spans =	266.00	
No. Deviators/Span =	12	assume 6 on each side at every span, per existing plans
Total deviators =	3192	
Tot deviators repaired =	1915	assume 60% of total, distributed over all cycles
Unit cost/devi. =	$6,000.00	assumed cost/repair
Deviator Repair/Cycle =	479	(60% of total/number of cycles)
Cost/Cycle =	$2,874,000.00	

Diaphragms at Piers repairs

No. Piers =	265.00	
No. Diaphragms =	265	
Unit cost/devi. =	$12,000.00	assumed cost/repair
Deiaph. Repair/Cycle =	66	assume total distributed over all cycles
Cost/Cycle =	$792,000.00	

Total Cost/Cycle =	**$3,666,000.00**

number of deviators assumed as 6 for each web for each span.
Total repairs over 4 cycles assumed from inspection reports from last 10 years
Costs are assumed

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	103-2-1	***Checked By:***	DAR
	Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01	***Date:***	5/21

Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01

*Steel Elements** (for one pier)*

Unit cost/lb* =	42.83	$/LB
Wt of single TSS =	39871	LB
Cost/TSS =	$1,707,607.20	
# TSS Req'd/Cycle =	2	TSS, ((32 piers)/(16 Pier/TSS))
Cost/Cycle =	$3,415,214.40	

Cost of Jacking Equip/Operation & Post Tensioning of Strut

Cost/Operation =	$20,000.00	Piers/Cycle =	32
Cost/PT Strut =	$20,000.00		
Cost/Cycle =	$1,280,000.00		

Total Cost/Cycle =	**$4,695,214.40**

*Unit Cost comes from bids of 7 Mile Bridge 2017 (Bridge Repair Rehabilitation) $1,707,607.2

** Reference "TSS" tab for breakdown of steel quantities for TSS

TSS are assumed to be usable for only 16 piers at a time

235 low-level piers

1st Cycle will have 32 piers, then will double every cycle after that

BPA

Designed By:	TD		
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	4/21
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	110-71-1	***Date:***	5/21
	Bridge Fender System, Removal & Disposal - Rehab Projects Only		

Bridge Fender System, Removal & Disposal - Rehab Projects Only

Existing Fender Lenth (RT)	185	LF
Existing Fender Lenth (LT)	185	LF

Total =	**370**	LF

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	400-4-4	***Checked By:***	DAR
	Concrete Class IV, Superstructure	***Date:***	5/21

Concrete Class IV, Superstructure

Top flange =	1.3	CY	*inclu 100% contingency - from PS Girder Top Flange-2020*
Exterior PS box girder =	9.5	CY	*inclu 100% contingency - from PS Box Ex - 2020*
Interior PS box girder =	3.0	CY	*inclu 100% contingency - from PS Box Int - 2020*

Total (CY) =	13.8	CY

Superstructure repair are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	400-4-5	***Checked By:***	DAR
	Concrete Class IV, Substructure	***Date:***	11/20

Concrete Class IV, Substructure

Drilled Shafts - 2 Shaft Piers =	108.2	CY	*including 100% contingency, from Shafts - Damage Log*
Footings - Box Columns =	35.7	CY	*including 100% contingency, from Footings - Damage Log*
Columns =	44.5	CY	*including 100% contingency, from Columns - Damage Log*
Struts =	65.4	CY	*including 100% contingency, from Struts - Damage Log*
Subtotal =	253.9	CY	

Note:the above does not include the recontructed struts at piers for jacking: 4' x 4' x 17.15'

Volume of reconstructed strut =	10.2	CY/Strut	*from 7-mile rehab plans*
	32	Struts/Cycle	
Total reconst. strut vol./cycle =	325.21	CY	

	2027	2034	2041	2048
Total (CY) =	**579.1**	**1005.8**	**1798.4**	**1997.4**

Concrete for drilled shaft, footings, columns, and struts from damage logs
Assuming each TSS system is supported on reconstructed strut
Substructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4. For reconstructed struts, the same is assumed, however the increase is assumed doubled each cycle except for the last cycle that will remain as previous.

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	400-142-3	***Checked By:***	DAR
	Cathodic Protection System, Zinc Aluminum Spray	***Date:***	5/21

Cathodic Protection - Metalizing											
Typical Strut / Lower Column			Element A				Element B				
Location		# Piers	#	Height (LF)	Length / Perimeter (LF)	Area (SF)	#	Height (LF)	Length / Perimeter (LF)	Area (LF)	Total Area (LF)
Typical Strut - Top(A), Side (B)		139	2	1	20.77	41.54	2	4	10.91	87.28	17905.98
Lower Columns - @Strut(A), Above Strut(B)		139	2	4	7.235	57.88	2	0.5	9.43	9.43	9356.09
Subtotal (without contingencies)											**27262.1** SF

Cathodic Protection - Metalizing											
Strut / Lower Column for TSS Columns (Piers 21, 94, 102)			Element A				Element B				
Location		# Piers	#	Height (LF)	Length / Perimeter (LF)	Area (SF)	#	Height (LF)	Length / Perimeter (LF)	Area (LF)	Total Area (LF)
Reconstructed Strut - Top(A), Side(B)		4	2	1	1	25.87	2	4	5	40	263.48
Strut End(A) / Lower Column Above Strut(B)		4	1	4	4	16	1	1	9.43	9.43	101.72
Subtotal (without contingencies)											**365.2** SF

Note: No metalizing on reconstructed struts (bridge jacking piers), except when there is damage to a column before the 4 ft strut is poured around it

Cathodic Protection - Metalizing											
Typical Box Column Footing			Element A				Element B				
Location		# Piers	#	Height (LF)	Length / Perimeter (LF)	Area (SF)	#	Height (LF)	Length / Perimeter (LF)	Area (LF)	Total Area (LF)
Sides (A), Bottom (B)		27	1	4	68	272	2	1.5	68	204	12852.00
Subtotal (without contingencies)											**12852.0** SF

Cathodic Protection - Metalizing

Total (without contingencies) =	40479	SF
Contingency (100%) =	40479	SF
Total Repair	**80959**	**SF**

Metalize every pier- Entire surface of struts and lower columns from shaft to 6" above strut.
Also, sides and 18" strip around perimeter on top and bottom of box column footings. No work on navigational channel piers.

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	400-147	***Checked By:***	DAR
	Composite Neoprene Pads	***Date:***	11/20

Composite Neoprene Pads

No. of Columns = **64** CS3 & CS4 Columns with unsupported bearing/section loss

Type 2 pad

Diameter of pad =	31	IN
Area Bearing Pad =	754.767	SI
Height of Bearing Pad =	2.375	IN
No. of Bearing Pads =	16	25%

Type 3 pad

Diameter of pad =	31	IN
Area Bearing Pad =	754.767	SI
Height of Bearing Pad =	0.6875	IN
No. of Bearing Pad =	48	75%

Total Volume = 31 CF

Assuming that section loss/unsupported bearing occurs from worsening conditions of existing CS2 columns, and are replaced when lifted with TSS and reconstructed strut. Therefore quantities will be assumed to double each cycle except for last cycle which will remain as previous

Pad types assumed 25/75 split between type 2 and type 3 respectively.

BPA

Designed By:	TD		
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	7/20
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	403-1 Epoxy Concrete Overlay	***Date:***	8/20

CLEAR ROADWAY WIDTH			
LOCATION	**GUTTER TO GUTTER WIDTH (LF)**	**LENGTH (LF)**	**AREA (SF)**
SPAN 1	36	86.04	3097.5
SPAN 2-265	36	135.00	1283040.0
SPAN 266	36	141.75	5103.0
	TOTALS	362.79	1291241.0

Subtotal riding area = 1291241 SF
10% contingency = 129124 SF
Total = 1420365 SF

Total epoxy concrete overlay = 157818 SY

Assuming entire bridge deck surface
Substructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	411-1	***Checked By:***	DAR
	Epoxy Material for Crack Injection	***Date:***	5/21

Epoxy Material for Crack Injection

2 Shafts - low level piers	339	GA
Struts - low level piers	61	GA
Footings - high level piers	1	GA
Columns	6	GA
PS Box top flange	716	GA
PS Box Ext	1	GA
Ps Box Int	1559	GA

Substructure =	407	GA
Superstructure =	2276	GA

	2027	2034	2041	2048
Sub (CY) =	**407**	**570**	**799**	**1118**
Super (CY) =	**2276**	**2732**	**3278**	**3934**
Total (CY) =	**2684**	**3302**	**4077**	**5052**

Assuming quantities from damage logs repeat every cycle
Substructure/Superstructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	411-2	***Checked By:***	DAR
	Inject and Seal Crack	***Date:***	5/21

Inject and Seal Crack

2 Shafts - low level piers	1992	LF
Struts - low level piers	2091	LF
Footings - high level piers	65	LF
Columns	91	LF
PS Box top flange	16226	LF
PS Box Ext	321	LF
Ps Box Int	11550	LF

Substructure =	4239	LF
Superstructure =	28097	LF

	2027	2034	2041	2048
Sub (CY) =	**4239**	**5934**	**8308**	**11631**
Super (CY) =	**28097**	**33717**	**40460**	**48552**
Total (CY) =	**32336**	**39651**	**48768**	**60183**

Assuming quantities from damage logs repeat every cycle
Substructure/Superstructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

		Designed By:	TD
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	4/21
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	415-1-4	***Date:***	5/21
	Reinforcing Steel- Superstructure		

Reinforcing Steel- Superstructure

Note: Assume 20% of concrete requires reinforcing steel due to uncertainty of spall/delam. repair

Concrete (vol.) =	12.51	CY	Box girders
Wt steel per CY of concrete =	172.63	LB/CY	
Percentage =	20.00	%	
Total rebar/Repaired pier =	432	LB	
Concrete (vol.) =	1.31	CY	Top flange
Wt steel per CY of concrete =	205.00	LB/CY	
Percentage =	20.00	%	
Total rebar/Repaired pier =	54	LB	
Total =	486	LB	

Superstructure repair are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

		Designed By:	TD
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	7/20
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	415-1-5	***Date:***	11/20
	Reinforcing Steel- Substructure		

Reinforcing Steel- Substructure

Note: Assume 20% of concrete requires reinforcing steel due to uncertainty of spall/delam. repair

Concrete (vol.) =	568.91	CY	(Total 400-4-5 minus struts that will be completely reconstructed)
Wt steel per CY of concrete =	215.00	LB/CY	SDG 9.2.3 Multi-Column Piers (Tall, >25ft)
Percentage =	20.00	%	
Total rebar/Repaired pier =	24463	LB	

For reconstructed Struts

Rebar per pier =	2075.6	LB	Same as exisitng plans quantity
No. piers =	32		
Total rebar/Reconst. pier =	66419.2	LB	

	2027	2034	2041	2048
Total (LB) =	**90882**	**167087**	**313624**	**332803**

Substructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4. For reconstructed struts, the same is assumed, however the increase is assumed doubled each cycle except for the last cycle that will remain as previous.

BPA

		Designed By:	TD
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	4/21
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	450-82	***Date:***	5/21
	Beam Repairs (Column)		

Beam Repairs (Column) **FRP Wrap for Low Level Column Repairs**

FRP Wrap Width =	6.0	IN	
Column Radius =	1.5	LF	
Col. Circumference =	9.42	LF	
Length per strip =	10.5	LF	Column Circumference + 1 ft lap (Structural Tech)
Strips per column =	14		As per existing plans
Total Columns =	116		(number of total low-level piers/4) x 2 columns/pier (235/2)
FRP Wrap =	17052	LF	
Total =	**17052**	**LF**	

Numbers from manufacturer. Assume $75/LF of each 6" wide strip. Assume 1 foot overlap along the CL of the strip and overlap of the wrapping strips over one another (along CL of column) resulting in 7 strips in a space of 3 feet. Asssume 3ft of wrapping at top and at bottom of column for each of the piers.

BPA

		Designed By:	TD
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	4/21
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	455-81-102	***Date:***	5/21
	Cathodic Protection, F&I, Pier, Zinc Anode Assembly		

Cathodic Protection, F&I, Pier, Zinc Anode Assembly

No. of Bulk Anodes Required.(EA.) =	114

Assumming Every shaft with a repair is to have a bulk anode (along with CP jacket)
455-81-102 Pay Item No. (Custom)
Substructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

		Designed By:	TD
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	4/21
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	457-2-231	***Date:***	5/21
	Cathodic Protection, Integral Pile Jacket , Structural, Greater than 30", Galvanic System		

Cathodic Protection, Integral Pile Jacket , Structural, Greater than 30", Galvanic System

No. of Jackets Required = 114

Min. Length of Jacket = 4 LF

Total length of Jacket = 456 LF

Assumption: Every shaft with a repair is to have a zinc mesh jacket

457-2-231 Pay Item No. (Custom)

Substructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

		Designed By:	TD
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	7/20
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	458-1-24	***Date:***	11/20

Bridge Deck Expansion Joint, Rehabilitation, Finger Joint

# of Expansion joints =	37	joints	
Bridge width =	38.38	LF	Referenced from existing plans

Total =	**1420**	**LF**

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	462-20-6 Post Tensioning, Replace Tendon	***Checked By:***	DAR
		Date:	5/21

Post Tensioning, Replace Tendon

Post-tensioning tendons = 18 tendons

Total =	**18 Tendons**

Substructure repair (excluding reconstruction of strut) are assumed to increase by a penalty factor every cycle to account for the further deterioration and worsening of CS-2 damages to CS-3 or CS-4.

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	471-2	***Checked By:***	DAR
	Fender System - Polymeric Piles	***Date:***	5/21

Fender System - Polymeric Piles

Pile cut-off elevation =	8.82	LF
Tip elevation =	-32	LF
Pile length =	40.82	LF
Number of Piles =	49	
Number of fenders =	2	

Total =	**4000**	**LF**

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	471-1-1	***Checked By:***	DAR
	Fender System - Plastic Marine Lumber, Reinforced (Wales)	***Date:***	5/21

Fender System - Plastic Marine Lumber, Reinforced (Wales)

Mark	Length	BF	Required	Rows	Quanity	Fenders	Total	
	LF	EA	EA	EA	BF	EA	MB	
A1	21.5	179.17	1	6	1075.02	2	2.2	
A3	16	133.3	2	6	1599.6	2	3.2	
A4	16	133.3	2	6	1599.6	2	3.2	
A5	16	133.3	4	6	3199.2	2	6.4	
A6	16	133.3	2	6	1599.6	2	3.2	
10" x 10"	7.5	62.5	1	1	62.5	2	0.125	Access Platform

Total = 18.3 MB

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	471-1-2	***Checked By:***	DAR
	Fender System - Plastic Marine Lumber, Non-Reinforced	***Date:***	5/21

Fender System - Plastic Marine Lumber, Non-Reinforced

Mark	Length	BF	Required	Rows	Quanity	Fenders	Total	
	ft	EA	EA	EA	BF	EA	MB	
B	8" x 8"	3.6	37	6	799.2	2	1.6	spacer block
C	2" x 6"	16	10	4	640.0	2	1.3	Rail 16 ft long
C	2" x 6"	21.5	1	4	86.0	2	0.2	Rail 21.5 ft long
D	4" x 6"	8.7	10	3	261.0	2	0.5	Rail post
D	4" x 6"	8.7	1	4	34.8	2	0.1	Rail post
E	2"x 12"	5	16	10	800.0	2	1.6	deck 16 ft secions
E	2"x 12"	5	21.5	1	107.5	2	0.2	21.5 ft section
F1	6" x 10"	107.5	1	1	107.5	2	0.2	21.5 ft section
F3	6" x 10"	79.6	2	1	159.2	2	0.3	
F4	6" x 10"	78.8	2	1	157.6	2	0.3	
F5	6" x 10"	78.4	4	1	313.6	2	0.6	
F6	6" x 10"	79.3	2	1	158.6	2	0.3	
G1	6" x 10"	18.3	2	8	292.8	2	0.6	Bracing at clearance gauge
G2	6" x 6"	12.3	2	8	196.8	2	0.4	Bracing at clearance gauge
H1	4" x 4"	20.8	4	1	83.2	2	0.2	Clearance gauge support - 16 ft high x 1.3 MB/ft = 20.8 MB
H2	2" x 6"	1.2	2	2	4.8	2	0.0	Light support
8" x 12"	22	176	1	1	176.0	2	0.4	
8" x 12"	17.7	141.3	1	1	141.3	2	0.3	
8" x 12"	5.5	11	1	1	11.0	2	0.0	
4" x 10"	1.7	5.6	3	1	16.7	2	0.0	
4" x 6"	4.33	8.7	4	1	34.7	2	0.1	
2" x 6"	22	22.0	1	4	88.0	2	0.2	
2" x 12"	3	6.0	18	1	108.0	2	0.2	
2" x 12"	2.33	4.7	4	1	18.7	2	0.0	

Total =	**9.6 MB**

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	510-1	***Checked By:***	DAR
	Navigational Lights - Fixed Bridge System	***Date:***	5/21

Navigational Lights - Fixed Bridge System

Red Fender Light (RFL) =	6
Green Center Channel (GCL) =	2
Clearance Gauge Light (CGL) =	2

Total =	**10**

*Listed as LS in Pay Items Quantity as per BOE

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	TD
Project Number:	250647-2-32-05	***Date:***	4/21
Description:	TSS	***Checked By:***	DAR
		Date:	5/21

103-2-1 Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01 (CUSTOM)

This pay item is for the TSS - Temporary Support System, and associated jacking and post tensioning of the rebuilt strut.
It will be assumed that 1 support systems will be required, to be used at XX locations.

Element	Wt./ft. (LB/LF)	Length (LF)	Wt. Each (LB)	No.	Total Wt. (LB)
Lifting Beam	146.00	19.00	2774.00	4	11096.00
Column	120.00	7.67	920.46	4	3681.84
Jacking Beam	65.00	12.40	806.00	4	3224.00
2" dia. Tie Rods	10.70	10.00	107.05	4	428.19
3.5'x2.8125'x3.0"Base Plate (3x2)	4823.44	0.25	1205.86	6	7235.16
2'x2'x1.5" Top Plates (col.)	1960.00	0.13	245.00	4	980.00
1 3/4" dia. Anchor Bolts	8.20	5.33	43.68	128	5591.54
1 3/8" dia. Post Tensioning Bar	5.06	21.00	106.25	4	425.01
Post Tens. Steel Beam	65.00	6.00	390.00	6	2340.00
Column extender	146.00	2.00	292.00	4	1168.00
Column extender stiffener	12.76	1.50	19.14	4	76.56
				Subtotal =	36246
			Stiffeners, Neoprene, Shims, Misc. Steel 10% =		3625

Total Steel Weight =	**39871 LB**

TSS for ONE PIER

REPLACEMENT

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: New Bridge Replacement, superstructure and substructure Cost Estimate

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 01/21

COST ESTIMATE

PAY ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
101-1	Mobilization	LS	1.0	10%	$15,758,159.49
102-1	Maintenance of Traffic	LS	1.0	10%	$15,758,159.49
110-3	Demolition	SF	1398844	$30.00	$41,965,316.64
400-2-10	Concrete Class II, Approach Slab	CY	51.9	$1,109.50	$57,529.63
400-4-4	Concrete Class IV, Superstructure	CY	50319.4	$1,011.51	$50,898,590.89
400-4-5	Concrete Class IV, Substructure	CY	1947.2	$950.00	$1,849,824.37
400-4-25	Concrete Class IV, Mass - Substructure	CY	31795.7	$625.00	$19,872,334.55
400-147	Composite Neoprene Pads	CF	744.8	$1,000.00	$744,849.54
415-1-4	Reinforcing Steel- Superstructure	LB	9181118	$1.00	$9,181,118.31
415-1-5	Reinforcing Steel - Substructure	LB	4988101	$1.05	$5,237,506.07
415-1-9	Reinforcing Steel - Approach Slab	LB	10370	$1.05	$10,888.89
450-2-84	Prestressed Beams: Florida I-Beam 84"	LF	179317	$295.00	$52,898,478.13
455-34-5	Prestressed Concrete Piling, 24" SQ	LF	490	$125.00	$61,250.00
455-88-5	Drilled Shaft, 48" DIA	LF	16800	$625.00	$10,500,000.00
455-143-5	Test Piles - Prestressed Concrete, 24" SQ	LF	90	$200.00	$18,000.00
458-1-11	Bridge Deck Expansion Joint, New Construction - F&I; Backer Rod	LF	3432	$45.00	$154,450.80
521-5-13	Concrete Traffic Railing - Bridge, 36" Single-Slope	LF	71727	$85.00	$6,096,773.75
				SUBTOTAL:	$157,581,594.92
				3% Construction over Water:	$4,727,447.85
				TOTAL:	$235,790,678.39

Notes:

1. Unit costs were estimated based on the FDOT Historical Cost for Area 14 from 2019/07/01 to 2020/06/30, unless otherwise noted.
2. Unit costs were estimated based on the FDOT Historical Cost Annual Statewide Average from January, 2019 to December 31, 2019
3. Unit costs were estimated based on the FDOT Historical Cost for Area 14 from 2019/12/01 to 2020/11/30.
4. Unit costs were estimated based on the FDOT Historical Cost for Area 13 from 2019/07/01 to 2020/06/30.
5. Unit costs were estimated based on the FDOT SDG 2020 Guidelines

Area (SF) = 1674052.9
Unit cost = $141

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: New Bridge Replacement, superstructure and substructure
Summary of Pay Items

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

SUMMARY OF PAY ITEMS				
PAY ITEM NO.	**PAY ITEM DESCRIPTION**	**ACCURACY**	**UNIT**	**QUANTITY**
101-1	Mobilization	Lump Sum	LS	1
102-1	Maintenance of Traffic	Lump Sum	LS	1
110-3	Demolition	SF	SF	1398844
400-2-10	Concrete Class II, Approach Slab	1/10 CY	CY	51.9
400-4-4	Concrete Class IV, Superstructure	1/10 CY	CY	50319.4
400-4-5	Concrete Class IV, Substructure	1/10 CY	CY	1947.2
400-4-25	Concrete Class IV, Mass - Substructure	1/10 CY	CY	31,795.7
400-147	Composite Neoprene Pads	1/10 CF	CF	744.8
415-1-4	Reinforcing Steel- Superstructure	LB	LB	9,181,118
415-1-5	Reinforcing Steel - Substructure	LB	LB	4,988,101
415-1-9	Reinforcing Steel - Approach Slab	LB	LB	10,370
450-2-84	Prestressed Beams: Florida I-Beam 84"	LF	LF	179,317
455-34-5	Prestressed Concrete Piling, 24" SQ	LF	LF	490
455-88-5	Drilled Shaft, 48" DIA	LF	LF	16,800
455-143-5	Test Piles - Prestressed Concrete, 24" SQ	LF	LF	90
458-1-11	Bridge Deck Expansion Joint, New Construction - F&I; Backer Rod	LF	LF	3432
521-5-13	Concrete Traffic Railing - Bridge, 36" Single-Slope	LF	LF	71727

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	DAR
Project Number:	250647-2-32-05	***Date:***	8/20
Description:	110-3 Demolition	***Checked By:***	TD
		Date:	8/20

Demolition

No. of spans = 264 (264 typical 135ft spans)

Location	Out-to-out Width (LF)	Span Length (LF)	Area (SF)
Span 1	39	86.04	3355.64
Span 2-265	39	135.00	1389960.00
Span 266	39	141.75	5528.25

Total Area of Existing Bridge = 1398844 SF

BPA

		Designed By:	DAR
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	8/20
Project Number:	250647-2-32-05	***Checked By:***	TD
Description:	400-2-10	***Date:***	8/20
	Concrete Class II, Approach Slab		

Concrete Class II, Approach Slab

Slab

Width =	46.67	LF
Thickness =	1.00	LF
Length =	30.0	LF
Volume =	51.9	CY

Total Volume (CY) =	51.9	CY

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-4-4
Concrete Class IV, Superstructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Concrete Class IV, Superstructure

Slab

Width =	47.6	LF
Thickness =	0.7083	LF
Length =	35863.4	LF
Volume =	44784.9	CY

Build-up over Beams

Width of BUP =	4	LF
Avg. Thickness =	0.208	LF
Length =	35863.4	LF
No of Beams =	5	
Volume =	5534.5	CY

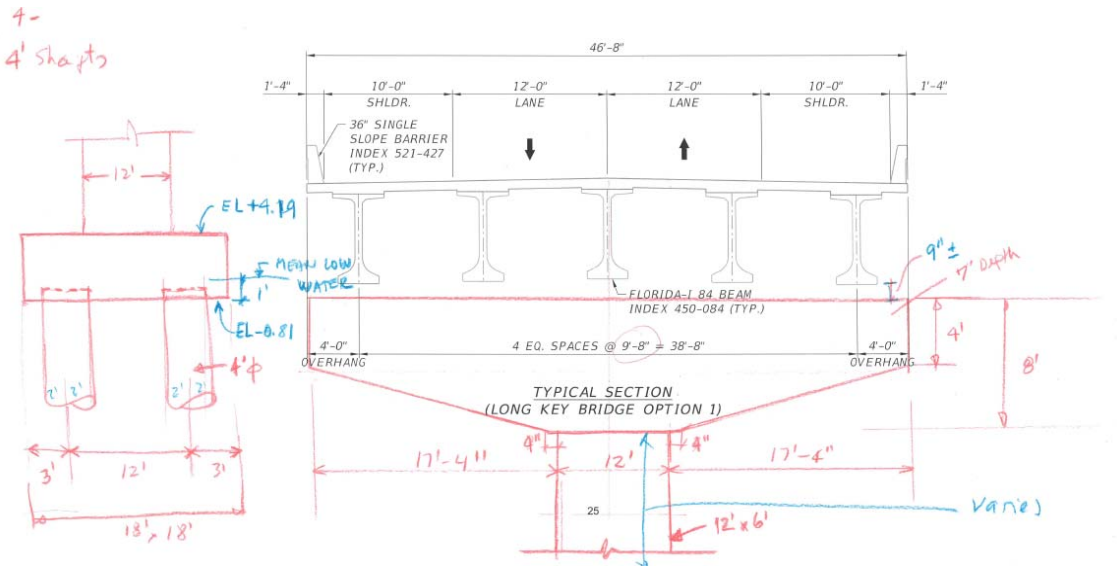
Total Volume (CY) =	50319.4	CY

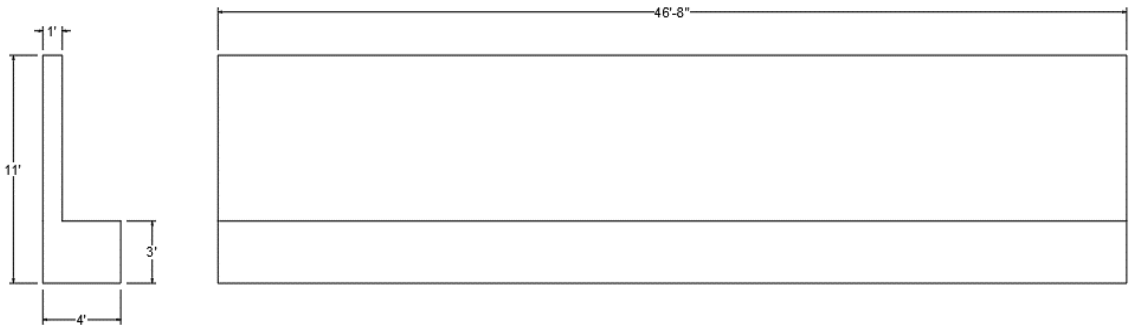
BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	DAR
Project Number:	250647-2-32-05	***Date:***	8/20
Description:	400-4-5 Concrete Class IV, Substructure	***Checked By:***	TD
		Date:	8/20

Concrete Class IV, Substructure

Assumptions:





7" pedestal at exterior beams, Type E Bearing Pad (4'x2' pedestal dimensions)
2% slope to crown at center
23.5' from top of deck to 1' above bottom of cap (mean high water)
2.5" build-up over beams (haunch) at centerline fo beam
8.5" slab thickness
EB cap of same length as Pier cap. 3' deep, 4' wide. 8' x 1' backwall
EBs supported on 7, 24" piles spaced at 6'-1"

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-4-5
Concrete Class IV, Substructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Column Geometry:

Top of Cap El. =	4.190	ft	
Top of Deck El. (Crown) =	24.405	ft	
MHW El. =	0.905	ft	
elastomeric bearing pad thickness =	0.159	ft	1.906 in
Build-up =	0.208	ft	2.500 in
Deck thickness =	0.708	ft	8.500 in
Beam Depth =	7.000	ft	

Elevations - Typical Piers 2-106 & 139-211

Beam No.	Top of Deck	Top of Beam	Bott. Of Beam	Top of Pedestal
-	ft	ft	ft	ft
1	24.018	23.102	16.102	15.943
2	24.212	23.295	16.295	16.136
3	24.405	23.488	16.488	16.329
4	24.212	23.295	16.295	16.136
5	24.018	23.102	16.102	15.943

Pedestal thickness @ ends =	0.583	ft	7.000 in
Top of Cap El. =	15.359	ft	
Bott. Beam to MLW El. (Exterior) =	15.197	ft	
Bott Beam to MHW El. =	14.292	ft	
Column Height =	3.169	ft	>12 ft per FDOT min Splash Zone 1.4.3 C.1.c

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-4-5
Concrete Class IV, Substructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Piers 107-138 (Exterior Beam)

Pier No.	Add. Height	Col. Height
-	ft	ft
107	0.17	3.34
108	1.45	4.62
109	3.96	7.13
110	7.71	10.88
111	12.60	15.77
112	17.70	20.87
113	22.80	25.97
114	27.79	30.96
115	32.27	35.44
116	36.18	39.35
117	39.54	42.71
118	42.34	45.51
119	44.57	47.74
120	46.25	49.42
121	47.37	50.54
122	47.93	51.10
123	47.93	51.10
124	47.37	50.54
125	46.25	49.42
126	44.57	47.74
127	42.34	45.51
128	39.54	42.71
129	36.18	39.35
130	32.27	35.44
131	27.79	30.96
132	22.80	25.97
133	17.70	20.87
134	12.60	15.77
135	8.09	11.26
136	4.83	8.00
137	2.80	5.97
138	2.18	5.35

column heights calculated to be used for volume calculations

Proposed bridge length = 35,87'
Typical span = 170'
No of piers = 212

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-4-5
Concrete Class IV, Substructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Component Volumes:

Pier Cap Area = 305.36 SF
Depth = 7 LF
Volume = 79.17 CY

No of typ piers 2-106 = 105
No of typ piers 139-211 = 73

Pier Column Area = 72 SF

	Pier Cap			Pier Column		
Pier No.	Area	Depth	Volume	Area	Height	Volume
-	SF	LF	CY	SF	LF	CY
2-106	305.36	7.00	8312.58	72.00	3.17	887.45
107	305.36	7.00	79.17	72.00	3.34	8.91
108	305.36	7.00	79.17	72.00	4.62	12.31
109	305.36	7.00	79.17	72.00	7.13	19.02
110	305.36	7.00	79.17	72.00	10.88	29.02
111	305.36	7.00	79.17	72.00	15.77	42.05
112	305.36	7.00	79.17	72.00	20.87	55.65
113	305.36	7.00	79.17	72.00	25.97	69.26
114	305.36	7.00	79.17	72.00	30.96	82.56
115	305.36	7.00	79.17	72.00	35.44	94.49
116	305.36	7.00	79.17	72.00	39.35	104.94
117	305.36	7.00	79.17	72.00	42.71	113.90
118	305.36	7.00	79.17	72.00	45.51	121.35
119	305.36	7.00	79.17	72.00	47.74	127.31
120	305.36	7.00	79.17	72.00	49.42	131.79
121	305.36	7.00	79.17	72.00	50.54	134.77
122- Nav	305.36	7.00	79.17	72.00	51.10	136.27
123- Nav	305.36	7.00	79.17	72.00	51.10	136.27
124	305.36	7.00	79.17	72.00	50.54	134.77
125	305.36	7.00	79.17	72.00	49.42	131.79
126	305.36	7.00	79.17	72.00	47.74	127.31
127	305.36	7.00	79.17	72.00	45.51	121.35
128	305.36	7.00	79.17	72.00	42.71	113.90
129	305.36	7.00	79.17	72.00	39.35	104.94
130	305.36	7.00	79.17	72.00	35.44	94.49
131	305.36	7.00	79.17	72.00	30.96	82.56
132	305.36	7.00	79.17	72.00	25.97	69.26
133	305.36	7.00	79.17	72.00	20.87	55.65
134	305.36	7.00	79.17	72.00	15.77	42.05
135	305.36	7.00	79.17	72.00	11.26	30.04
136	305.36	7.00	79.17	72.00	8.00	21.33
137	305.36	7.00	79.17	72.00	5.97	15.92
138	305.36	7.00	79.17	72.00	5.35	14.26
139-211	305.36	7.00	5779.22	72.00	3.17	616.99
		Total =	16625.16 CY		Total =	4083.94 CY

BPA

Designed By: DAR
Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9 ***Date:*** 8/20
Project Number: 250647-2-32-05 ***Checked By:*** TD
Description: 400-4-5 ***Date:*** 8/20
Concrete Class IV, Substructure

Footing			Pedestal			
Area	Depth	Volume	Area	Depth	Volume	
SF	LF	CY	SF	LF	CY	
324	5	60	8	0.583	0.173	4'x2' pedestals
No. Footings =	210		No. Pedestals =	2110	211 sets of 10 pedestals	
Tot Footing Vol. =	12600.00	CY	Tot Pedestal Vol. =	364.69	CY	

Mass Concrete Check Calculations:

Mass Conc. Pier Cap		
Vol (CF)	SA (SF)	Ratio
2137.52	1225.17	1.74
USE MASS CONCRETE, SEE 400-4-25		

Mass Conc. Footing		
Vol (CF)	SA (SF)	Ratio
1620	1008.00	1.61
USE MASS CONCRETE, SEE 400-4-25		

Mass Conc. EB Cap		
Vol (CF)	SA (SF)	Ratio
933.33	1440.00	0.65
not mass concrete		

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-4-5
Concrete Class IV, Substructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Mass Conc. Column

Pier No.	Vol (CF)	SA (SF)	Ratio	Conc. Type
2-106	228.20	258.10	0.88	**Reg. Conc.**
107	240.58	264.29	0.91	**Reg. Conc.**
108	332.45	310.23	1.07	**Mass Conc.**
109	513.58	400.79	1.28	**Mass Conc.**
110	783.58	535.79	1.46	**Mass Conc.**
111	1135.33	711.66	1.60	**Mass Conc.**
112	1502.45	895.23	1.68	**Mass Conc.**
113	1869.95	1078.98	1.73	**Mass Conc.**
114	2229.20	1258.60	1.77	**Mass Conc.**
115	2551.33	1419.66	1.80	**Mass Conc.**
116	2833.33	1560.66	1.82	**Mass Conc.**
117	3075.20	1681.60	1.83	**Mass Conc.**
118	3276.58	1782.29	1.84	**Mass Conc.**
119	3437.45	1862.73	1.85	**Mass Conc.**
120	3558.20	1923.10	1.85	**Mass Conc.**
121	3638.83	1963.41	1.85	**Mass Conc.**
122- Nav	3679.33	1983.66	1.85	**Mass Conc.**
123- Nav	3679.33	1983.66	1.85	**Mass Conc.**
124	3638.83	1963.41	1.85	**Mass Conc.**
125	3558.20	1923.10	1.85	**Mass Conc.**
126	3437.45	1862.73	1.85	**Mass Conc.**
127	3276.58	1782.29	1.84	**Mass Conc.**
128	3075.20	1681.60	1.83	**Mass Conc.**
129	2833.33	1560.66	1.82	**Mass Conc.**
130	2551.33	1419.66	1.80	**Mass Conc.**
131	2229.20	1258.60	1.77	**Mass Conc.**
132	1869.95	1078.98	1.73	**Mass Conc.**
133	1502.45	895.23	1.68	**Mass Conc.**
134	1135.33	711.66	1.60	**Mass Conc.**
135	810.95	549.48	1.48	**Mass Conc.**
136	575.83	431.91	1.33	**Mass Conc.**
137	429.95	358.98	1.20	**Mass Conc.**
138	384.95	336.48	1.14	**Mass Conc.**
139-211	228.20	258.10	0.88	**Reg. Conc.**

Total Regular Concrete Volume:

EB Cap Volume =	933.33	CF	Pier Column Volume (2-106 & 139-211) =	228.20	CF/ea
No. Caps =	2		No. Columns (2-106 & 139-211) =	178	
Subtotal EB Cap Volume =	69.14	CY	Pier Column Volume (107) =	240.58	CF
Subtotal Pedestal Vol. =	364.69	CY	**Subtotal Column Volume =**	1513.36	CY

Total Volume = 1947.2 CY

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-4-25
Concrete Class IV, Mass - Substructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Concrete Class IV, Substructure

Pier Caps =	16625.16	CY
Pier Columns =	2570.58	CY
Footings =	12600.00	CY
Total =	31795.7	CY

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 400-147
Composite Neoprene Pads

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Composite Neoprene Pads

No. of Sets = 211 (set of 10 per pier, 210 piers + 2 EB of 5 sets ea.)

Type E pad

Length x Width of Pad =	320	SI
Thickness of Bearing Pad =	1.906	IN (Type E Index 400-510)
Volume of Pad =	0.35301	CF
Total No. of Pads =	2110	pads
Total Volume of Pads =	744.8	CF

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	DAR
Project Number:	250647-2-32-05	***Date:***	8/20
Description:	415-1-4 Reinforcing Steel- Superstructure	***Checked By:***	TD
		Date:	8/20

Reinforcing Steel - Superstructure

Deck reinforcement per CY = 205 LB/CY Assumed Standard Deck, SDG 9.2.3

Deck reinforcement = 9180913.3 LB

Total = 9181118 LB

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 415-1-5
Reinforcing Steel - Substructure

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Reinforcing Steel - Substructure **LB/CY from SDG 9.2.3**

Pile Abutment Reinforcement per CY =	135.0	LB/CY	
Pile Bent Reinforcement per CY =	152.3	LB/CY	using Pile Bent and 5% adjustment for Hammerhead
Column Reinforcement; Short (<25ft) =	150.0	LB/CY	
Column Reinforcement; Tall (>25ft) =	210.0	LB/CY	
Footing Reinforcement =	135.0	LB/CY	using Pile Abutment
Pile Abutment Reinforcement =	9333	LB	
Pile Bent Reinforcement =	2531180	LB	
Vol. short column =	1850.6	CY	From 400-4-5 (Col. 2-112 & 133-211, 190 cols)
Column Reinforcement; Short (<25ft) =	277597	LB	
Vol. Tall column =	2233.3	CY	From 400-4-5 (Col. 113-132, 20 cols)
Column Reinforcement; Tall (>25ft) =	468991	LB	
Footing Reinforcement =	1701000	LB	

Total = 4988101 LB

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 415-1-9
Reinforcing Steel - Approach Slab

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Reinforcing Steel - Approach Slab **LB/CY from SDG 9.2.3**

Approach Slab Reinforcement per CY =	200.0	LB/CY
Approach Slab Volume =	51.9	LB
Total =	10370	LB

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	DAR
Project Number:	250647-2-32-05	***Date:***	8/20
Description:	450-2-84	***Checked By:***	TD
	Prestressed Beams: Florida I-Beam 84"	***Date:***	8/20

Prestressed Beams: Florida I-Beam 84"

No. of Beams =	5.0	
Length =	35863.4	LF

Total =	179317 LF

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 455-34-5
Prestressed Concrete Piling, 24" SQ

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Prestressed Concrete Piling, 24" SQ

Pile Length =	35.0	LF	Assumed for each Pile, 7 piles per EB
No. Piles =	14.0		

Total = 490 LF

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	DAR
Project Number:	250647-2-32-05	***Date:***	8/20
Description:	455-88-5	***Checked By:***	TD
	Drilled Shaft, 48" DIA	***Date:***	8/20

Drilled Shaft, 48" DIA

No. Shafts =	840	4 per pier, 210 piers
Length ea. =	20.0	LF

Total =	16800 LF

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 455-143-5
Test Piles - Prestressed Concrete, 24" SQ

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Test Piles - Prestressed Concrete, 24" SQ

	Piles #	# Test Piles	Length/Pile	Test Pile Length (LF)
EB1	7	1	45	45
EB2	7	1	45	45

Total = 90 LF

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 458-1-11
Bridge Deck Expansion Joint, New Construction - F&I; Backer Rod

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Bridge Deck Expansion Joint, New Construction - F&I; Backer Rod

Width of expansion joint =	47.67 ft	Length of New Bridge
# of expansion joints =	72	Backer rod

Total = **3432 LF**

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: 521-5-13
Traffic

Designed By: DAR
Date: 8/20
Checked By: TD
Date: 8/20

Concrete Traffic Railing - Bridge, 36" Single-Slope

Overall Bridge Length =	35863.4	LF
No. of Barriers =	2	

Total = 71727 LF

APPENDIX B – LCCA CALCULATIONS

BPA

Designed By:	DAR		
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	12/20
Project Number:	250647-2-32-05	***Checked By:***	TD
Description:	LCCA Results	***Date:***	01/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\New Bridge_Alternative\[Summary of New Bridge Quantities 7 Year Cycles.xlsx]Summary of LCCA

Primary Analysis - 3%

Costs	Replacement	Rehabilitation
Capital Costs	$ 180,660,500	$ 146,506,600
Residual Value	$ (39,992,800.00)	$ -
Total Life-Cycle Cost	**$ 140,667,700**	**$ 146,506,600**

Sensitivity Analysis - 1%

Costs	Replacement	Rehabilitation
Capital Costs	$ 217,421,200	$ 210,125,300
Residual Value	$ (45,012,300.00)	$ -
Total Life-Cycle Cost	**$ 172,408,900**	**$ 210,125,300**

Sensitivity Analysis - 5%

Costs	Replacement	Rehabilitation
Capital Costs	$ 150,879,600	$ 105,262,200
Residual Value	$ (45,012,300.00)	$ -
Total Life-Cycle Cost	**$ 105,867,300**	**$ 105,262,200**

Demolition, O&M, and all other costs are included in capital cost of respective alternatives. This is a summary sheet of totals, for detailed breakdown of costs see LCCA

REHABILITATION

BPA

Designed By: TD
Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9 ***Date:*** 4/21
Project Number: 250647-2-32-05 ***Checked By:*** DAR
Description: Life-Cycle Cost Analysis - Capital Costs ***Date:*** 5/21
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Capital Costs

Analysis Period and Useful Service Life Assumptions

Analysis period = 34 years, (2020 - 2054)
Years of Operation = 72 years, (1982 - 2054)
Useful service life of new bridge = 75 years
Useful residual life = 3 years, *taken as 0*

Alternative 1: Rehabilitation
Duration of cycles = 7 years/cycle
Rehabilitation years = 2027 - 2041

Operations and Maintenace

Routine Inspection = 185,000 $/year, annual
Routine Maintenance and Operation = 30,000 $/year, annual

Alternative 1: Rehabilitation

Category	Pay Item	Item Description	Cost (2020 dollars)			
			2027	2034	2041	2048
Structural Rehabilitation	-	Superstructure Repairs - Deviation saddles and Diaphragms at Piers	$3,666,000	$3,666,000	$3,666,000	$3,666,000
	103-2-1	Temporary Shoring, 7 Mile Bridge: Project Number 433381-1-52-01	$4,695,214	$9,390,429	$18,780,858	$18,780,858
	400-4-4	Concrete Class IV, Superstructure	$13,137	$15,765	$18,917	$22,701
	400-4-5	Concrete Class IV, Substructure	$984,421	$1,709,908	$3,057,310	$3,395,649
	400-142-3	Cathodic Protection System, Zinc Aluminum Spray	$2,287,079	$3,201,910	$4,482,674	$6,275,744
	400-147	Composite Neoprene Pads	$50,158	$100,316	$401,264	$401,264
	411-1	Epoxy Material for Crack Injection	$564,577	$694,635	$857,561	$1,062,672
	411-2	Inject and Seal Crack	$2,489,859	$3,053,108	$3,755,117	$4,634,082
	415-1-4	Reinforcing Steel- Superstructure	$510	$612	$735	$882
	415-1-5	Reinforcing Steel- Substructure	$113,603	$208,858	$392,030	$416,004
	450-82	Beam Repairs (Column)	$1,278,900	$1,278,900	$1,278,900	$1,278,900
	455-81-102	Cathodic Protection, F&I, Pier, Zinc Anode Assembly	$182,516	$255,523	$357,732	$500,825
	457-2-231	Cathodic Protection, Integral Pile Jacket , Structural, Greater than 30", Galvanic System	$1,048,800	$1,468,320	$2,055,648	$2,877,907
	462-20-6	Post Tensioning, Replace Tendon	$9,000,000	$12,600,000	$17,640,000	$24,696,000
Deck Surface Rehbilitation	403-1	Epoxy Concrete Overlay	$6,312,734	$0	$6,312,734	$0
	458-1-24	Bridge Deck Expansion Joint, Rehabilitation, Finger Joint	$1,207,000	$0	$1,207,000	$0
Fender System & Navigational Lights System	110-71-1	Bridge Fender System, Removal & Disposal - Rehab Projects Only	$274,196	$0	$274,196	$0
	471-1-1	Fender System - Plastic Marine Lumber, Reinforced (Wales)	$331,427	$0	$331,427	$0
	471-1-2	Fender System - Plastic Marine Lumber, Non-Reinforced	$158,919	$0	$158,919	$0
	471-2	Fender System - Polymeric Piles	$300,000	$0	$300,000	$0
	510-1	Navigational Lights - Fixed Bridge System	$49,400	$0	$49,400	$0
Mobilization	101-1	Mobilization (10% of all cost categories)	$3,815,921	$4,103,227	$7,126,248	$7,413,034
MOT including Marking and Signalization	-	MOT as percentage of total - 9%	$3,150,761	$3,387,986	$5,884,058	$6,120,854
Total	**-**	Cost per full cycle	**$41,975,133**	**$45,135,497**	**$78,388,728**	**$81,543,376**

BPA

Designed By:	TD		
Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Date:***	4/21
Project Number:	250647-2-32-05	***Checked By:***	DAR
Description:	Primary Analysis	***Date:***	5/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]LCCA Detailed 3%

Assumptions:

All costs are to be estimated in present dollars (2020).
Year 2020 is considered to be the base year.
The future inflation rate is neglected. Costs after 2020 are discounted.
Rehabilitation occurs every 7 years, beginning 2027

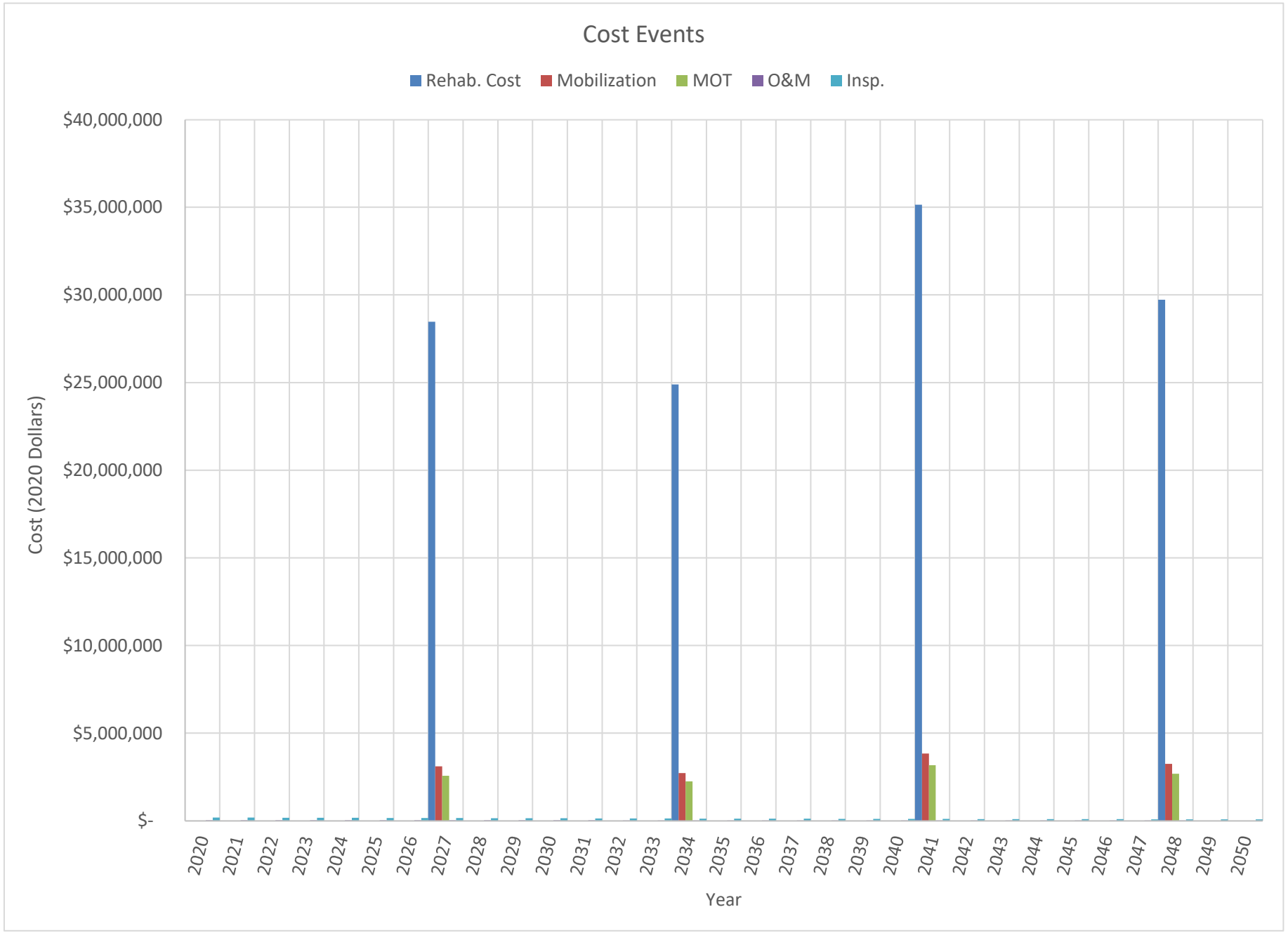
i, nominal discount =	3%	%
i, inflation =	0%	%
i, real =	3%	%

Cost in constant dollars

Rehabilitation Year	Rehab Costs	Mobilization	MOT	O&M Annual	Insp. Yearly
2027	$ 35,008,451.31	$ 3,815,921.19	$ 3,150,760.62	$ 30,000.00	$ 185,000.00
2034	$ 37,644,284.00	$ 4,103,226.96	$ 3,387,985.56		
2041	$ 65,378,422.19	$ 7,126,248.02	$ 5,884,058.00		
2048	$ 68,009,487.83	$ 7,413,034.17	$ 6,120,853.90		
Total	$ 206,040,645.00	$ 22,458,430.00	$ 18,543,658.00		

Detailed LCCA Results for Rehabilitation Scenario Discounted at 3% rounded to the nearest hundred $

Year	n	Rehab. Cost	Mobilization	MOT	O&M Annual	Insp. Yearly	Total Cost
2020	0	$ -	$ -	$ -	$ 30,000	$ 185,000	$ 215,000
2021	1	$ -	$ -	$ -	$ 29,100	$ 179,600	$ 208,700
2022	2	$ -	$ -	$ -	$ 28,300	$ 174,400	$ 202,700
2023	3	$ -	$ -	$ -	$ 27,500	$ 169,300	$ 196,800
2024	4	$ -	$ -	$ -	$ 26,700	$ 164,400	$ 191,100
2025	5	$ -	$ -	$ -	$ 25,900	$ 159,600	$ 185,500
2026	6	$ -	$ -	$ -	$ 25,100	$ 154,900	$ 180,000
2027	7	$ 28,465,100	$ 3,102,700	$ 2,561,900	$ 24,400	$ 150,400	$ 34,304,500
2028	8	$ -	$ -	$ -	$ 23,700	$ 146,000	$ 169,700
2029	9	$ -	$ -	$ -	$ 23,000	$ 141,800	$ 164,800
2030	10	$ -	$ -	$ -	$ 22,300	$ 137,700	$ 160,000
2031	11	$ -	$ -	$ -	$ 21,700	$ 133,600	$ 155,300
2032	12	$ -	$ -	$ -	$ 21,000	$ 129,800	$ 150,800
2033	13	$ -	$ -	$ -	$ 20,400	$ 126,000	$ 146,400
2034	14	$ 24,887,300	$ 2,712,700	$ 2,239,900	$ 19,800	$ 122,300	$ 29,982,000
2035	15	$ -	$ -	$ -	$ 19,300	$ 118,700	$ 138,000
2036	16	$ -	$ -	$ -	$ 18,700	$ 115,300	$ 134,000
2037	17	$ -	$ -	$ -	$ 18,200	$ 111,900	$ 130,100
2038	18	$ -	$ -	$ -	$ 17,600	$ 108,700	$ 126,300
2039	19	$ -	$ -	$ -	$ 17,100	$ 105,500	$ 122,600
2040	20	$ -	$ -	$ -	$ 16,600	$ 102,400	$ 119,000
2041	21	$ 35,144,100	$ 3,830,700	$ 3,163,000	$ 16,100	$ 99,400	$ 42,253,300
2042	22	$ -	$ -	$ -	$ 15,700	$ 96,600	$ 112,300
2043	23	$ -	$ -	$ -	$ 15,200	$ 93,700	$ 108,900
2044	24	$ -	$ -	$ -	$ 14,800	$ 91,000	$ 105,800
2045	25	$ -	$ -	$ -	$ 14,300	$ 88,400	$ 102,700
2046	26	$ -	$ -	$ -	$ 13,900	$ 85,800	$ 99,700
2047	27	$ -	$ -	$ -	$ 13,500	$ 83,300	$ 96,800
2048	28	$ 29,725,400	$ 3,240,100	$ 2,675,300	$ 13,100	$ 80,900	$ 35,734,800
2049	29	$ -	$ -	$ -	$ 12,700	$ 78,500	$ 91,200
2050	30	$ -	$ -	$ -	$ 12,400	$ 76,200	$ 88,600
2051	31	$ -	$ -	$ -	$ 12,000	$ 74,000	$ 86,000
2052	32	$ -	$ -	$ -	$ 11,700	$ 71,800	$ 83,500
2053	33	$ -	$ -	$ -	$ 11,300	$ 69,700	$ 81,000
2054	34	$ -	$ -	$ -	$ 11,000	$ 67,700	$ 78,700
Total		**$ 118,221,900**	**$ 12,886,200**	**$ 10,640,100**	**$ 664,100**	**$ 4,094,300**	**$ 146,506,600**


Cost Events
Rehab. Cost
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Cost (2020 Dollars)
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Year

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: Sensitivity Analysis 1%

Designed By: TD
Date: 4/21
Checked By: DAR
Date: 5/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Sensitivity - 1%

Assumptions:

All costs are to be estimated in present dollars (2020).
Year 2020 is considered to be the base year.
The future inflation rate is neglected. Costs after 2020 are discounted.
Rehabilitation occurs every 7 years, beginning 2027

i, nominal discount =	1%	%
i, inflation =	0%	%
i, real =	1%	%

Cost in constant dollars

Rehabilitation Year	Rehab Costs	Mobilization	MOT	O&M Annual	Insp. Biannual
2027	$ 35,008,451.31	$ 3,815,921.19	$ 3,150,760.62	$ 30,000.00	$ 185,000.00
2034	$ 37,644,284.00	$ 4,103,226.96	$ 3,387,985.56		
2041	$ 65,378,422.19	$ 7,126,248.02	$ 5,884,058.00		
2048	$ 68,009,487.83	$ 7,413,034.17	$ 6,120,853.90		
Total	$ 206,040,645.00	$ 22,458,430.00	$ 18,543,658.00		

Detailed LCCA Results for Rehabilitation Scenario Discounted at 1% rounded to the nearest hundred $

Year	n	Rehab. Cost	Mobilization	MOT	O&M Annual	Insp. Yearly	Total Cost
2020	0	$ -	$ -	$ -	$ 30,000	$ 185,000	$ 215,000
2021	1	$ -	$ -	$ -	$ 29,700	$ 183,200	$ 212,900
2022	2	$ -	$ -	$ -	$ 29,400	$ 181,400	$ 210,800
2023	3	$ -	$ -	$ -	$ 29,100	$ 179,600	$ 208,700
2024	4	$ -	$ -	$ -	$ 28,800	$ 177,800	$ 206,600
2025	5	$ -	$ -	$ -	$ 28,500	$ 176,000	$ 204,500
2026	6	$ -	$ -	$ -	$ 28,300	$ 174,300	$ 202,600
2027	7	$ 32,653,000	$ 3,559,200	$ 2,938,800	$ 28,000	$ 172,600	$ 39,351,600
2028	8	$ -	$ -	$ -	$ 27,700	$ 170,800	$ 198,500
2029	9	$ -	$ -	$ -	$ 27,400	$ 169,200	$ 196,600
2030	10	$ -	$ -	$ -	$ 27,200	$ 167,500	$ 194,700
2031	11	$ -	$ -	$ -	$ 26,900	$ 165,800	$ 192,700
2032	12	$ -	$ -	$ -	$ 26,600	$ 164,200	$ 190,800
2033	13	$ -	$ -	$ -	$ 26,400	$ 162,600	$ 189,000
2034	14	$ 32,749,100	$ 3,569,700	$ 2,947,400	$ 26,100	$ 160,900	$ 39,453,200
2035	15	$ -	$ -	$ -	$ 25,800	$ 159,300	$ 185,100
2036	16	$ -	$ -	$ -	$ 25,600	$ 157,800	$ 183,400
2037	17	$ -	$ -	$ -	$ 25,300	$ 156,200	$ 181,500
2038	18	$ -	$ -	$ -	$ 25,100	$ 154,700	$ 179,800
2039	19	$ -	$ -	$ -	$ 24,800	$ 153,100	$ 177,900
2040	20	$ -	$ -	$ -	$ 24,600	$ 151,600	$ 176,200
2041	21	$ 53,050,000	$ 5,782,500	$ 4,774,500	$ 24,300	$ 150,100	$ 63,781,400
2042	22	$ -	$ -	$ -	$ 24,100	$ 148,600	$ 172,700
2043	23	$ -	$ -	$ -	$ 23,900	$ 147,200	$ 171,100
2044	24	$ -	$ -	$ -	$ 23,600	$ 145,700	$ 169,300
2045	25	$ -	$ -	$ -	$ 23,400	$ 144,300	$ 167,700
2046	26	$ -	$ -	$ -	$ 23,200	$ 142,800	$ 166,000
2047	27	$ -	$ -	$ -	$ 22,900	$ 141,400	$ 164,300
2048	28	$ 51,472,000	$ 5,610,400	$ 4,632,500	$ 22,700	$ 140,000	$ 61,877,600
2049	29	$ -	$ -	$ -	$ 22,500	$ 138,600	$ 161,100
2050	30	$ -	$ -	$ -	$ 22,300	$ 137,300	$ 159,600
2051	31	$ -	$ -	$ -	$ 22,000	$ 135,900	$ 157,900
2052	32	$ -	$ -	$ -	$ 21,800	$ 134,600	$ 156,400
2053	33	$ -	$ -	$ -	$ 21,600	$ 133,200	$ 154,800
2054	34	$ -	$ -	$ -	$ 21,400	$ 131,900	$ 153,300
Total		**$ 169,924,100**	**$ 18,521,800**	**$ 15,293,200**	**$ 891,000**	**$ 5,495,200**	**$ 210,125,300**

BPA

Designed By: TD
Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9 ***Date:*** 4/21
Project Number: 250647-2-32-05 ***Checked By:*** DAR
Description: Sensitivity Analysis 5% ***Date:*** 5/21
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Sensitivity - 5%

Assumptions:

All costs are to be estimated in present dollars (2020).
Year 2020 is considered to be the base year.
The future inflation rate is neglected. Costs after 2020 are discounted.
Rehabilitation occurs every 7 years, beginning 2027

i, nominal discount =	5%	%
i, inflation =	0%	%
i, real =	5%	%

Cost in constant dollars

Rehabilitation Year	Rehab Costs	Mobilization	MOT	O&M Annual	Insp. Yearly
2027	$ 35,008,451.31	$ 3,815,921.19	$ 3,150,760.62	$ 30,000.00	$ 185,000.00
2034	$ 37,644,284.00	$ 4,103,226.96	$ 3,387,985.56		
2041	$ 65,378,422.19	$ 7,126,248.02	$ 5,884,058.00		
2048	$ 68,009,487.83	$ 7,413,034.17	$ 6,120,853.90		
Total	$ 206,040,645.00	$ 22,458,430.00	$ 18,543,658.00		

Detailed LCCA Results for Rehabilitation Scenario Discounted at 5% rounded to the nearest hundred $

Year	n	Rehab. Cost	Mobilization	MOT	O&M Annual	Insp. Yearly	Total Cost
2020	0	$ -	$ -	$ -	$ 30,000	$ 185,000	$ 215,000
2021	1	$ -	$ -	$ -	$ 28,600	$ 176,200	$ 204,800
2022	2	$ -	$ -	$ -	$ 27,200	$ 167,800	$ 195,000
2023	3	$ -	$ -	$ -	$ 25,900	$ 159,800	$ 185,700
2024	4	$ -	$ -	$ -	$ 24,700	$ 152,200	$ 176,900
2025	5	$ -	$ -	$ -	$ 23,500	$ 145,000	$ 168,500
2026	6	$ -	$ -	$ -	$ 22,400	$ 138,000	$ 160,400
2027	7	$ 24,879,900	$ 2,711,900	$ 2,239,200	$ 21,300	$ 131,500	$ 29,983,800
2028	8	$ -	$ -	$ -	$ 20,300	$ 125,200	$ 145,500
2029	9	$ -	$ -	$ -	$ 19,300	$ 119,300	$ 138,600
2030	10	$ -	$ -	$ -	$ 18,400	$ 113,600	$ 132,000
2031	11	$ -	$ -	$ -	$ 17,500	$ 108,200	$ 125,700
2032	12	$ -	$ -	$ -	$ 16,700	$ 103,000	$ 119,700
2033	13	$ -	$ -	$ -	$ 15,900	$ 98,100	$ 114,000
2034	14	$ 19,012,900	$ 2,072,400	$ 1,711,200	$ 15,200	$ 93,400	$ 22,905,100
2035	15	$ -	$ -	$ -	$ 14,400	$ 89,000	$ 103,400
2036	16	$ -	$ -	$ -	$ 13,700	$ 84,800	$ 98,500
2037	17	$ -	$ -	$ -	$ 13,100	$ 80,700	$ 93,800
2038	18	$ -	$ -	$ -	$ 12,500	$ 76,900	$ 89,400
2039	19	$ -	$ -	$ -	$ 11,900	$ 73,200	$ 85,100
2040	20	$ -	$ -	$ -	$ 11,300	$ 69,700	$ 81,000
2041	21	$ 23,467,100	$ 2,557,900	$ 2,112,000	$ 10,800	$ 66,400	$ 28,214,200
2042	22	$ -	$ -	$ -	$ 10,300	$ 63,200	$ 73,500
2043	23	$ -	$ -	$ -	$ 9,800	$ 60,200	$ 70,000
2044	24	$ -	$ -	$ -	$ 9,300	$ 57,400	$ 66,700
2045	25	$ -	$ -	$ -	$ 8,900	$ 54,600	$ 63,500
2046	26	$ -	$ -	$ -	$ 8,400	$ 52,000	$ 60,400
2047	27	$ -	$ -	$ -	$ 8,000	$ 49,600	$ 57,600
2048	28	$ 17,348,800	$ 1,891,000	$ 1,561,400	$ 7,700	$ 47,200	$ 20,856,100
2049	29	$ -	$ -	$ -	$ 7,300	$ 44,900	$ 52,200
2050	30	$ -	$ -	$ -	$ 6,900	$ 42,800	$ 49,700
2051	31	$ -	$ -	$ -	$ 6,600	$ 40,800	$ 47,400
2052	32	$ -	$ -	$ -	$ 6,300	$ 38,800	$ 45,100
2053	33	$ -	$ -	$ -	$ 6,000	$ 37,000	$ 43,000
2054	34	$ -	$ -	$ -	$ 5,700	$ 35,200	$ 40,900
Total		**$ 84,708,700**	**$ 9,233,200**	**$ 7,623,800**	**$ 515,800**	**$ 3,180,700**	**$ 105,262,200**

REPLACEMENT

BPA

Designed By: DAR

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9 ***Date:*** 12/20

Project Number: 250647-2-32-05 ***Checked By:*** TD

Description: Life-Cycle Cost Analysis - Capital Costs ***Date:*** 01/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\New Bridge_Alternative\[Summary of New Bridge Quantities 7 Year Cycles.xlsx]Capital Costs

Analysis Period and Useful Service Life Assumptions

Analysis period =	34	years
Years of Operation =	23	years, (2031 - 2054)
Useful service life of new bridge =	75	years
Useful residual life =	52	years

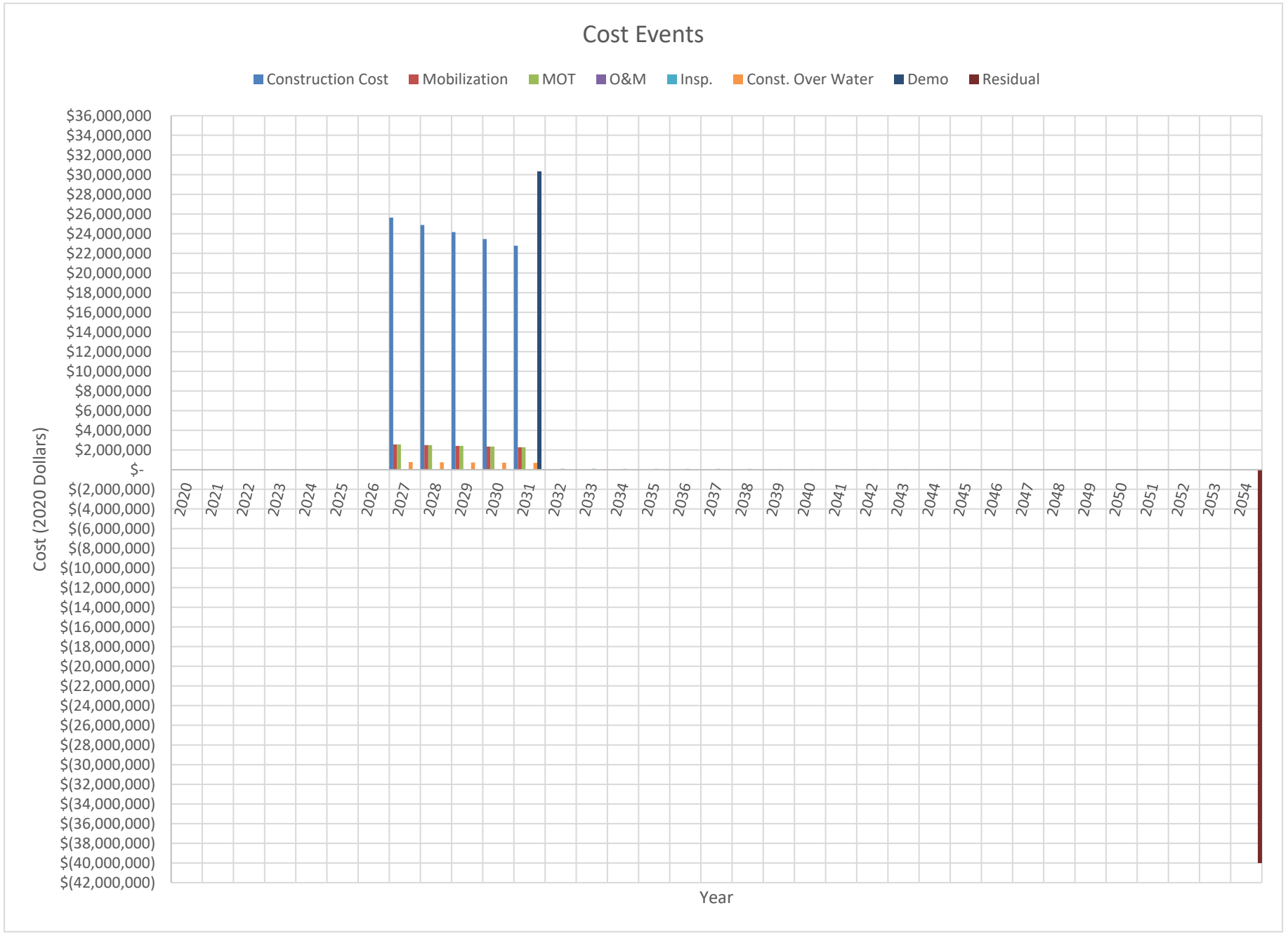
Operations and Maintenace

Routine Inspection =	110,000	$/year, annual
Routine Maintenance and Operation =	30,000	$/year, annual

Alternative 2: Replacement

Cost Category	Pay Item	Cost Item Description	Cost (2020 dollars)
Superstructure	450-2-84	Prestressed Beams: Florida I-Beam 84"	$ 52,898,478
	458-1-11	Bridge Deck Expansion Joint, New Construction - F&I; Backer Rod	$ 154,451
	521-5-13	Concrete Traffic Railing - Bridge, 36" Single-Slope	$ 6,096,774
Deck	400-2-10	Concrete Class II, Approach Slab	$ 57,530
	400-4-4	Concrete Class IV, Superstructure	$ 50,898,591
	415-1-4	Reinforcing Steel- Superstructure	$ 9,181,118
	415-1-9	Reinforcing Steel - Approach Slab	$ 10,889
Substructure	400-147	Composite Neoprene Pads	$ 744,850
	400-4-5	Concrete Class IV, Substructure	$ 1,849,824
	400-4-25	Concrete Class IV, Mass - Substructure	$ 19,872,335
	415-1-5	Reinforcing Steel - Substructure	$ 5,237,506
	455-34-5	Prestressed Concrete Piling, 24" SQ	$ 61,250
	455-88-5	Drilled Shaft, 48" DIA	$ 10,500,000
	455-143-5	Test Piles - Prestressed Concrete, 24" SQ	$ 18,000
Mobilization	101-1	Mobilization	$ 15,758,159
MOT	102-1	Maintenance of Traffic	$ 15,758,159
Construction	-	Construction Over Water (3% Costs)	$ 4,727,448

Total	**-**	Cost per full cycle	**$ 193,825,362**
Demolition	**-**	Demolition Costs of Existing Bridge	**$ 41,965,317**
Bridge Only	**-**	Cost of Bridge excluding Construction Over Water, Mobilization, and MOT	**$ 157,581,595**
Residual	**-**	Residual Value of Bridge (75-23 years = 52 years) Assumed ~70% of Bridge only Cost	**$ 109,256,572**


Cost Events
Construction Cost
Mobilization
MOT
O&M
Insp.
Const. Over Water
Demo
Residual
$36,000,000
$34,000,000
$32,000,000
$30,000,000
$28,000,000
$26,000,000
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Cost (2020 Dollars)
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Year

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: Primary Analysis

Designed By: DAR
Date: 12/20
Checked By: TD
Date: 01/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\New Bridge_Alternative\[Summary of New Bridge Quantities 7 Year Cycles.xlsx]LCCA Detailed 3%

Assumptions:

All costs are to be estimated in present dollars (2020).
Year 2020 is considered to be the base year.
The future inflation rate is neglected. Costs after 2020 are discounted.
Construction is assumed design-build and distributed at 20% per year for 5 years
Cost of O&M and Inspection does not occur until bridge is complete in year 2032

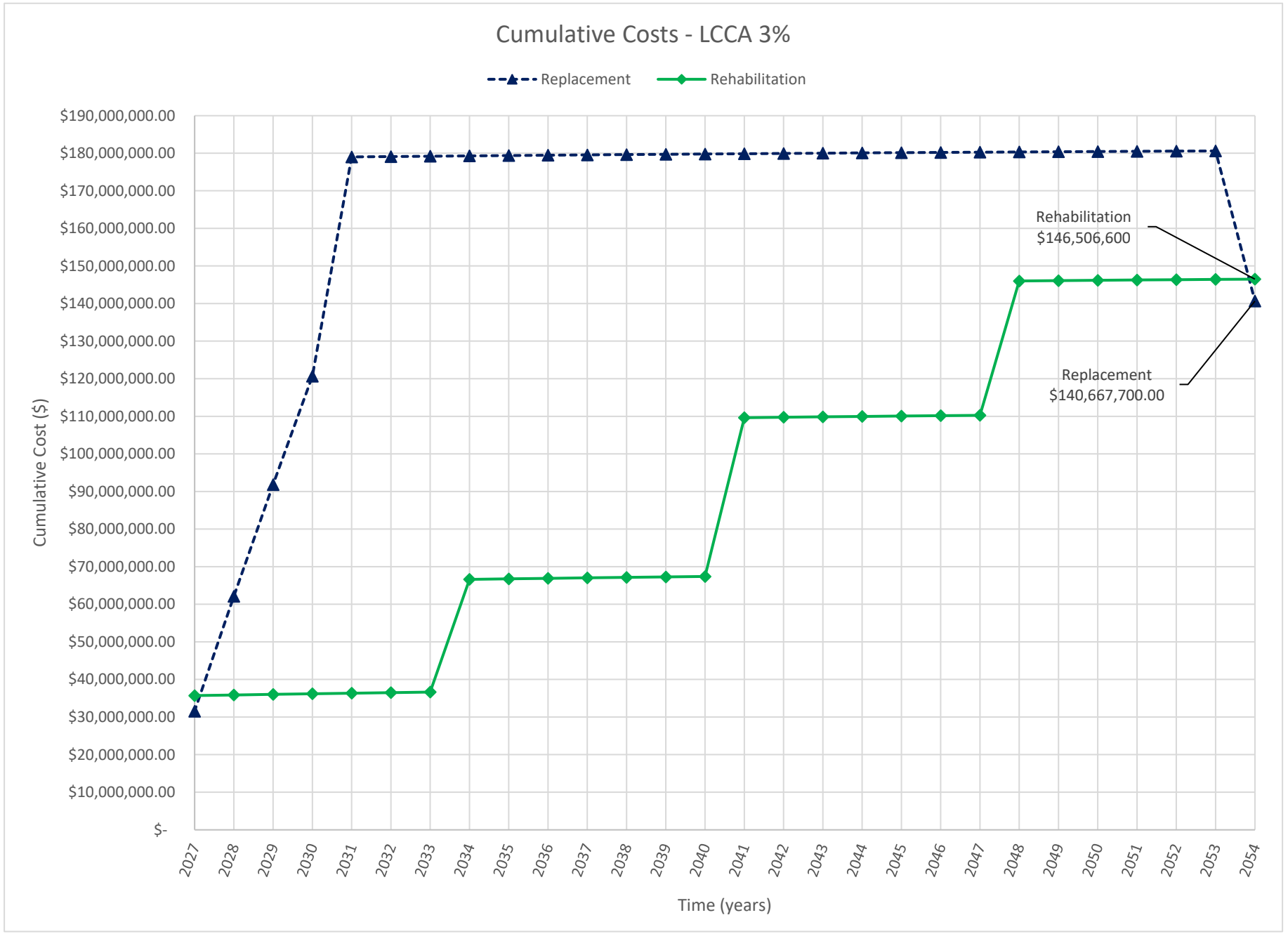
i, nominal discount =	3%	%
i, inflation =	0%	%
i, real =	3%	%

Const in constant dollars

Construction Year	Bridge Cost	Mobilization	Construction Over Water	MOT	Demolition
2027	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2028	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2029	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2030	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2031	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ 41,965,316.64
Total	$ 157,581,595.00	$ 15,758,159.00	$ 4,727,448.00	$ 15,758,159.00	$ 41,965,317.00

Detailed LCCA Results for Replacement Scenario Discounted at 3% rounded to the nearest hundred $

Year	n	Capital Cost	Construction Over Water	Mobilization	MOT	Demolition	O&M Annual	Insp. Yearly	Residual	Total
2020	0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	7	$ 25,625,700	$ 768,800	$ 2,562,600	$ 2,562,600	$ -	$ -	$ -	$ -	$ 31,519,700
2028	8	$ 24,879,300	$ 746,400	$ 2,487,900	$ 2,487,900	$ -	$ -	$ -	$ -	$ 30,601,500
2029	9	$ 24,154,600	$ 724,600	$ 2,415,500	$ 2,415,500	$ -	$ -	$ -	$ -	$ 29,710,200
2030	10	$ 23,451,100	$ 703,500	$ 2,345,100	$ 2,345,100	$ -	$ -	$ -	$ -	$ 28,844,800
2031	11	$ 22,768,100	$ 683,000	$ 2,276,800	$ 2,276,800	$ 30,316,600	$ -	$ -	$ -	$ 58,321,300
2032	12	$ -	$ -	$ -	$ -	$ -	$ 21,000	$ 77,200	$ -	$ 98,200
2033	13	$ -	$ -	$ -	$ -	$ -	$ 20,400	$ 74,900	$ -	$ 95,300
2034	14	$ -	$ -	$ -	$ -	$ -	$ 19,800	$ 72,700	$ -	$ 92,500
2035	15	$ -	$ -	$ -	$ -	$ -	$ 19,300	$ 70,600	$ -	$ 89,900
2036	16	$ -	$ -	$ -	$ -	$ -	$ 18,700	$ 68,500	$ -	$ 87,200
2037	17	$ -	$ -	$ -	$ -	$ -	$ 18,200	$ 66,600	$ -	$ 84,800
2038	18	$ -	$ -	$ -	$ -	$ -	$ 17,600	$ 64,600	$ -	$ 82,200
2039	19	$ -	$ -	$ -	$ -	$ -	$ 17,100	$ 62,700	$ -	$ 79,800
2040	20	$ -	$ -	$ -	$ -	$ -	$ 16,600	$ 60,900	$ -	$ 77,500
2041	21	$ -	$ -	$ -	$ -	$ -	$ 16,100	$ 59,100	$ -	$ 75,200
2042	22	$ -	$ -	$ -	$ -	$ -	$ 15,700	$ 57,400	$ -	$ 73,100
2043	23	$ -	$ -	$ -	$ -	$ -	$ 15,200	$ 55,700	$ -	$ 70,900
2044	24	$ -	$ -	$ -	$ -	$ -	$ 14,800	$ 54,100	$ -	$ 68,900
2045	25	$ -	$ -	$ -	$ -	$ -	$ 14,300	$ 52,500	$ -	$ 66,800
2046	26	$ -	$ -	$ -	$ -	$ -	$ 13,900	$ 51,000	$ -	$ 64,900
2047	27	$ -	$ -	$ -	$ -	$ -	$ 13,500	$ 49,500	$ -	$ 63,000
2048	28	$ -	$ -	$ -	$ -	$ -	$ 13,100	$ 48,100	$ -	$ 61,200
2049	29	$ -	$ -	$ -	$ -	$ -	$ 12,700	$ 46,700	$ -	$ 59,400
2050	30	$ -	$ -	$ -	$ -	$ -	$ 12,400	$ 45,300	$ -	$ 57,700
2051	31	$ -	$ -	$ -	$ -	$ -	$ 12,000	$ 44,000	$ -	$ 56,000
2052	32	$ -	$ -	$ -	$ -	$ -	$ 11,700	$ 42,700	$ -	$ 54,400
2053	33	$ -	$ -	$ -	$ -	$ -	$ 11,300	$ 41,500	$ -	$ 52,800
2054	34	$ -	$ -	$ -	$ -	$ -	$ 11,000	$ 40,300	$ (39,992,800)	$ (39,941,500)
Total		**$ 120,878,800**	**$ 3,626,300**	**$ 12,087,900**	**$ 12,087,900**	**$ 30,316,600**	**$ 356,400**	**$ 1,306,600**	**$ (39,992,800)**	**$ 140,667,700**


Cumulative Costs - LCCA 3%
Replacement
Rehabilitation
$190,000,000.00
$180,000,000.00
$170,000,000.00
$160,000,000.00
$150,000,000.00
$140,000,000.00
$130,000,000.00
$120,000,000.00
$110,000,000.00
$100,000,000.00
$90,000,000.00
$80,000,000.00
$70,000,000.00
$60,000,000.00
$50,000,000.00
$40,000,000.00
$30,000,000.00
$20,000,000.00
$10,000,000.00
$-
Cumulative Cost ($)
Rehabilitation
$146,506,600
Replacement
$140,667,700.00
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Time (years)

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: Sensitivity Analysis - 1%

Designed By: DAR
Date: 12/20
Checked By: TD
Date: 01/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\New Bridge_Alternative\[Summary of New Bridge Quantities 7 Year Cycles.xlsx]Sensitivity 1%

Assumptions:

All costs are to be estimated in present dollars (2020).
Year 2020 is considered to be the base year.
The future inflation rate is neglected. Costs after 2020 are discounted.
Construction is assumed design-build and distributed at 20% per year for 5 years
Cost of O&M and Inspection does not occur until bridge is complete in year 2032

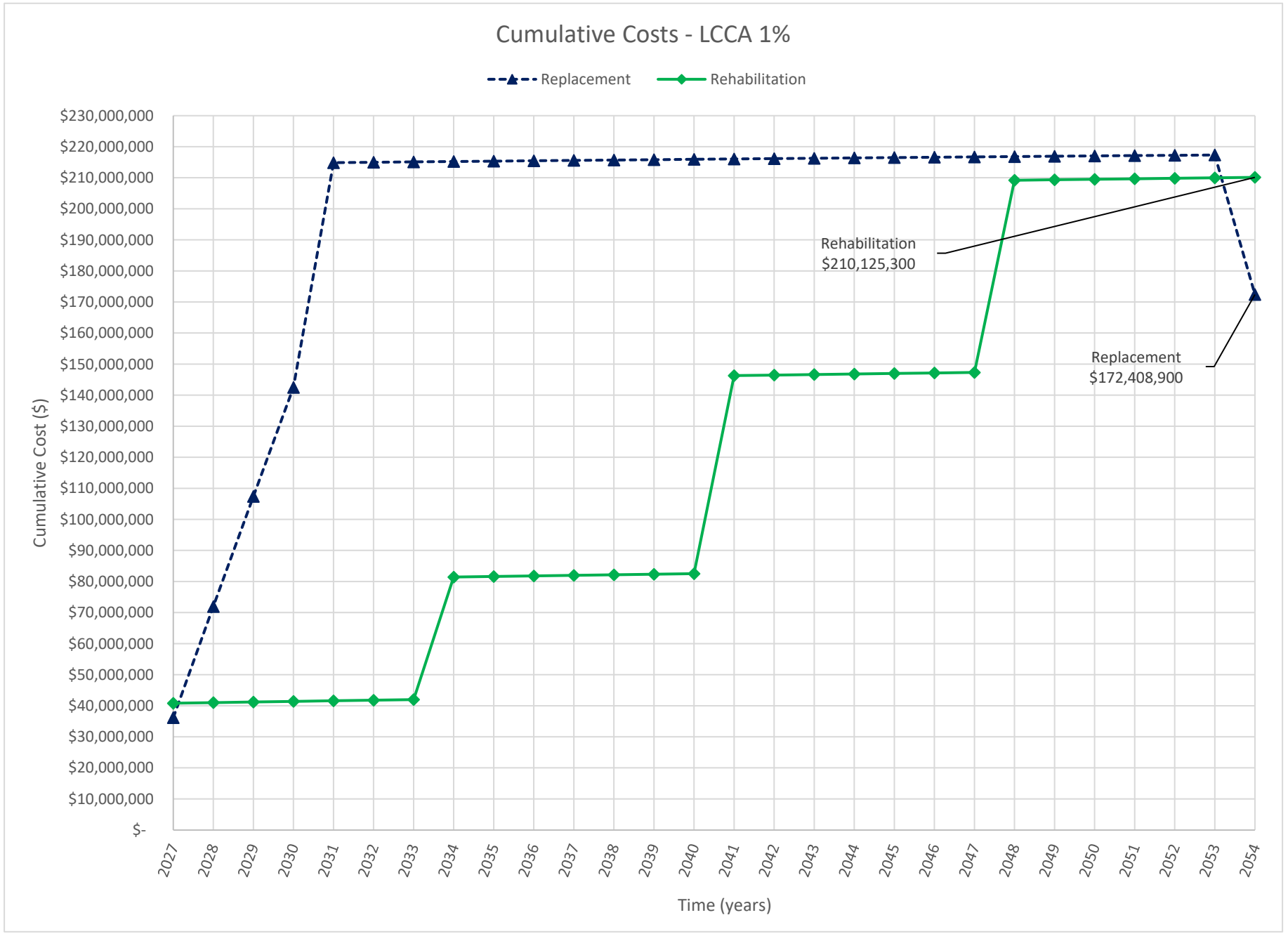
i, nominal discount =	1%	%
i, inflation =	0%	%
i, real =	1%	%

Const in constant dollars

Construction Year	Bridge Cost	Mobilization	Construction Over Water	MOT	Demolition
2027	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2028	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2029	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2030	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2031	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ 41,965,316.64
Total	$ 157,581,595.00	$ 15,758,159.00	$ 4,727,448.00	$ 15,758,159.00	$ 41,965,317.00

Detailed LCCA Results for Replacement Scenario Discounted at 3% rounded to the nearest hundred $

Year	n	Capital Cost	Construction Over Water	Mobilzation	MOT	Demolition	O&M Annual	Insp. Yearly	Residual	Total
2020	0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	7	$ 29,395,800	$ 881,900	$ 2,939,600	$ 2,939,600	$ -	$ -	$ -	$ -	$ 36,156,900
2028	8	$ 29,104,800	$ 873,100	$ 2,910,500	$ 2,910,500	$ -	$ -	$ -	$ -	$ 35,798,900
2029	9	$ 28,816,600	$ 864,500	$ 2,881,700	$ 2,881,700	$ -	$ -	$ -	$ -	$ 35,444,500
2030	10	$ 28,531,300	$ 855,900	$ 2,853,100	$ 2,853,100	$ -	$ -	$ -	$ -	$ 35,093,400
2031	11	$ 28,248,800	$ 847,500	$ 2,824,900	$ 2,824,900	$ 37,614,500	$ -	$ -	$ -	$ 72,360,600
2032	12	$ -	$ -	$ -	$ -	$ -	$ 26,600	$ 97,600	$ -	$ 124,200
2033	13	$ -	$ -	$ -	$ -	$ -	$ 26,400	$ 96,700	$ -	$ 123,100
2034	14	$ -	$ -	$ -	$ -	$ -	$ 26,100	$ 95,700	$ -	$ 121,800
2035	15	$ -	$ -	$ -	$ -	$ -	$ 25,800	$ 94,700	$ -	$ 120,500
2036	16	$ -	$ -	$ -	$ -	$ -	$ 25,600	$ 93,800	$ -	$ 119,400
2037	17	$ -	$ -	$ -	$ -	$ -	$ 25,300	$ 92,900	$ -	$ 118,200
2038	18	$ -	$ -	$ -	$ -	$ -	$ 25,100	$ 92,000	$ -	$ 117,100
2039	19	$ -	$ -	$ -	$ -	$ -	$ 24,800	$ 91,100	$ -	$ 115,900
2040	20	$ -	$ -	$ -	$ -	$ -	$ 24,600	$ 90,100	$ -	$ 114,700
2041	21	$ -	$ -	$ -	$ -	$ -	$ 24,300	$ 89,300	$ -	$ 113,600
2042	22	$ -	$ -	$ -	$ -	$ -	$ 24,100	$ 88,400	$ -	$ 112,500
2043	23	$ -	$ -	$ -	$ -	$ -	$ 23,900	$ 87,500	$ -	$ 111,400
2044	24	$ -	$ -	$ -	$ -	$ -	$ 23,600	$ 86,600	$ -	$ 110,200
2045	25	$ -	$ -	$ -	$ -	$ -	$ 23,400	$ 85,800	$ -	$ 109,200
2046	26	$ -	$ -	$ -	$ -	$ -	$ 23,200	$ 84,900	$ -	$ 108,100
2047	27	$ -	$ -	$ -	$ -	$ -	$ 22,900	$ 84,100	$ -	$ 107,000
2048	28	$ -	$ -	$ -	$ -	$ -	$ 22,700	$ 83,300	$ -	$ 106,000
2049	29	$ -	$ -	$ -	$ -	$ -	$ 22,500	$ 82,400	$ -	$ 104,900
2050	30	$ -	$ -	$ -	$ -	$ -	$ 22,300	$ 81,600	$ -	$ 103,900
2051	31	$ -	$ -	$ -	$ -	$ -	$ 22,000	$ 80,800	$ -	$ 102,800
2052	32	$ -	$ -	$ -	$ -	$ -	$ 21,800	$ 80,000	$ -	$ 101,800
2053	33	$ -	$ -	$ -	$ -	$ -	$ 21,600	$ 79,200	$ -	$ 100,800
2054	34	$ -	$ -	$ -	$ -	$ -	$ 21,400	$ 78,400	$ (45,012,300)	$ (44,912,500)
Total		**$ 144,097,300**	**$ 4,322,900**	**$ 14,409,800**	**$ 14,409,800**	**$ 37,614,500**	**$ 550,000**	**$ 2,016,900**	**$ (45,012,300)**	**$ 172,408,900**


Cumulative Costs - LCCA 1%
Replacement
Rehabilitation
$230,000,000
$220,000,000
$210,000,000
$200,000,000
$190,000,000
$180,000,000
$170,000,000
$160,000,000
$150,000,000
$140,000,000
$130,000,000
$120,000,000
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$70,000,000
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Cumulative Cost ($)
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Time (years)
Rehabilitation
$210,125,300
Replacement
$172,408,900

BPA

Project: US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9
Project Number: 250647-2-32-05
Description: Sensitivity Analysis - 5%

Designed By: DAR
Date: 12/20
Checked By: TD
Date: 01/21

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\New Bridge_Alternative\[Summary of New Bridge Quantities 7 Year Cycles.xlsx]Sensitivity 5%

Assumptions:

All costs are to be estimated in present dollars (2020).
Year 2020 is considered to be the base year.
The future inflation rate is neglected. Costs after 2020 are discounted.
Construction is assumed design-build and distributed at 20% per year for 5 years
Cost of O&M and Inspection does not occur until bridge is complete in year 2032

i, nominal discount =	5%	%
i, inflation =	0%	%
i, real =	5%	%

Const in constant dollars

Construction Year	Bridge Cost	Mobilization	Construction Over Water	MOT	Demolition
2027	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2028	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2029	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2030	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ -
2031	$ 31,516,318.98	$ 3,151,631.90	$ 945,489.57	$ 3,151,631.90	$ 41,965,316.64
Total	$ 157,581,595.00	$ 15,758,159.00	$ 4,727,448.00	$ 15,758,159.00	$ 41,965,317.00

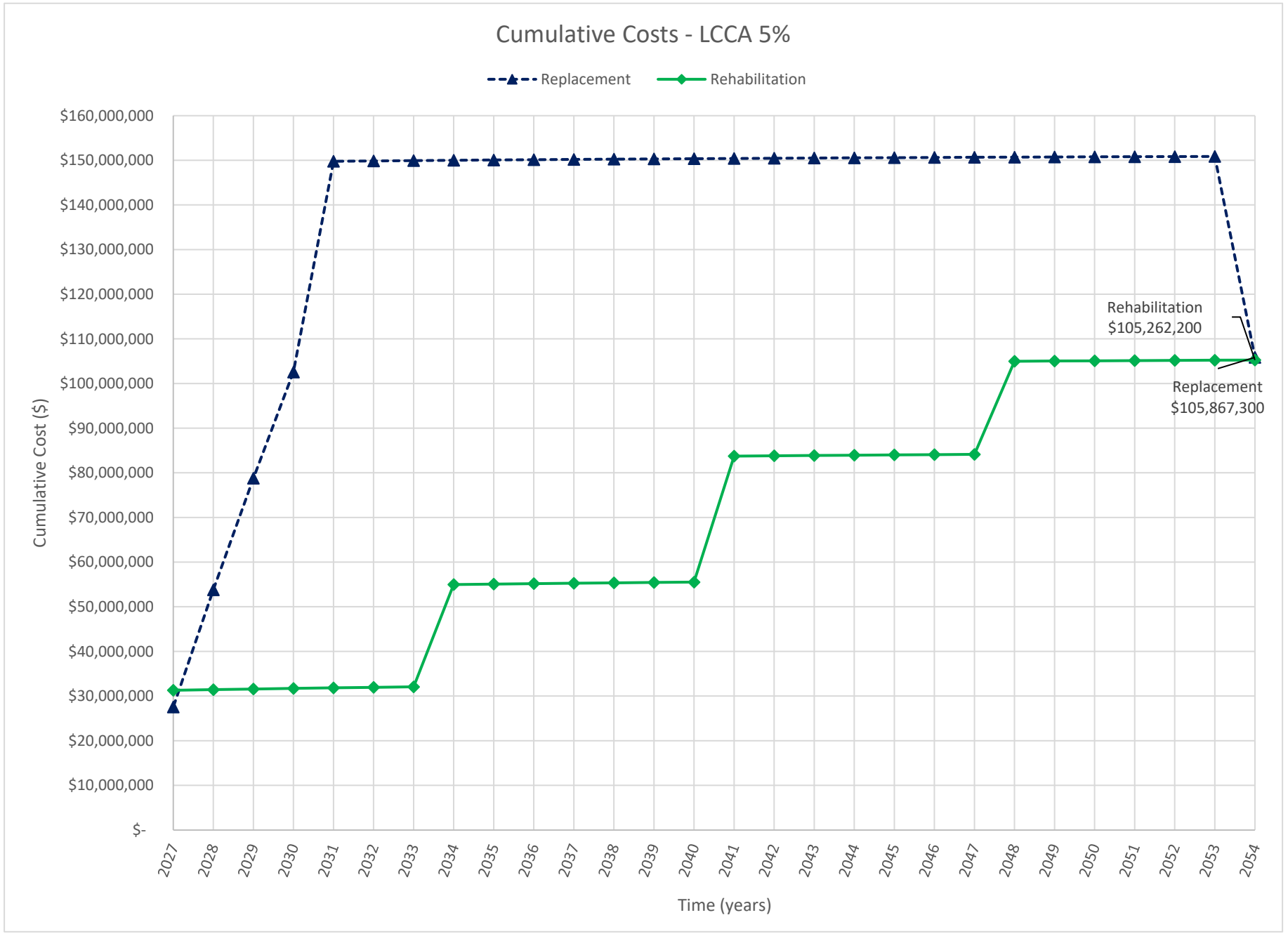
Detailed LCCA Results for Replacement Scenario Discounted at 3% rounded to the nearest hundred $

Year	n	Capital Cost	Construction Over Water	Mobilzation	MOT	Demolition	O&M Annual	Insp. Yearly	Residual	Total
2020	0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2021	1	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2022	2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2023	3	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2024	4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2025	5	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2026	6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2027	7	$ 22,398,100	$ 671,900	$ 2,239,800	$ 2,239,800	$ -	$ -	$ -	$ -	$ 27,549,600
2028	8	$ 21,331,500	$ 639,900	$ 2,133,100	$ 2,133,100	$ -	$ -	$ -	$ -	$ 26,237,600
2029	9	$ 20,315,700	$ 609,500	$ 2,031,600	$ 2,031,600	$ -	$ -	$ -	$ -	$ 24,988,400
2030	10	$ 19,348,300	$ 580,400	$ 1,934,800	$ 1,934,800	$ -	$ -	$ -	$ -	$ 23,798,300
2031	11	$ 18,426,900	$ 552,800	$ 1,842,700	$ 1,842,700	$ 24,536,300	$ -	$ -	$ -	$ 47,201,400
2032	12	$ -	$ -	$ -	$ -	$ -	$ 16,700	$ 61,300	$ -	$ 78,000
2033	13	$ -	$ -	$ -	$ -	$ -	$ 15,900	$ 58,300	$ -	$ 74,200
2034	14	$ -	$ -	$ -	$ -	$ -	$ 15,200	$ 55,600	$ -	$ 70,800
2035	15	$ -	$ -	$ -	$ -	$ -	$ 14,400	$ 52,900	$ -	$ 67,300
2036	16	$ -	$ -	$ -	$ -	$ -	$ 13,700	$ 50,400	$ -	$ 64,100
2037	17	$ -	$ -	$ -	$ -	$ -	$ 13,100	$ 48,000	$ -	$ 61,100
2038	18	$ -	$ -	$ -	$ -	$ -	$ 12,500	$ 45,700	$ -	$ 58,200
2039	19	$ -	$ -	$ -	$ -	$ -	$ 11,900	$ 43,500	$ -	$ 55,400

BPA

Project:	US-1 / 7 mile Bridge Repairs - 17.09.01 TWO #9	***Designed By:***	DAR
Project Number:	250647-2-32-05	***Date:***	12/20
Description:	Sensitivity Analysis - 5%	***Checked By:***	TD
		Date:	01/21

2040	20	$	-	$	-	$	-	$	-	$	-	$	-	$	11,300	$	41,500	$	-	$	52,800
2041	21	$	-	$	-	$	-	$	-	$	-	$	-	$	10,800	$	39,500	$	-	$	50,300
2042	22	$	-	$	-	$	-	$	-	$	-	$	-	$	10,300	$	37,600	$	-	$	47,900
2043	23	$	-	$	-	$	-	$	-	$	-	$	-	$	9,800	$	35,800	$	-	$	45,600
2044	24	$	-	$	-	$	-	$	-	$	-	$	-	$	9,300	$	34,100	$	-	$	43,400
2045	25	$	-	$	-	$	-	$	-	$	-	$	-	$	8,900	$	32,500	$	-	$	41,400
2046	26	$	-	$	-	$	-	$	-	$	-	$	-	$	8,400	$	30,900	$	-	$	39,300
2047	27	$	-	$	-	$	-	$	-	$	-	$	-	$	8,000	$	29,500	$	-	$	37,500
2048	28	$	-	$	-	$	-	$	-	$	-	$	-	$	7,700	$	28,100	$	-	$	35,800
2049	29	$	-	$	-	$	-	$	-	$	-	$	-	$	7,300	$	26,700	$	-	$	34,000
2050	30	$	-	$	-	$	-	$	-	$	-	$	-	$	6,900	$	25,500	$	-	$	32,400
2051	31	$	-	$	-	$	-	$	-	$	-	$	-	$	6,600	$	24,200	$	-	$	30,800
2052	32	$	-	$	-	$	-	$	-	$	-	$	-	$	6,300	$	23,100	$	-	$	29,400
2053	33	$	-	$	-	$	-	$	-	$	-	$	-	$	6,000	$	22,000	$	-	$	28,000
2054	34	$	-	$	-	$	-	$	-	$	-	$	-	$	5,700	$	20,900	$	(45,012,300)	$	(44,985,700)
Total		**$**	**101,820,500**	**$**	**3,054,500**	**$**	**10,182,000**	**$**	**10,182,000**	**$**	**24,536,300**	**$**	**236,700**	**$**	**867,600**	**$**	**(45,012,300)**	**$**	**105,867,300**


Cumulative Costs - LCCA 5%
Replacement
Rehabilitation
$160,000,000
$150,000,000
$140,000,000
$130,000,000
$120,000,000
$110,000,000
$100,000,000
$90,000,000
$80,000,000
$70,000,000
$60,000,000
$50,000,000
$40,000,000
$30,000,000
$20,000,000
$10,000,000
$-
Cumulative Cost ($)
Rehabilitation
$105,262,200
Replacement
$105,867,300
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
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2039
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2042
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2044
2045
2046
2047
2048
2049
2050
2051
2052
2053
2054
Time (years)

APPENDIX C – EXISTING BRIDGE DAMAGE LOGS

BPA

Designed By: TD
Date: 6/2020

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Drilled Shafts Damage Log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Shafts - Damage Log

Drilled Shafts - Two Shaft Piers, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. height, the greater of the two will define delam. Height
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Cracks with hollow sound per inspection report will be classified and repaired as a delam.

From Inspection

depth of delamination repair, in. = 9.25 (using 6"cover,#5 stirrup, #11 main bar, 1" past main bar)

depth of crack repair, in. = 8.25

Pier	Drilled	Condition States						Location	Spalls/Delam/Void			Cracks				Repair Dimensions: Spalls/Delam/Void			Repair Dimensions: Cracks			Epoxy
	Shaft	2008	2010	2012	2014	2018	Type	on Column	Width	Height	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
4	1	3	3	3	3	3	Delam. & Spall	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2	2	3	3	3	3	Delam. & Spall	All	36	48	9				No	36	48	9.3	0	0	0.000	0
5	1	1	3	3	3	3	Delam. & Crack	All	36	48	9	1	0.0625	19	Yes	36	48	9.3	0	0	0.000	0
							Crack	N	0	0		1	0.03125	12	No	0	0	0.0	0.03125	12	0.031	0.01339284
	2					3	Spall	W	5	5	2				No	5	5	0.1	0	0	0.000	0
6	1	3	3	3	3		Delam. & Crack	W to S to E	60	24			0.125	30	Yes	60	30	9.6	0	0	0.000	0
	1					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	S	50	25			0.125	30	Yes	50	30	8.0	0	0	0.000	0
7	1	3	3	3	3		Delam. & Crack	S	72	36			0.125	31	Yes	72	36	13.9	0	0	0.000	0
	1					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2	2	2	3	3		Crack	W to S to E	0	0		5	0.125	30	No	0	0	0.0	0.625	150	0.625	3.34821094
							Crack	W	0	0		1	0.0625	20	No	0	0	0.0	0.0625	20	0.063	0.04464281
8	1	3	3	4	4		Spall & Delam. & Rebar Repair	All	151	30		0	0.125	n/a	Yes	151	30	24.2	0	0	0.000	0
	1					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
9	1	3	3	3	3		Delam. & Crack	ALL	60	25		5	0.125	31	No	60	25	8.0	0.625	155	0.625	3.45981797
	1					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	SE	60	36			0.0625	33	Yes	60	36	11.6	0	0	0.000	0
							Delam. & Crack	N	76	25		2	0.03125	25	Yes	76	25	10.2	0	0	0.000	0
10	1	3	3	3	4		Spall & Delam.	S	46	16		6	0.0625	26	No	46	16	3.9	0.375	156	0.375	2.08928363
	1					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2					3	Spall & Delam	All	36	48	9				No	36	48	9.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	S	40	28			0.125	27	Yes	40	28	6.0	0	0	0.000	0
							Crack	E,W,N	0	0		3	0.0625	36	No	0	0	0.0	0.1875	108	0.188	0.72321356
11	1	3	3	3	3		Delam. & Crack	NE to SE	58	42			0.0625	36	Yes	58	42	13.0	0	0	0.000	0
							Crack	N	0	0		2	0.0625	36	No	0	0	0.0	0.125	72	0.125	0.32142825
	2	2	3	3	3		Delam.	W	18	22		0	0	0	Yes	18	22	2.1	0	0	0.000	0
							Delam. & Crack	N and S	76	36		2	0.125	36	Yes	76	36	14.6	0	0	0.000	0
12	1	3	3	3	3		Delam. & Crack	SW to E(Delam.), N(Crack)	72	48		1	0.03125	22	No	72	48	18.5	0.03125	22	0.031	0.02455355
	1					3	Spall & Delam	All	36	48	9				Yes	36	48	9.3	0	0	0.000	0
	2					3	Delamination	E, N, S, SE	24	60					No	24	60	7.7	0	0	0.000	0
13	2					3	Delamination	N	24	24					No	24	24	3.1	0	0	0.000	0
14	1	3	3	3	3		Delam. & Crack	E(Delam.), NW and S(Crack)	36	26		3	0.03125	24	No	36	26	5.0	0.09375	72	0.094	0.24107119
	2	3	3	3	3		Delam. & Crack	SW(Delam.), N(Crack)	72	43		1	0.03125	25	No	72	43	16.6	0.03125	25	0.031	0.02790176
15	1					3	Spall & Crack	E	18	8	2	1	0.03125	30	Yes	18	30	2.9	0	0	0.000	0
16	1	3	3	3	3		Delam. & Crack	S(Delam.), E(Crack)	40	36		1	0.03125	16	No	40	36	7.7	0.03125	16	0.031	0.01785713
	2	2	2	3	3		Crack	ALL	0	0		5	0.0625	24	No	0	0	0.0	0.3125	120	0.313	1.33928438
17	1	3	3	3	3		Delam. & Crack	NE(Delam.), NW & S(Crack)	24	20		4	0.0625	26	No	24	20	2.6	0.25	104	0.250	0.9285705
							Delam.	SW	24	24		0	0	0	Yes	24	24	3.1	0	0	0.000	0
18	1	3	3	3	3		Delam.	ALL	151	41		0	0	0	Yes	151	41	33.1	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	S(Delam.), N(Crack)	84	36		1	0.015625	20	No	84	36	16.2	0.015625	20	0.016	0.0111607
19	1	3	3	3	3		Delam. & Crack	SWtoN(Delam.), S(Crack)	72	27		1	0.03125	20	No	72	27	10.4	0.03125	20	0.031	0.02232141
	2	3	3	3	3		Delam. & Crack	WtoN(Delam.), S(Crack)	30	36		3	0.0625	22	No	30	36	5.8	0.1875	66	0.188	0.44196384
	2					3	Delam., cracks & spalls	N,S,SW	30	48	1	2	0.03125	25	Yes	30	48	7.7	0	0	0.000	0
20	2					3	Delam., cracks & spalls	All	7	84	4	2	0.03125	46	Yes	7	84	3.1	0	0	0.000	0

BPA

Designed By: TD
Date: 6/2020

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Drilled Shafts Damage Log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Shafts - Damage Log

Drilled Shafts - Two Shaft Piers, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. height, the greater of the two will define delam. Height
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Cracks with hollow sound per inspection report will be classified and repaired as a delam.

From Inspection

depth of delamination repair, in. = 9.25 (using 6"cover,#5 stirrup, #11 main bar, 1" past main bar)

depth of crack repair, in. = 8.25

Pier	Drilled Shaft	Condition States					Type	Location on Column	Spalls/Delam/Void			Cracks				Repair Dimensions: Spalls/Delam/Void			Repair Dimensions: Cracks			Epoxy
		2008	2010	2012	2014	2018			Width	Height	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
21	1	3	3	3	3		Delam. & Crack	N	36	24			0.125	29	Yes	36	29	5.6	0	0	0.000	0
							Crack	SE	0	0		1	0.03125	16	No	0	0	0.0	0.03125	16	0.031	0.01785713
						3	Delam., cracks & spalls	N,SE	32	60	1	1	0.03125	24	Yes	32	60	10.3	0	0	0.000	0
22	1	3	3	3	3		Delam.	SE	52	34		0	0	0	Yes	52	34	9.5	0	0	0.000	0
23	2	2	2	3	3		Crack	All	0	0		8	0.03125	32	No	0	0	0.0	0.25	256	0.250	2.285712
26	1	2	2	3	3		Crack	S, E, N	0	0		5	0.125	24	No	0	0	0.0	0.625	120	0.625	2.67856875
							Crack	E	0	0		1	0.0625	22	No	0	0	0.0	0.0625	22	0.063	0.04910709
	2	3	3	3	3		Delam. & Crack	StoWtoN (Delam.), Other (Crack)	151	41		0	0.0625	25	Yes	151	41	33.1	0	0	0.000	0
							Crack	S	0	0		1	0.03125	20	No	0	0	0.0	0.03125	20	0.031	0.02232141
29	1					3	Crack	S, E, W				6	0.0625	25	No	0	0	0.0	0.375	150	0.375	2.00892656
30	1	2	2	3	3		Crack	S & W	0	0		3	0.125	23	No	0	0	0.0	0.375	69	0.375	0.92410622
	2	3	3	3	3		Delam. & Crack	SW	48	36		0	0.0625	12	Yes	48	36	9.3	0	0	0.000	0
31	1	3	3	3	3		Delam. & Crack	W (Delam.), N&S (Crack)	40	36		8	0.0625	36	No	40	36	7.7	0.5	288	0.500	5.142852
	2	3	3	3	3		Delam. & Crack	W (Delam.), N&S (Crack)	36	24		2	0.0625	46	No	36	24	4.6	0.125	92	0.125	0.41071388
							Crack	S	0	0		1	0.03125	17	No	0	0	0.0	0.03125	17	0.031	0.0189732
32	1	2	3	3	3		Delam. & Crack	E (Delam.), NE&S (Crack)	20	18		4	0.125	32	No	20	18	1.9	0.5	128	0.500	2.285712
							Crack	NW	0	0		1	0.03125	32	No	0	0	0.0	0.03125	32	0.031	0.03571425
	2					3	Crack & Delamination	NE, SW	24	12		4	0.0625	30	Yes	24	30	3.9	0	0	0.000	0
33	2	2	2	3	3		Crack	SW & N	0	0		6	0.125	28	No	0	0	0.0	0.75	168	0.750	4.4999955
35	1	3	3	3	3		Delam. & Crack	NE to NW	36	36		0	0.125	N/A	Yes	36	36	6.9	0	0	0.000	0
	2	2	3	3	3		Crack	All	0	0		5	0.125	39	No	0	0	0.0	0.625	195	0.625	4.35267422
							Crack	W	0	0		1	0.03125	12	No	0	0	0.0	0.03125	12	0.031	0.01339284
36	2	2	2	3	3		Crack	All	0	0		6	0.125	27	No	0	0	0.0	0.75	162	0.750	4.33928138
							Crack	W	0	0		1	0.0625	27	No	0	0	0.0	0.0625	27	0.063	0.0602678
37	2					3	Spalls and Delamination	E, NW	24	36	0.5				Yes	24	36	4.6	0	0	0.000	0
38	1	1	2	3	3		Crack	SW, S, & NW	0	0		4	0.125	24	No	0	0	0.0	0.5	96	0.500	1.714284
	2	3	3	3	3		Delam. & Crack	SW (Delam.), SW&W (Crack)	28	24		3	0.03125	36	No	28	24	3.6	0.09375	108	0.094	0.36160678
39	1	3	3	3	3		Delam. & Crack	EtoNE (Delam.), S(Crack)	37	30		1	0.0625	22	No	37	30	5.9	0.0625	22	0.063	0.04910709
						3	Crack	W				3	0.03125	36	No	0	0	0.0	0.09375	108	0.094	0.36160678
40	1	3	3	3	3		Delam. & Crack	S to W to N	72	31		0	N/A	N/A	Yes	72	31	11.9	0	0	0.000	0
						3	Spall, Delam, Crack	SW	36	48		4	0.125	25	Yes	36	48	9.3	0	0	0.000	0
	2	2	3	3	3		Crack	All	0	0		6	0.125	25	No	0	0	0.0	0.75	150	0.750	4.01785313
							Crack	S	0	0		1	0.03125	45	No	0	0	0.0	0.03125	45	0.031	0.05022316
41	1	3	3	3	3		Delam. & Crack	S to W to N	72	30		0	0.125	27	Yes	72	30	11.6	0	0	0.000	0
	1					3	Spall	W	7	18	3				Yes	7	18	0.7	0	0	0.000	0
	2	1	3	3	3		Crack	NW & W	0	0		2	0.125	21	No	0	0	0.0	0.25	42	0.250	0.37499963
42	2	2	2	3	3		Crack	N & W	0	0		4	0.0625	26	No	0	0	0.0	0.25	104	0.250	0.9285705
43	1	3	3	3	3		Delam.	S to W	48	36		0	N/A	N/A	Yes	48	36	9.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	S to W to N	72	42		0	0.125	22	Yes	72	42	16.2	0	0	0.000	0
44	1	3	3	3	3		Delam. & Crack	S	50	36		0	0.125	N/A	Yes	50	36	9.6	0	0	0.000	0
46	1					3	Spall & Crack	N,NW	18	5	1	1	0.03125	24	Yes	18	24	2.3	0	0	0.000	0
47	1	3	3	3	4		Spall & Delam. & Rebar Repair	SW (Delam.), N(Crack)	44	30		1	0.03125	20	No	44	30	7.1	0.03125	20	0.031	0.02232141
	2	3	3	3	3		Delam. & Crack	W (Delam.), N(Crack)	32	32		1	0.03125	29	No	32	32	5.5	0.03125	29	0.031	0.03236604
48	2					3	Delam./ Spalls	S, SW, NE	40	75					Yes	40	75	16.1	0	0	0.000	0
49	1					3	Spall	S	6	12	1				Yes	6	12	0.4	0	0	0.000	0
	2	1	1	2	3		Crack	N	0	0		2	0.0625	18	No	0	0	0.0	0.125	36	0.125	0.16071413
50	1	1	2	2	3		Crack	SE	0	0		1	0.125	24	No	0	0	0.0	0.125	24	0.125	0.10714275

BPA

Designed By: TD
Date: 6/2020

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Drilled Shafts Damage Log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Shafts - Damage Log

Drilled Shafts - Two Shaft Piers, 7-Mile Bridge Rehabilitation

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Cracks with hollow sound per inspection report will be classified and repaired as a delam.

From Inspection

depth of delamination repair, in. = 9.25 (using 6"cover,#5 stirrup, #11 main bar, 1" past main bar)

depth of crack repair, in. = 8.25

Pier	Drilled	Condition States						Spalls/Delam/Void			Cracks				Repair Dimensions: Spalls/Delam/Void			Repair Dimensions: Cracks			Epoxy
	Shaft	2008	2010	2012	2014	2018	Type	Location on Column	Width	Height	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
51	1	3	3	3	3		Spall & Crack	S(Spall), N(Crack)	24	15		1	0.0625	34	No	24	15	1.9	0.0625	34	0.063	0.07589278
	2	3	3	3	3		Spall/Delam/Crk	W to N to E	72	72		0	0.03125	N/A	Yes	72	72	27.8	0	0	0.000	0
52	2	1	1	2	3		Crack	W	0	0		1	0.03125	12	No	0	0	0.0	0.03125	12	0.031	0.01339284
53	1	2	2	3	3		Crack	All	0	0		7	0.0625	33	No	0	0	0.0	0.4375	231	0.438	3.60937139
54	1	3	3	3	3		Delam. & Crack	SE	151	25		1	0.03125	18	Yes	151	25	20.2	0	0	0.000	0
							Crack	All	0	0		6	0.125	32	No	0	0	0.0	0.75	192	0.750	5.142852
55	1	3	3	4	4		Spall & Delam. & Rebar Repair	W,S,E	61	50		0	0.03125	N/A	Yes	61	50	16.3	0	0	0.000	0
56	1	3	3	3	3		Delam. & Crack	N (Delam.), S & SW (Crack)	27	19		6	0.0625	27	No	27	19	2.7	0.375	162	0.375	2.16964069
	2	2	2	2	3		Crack	All	0	0		7	0.125	65	No	0	0	0.0	0.875	455	0.875	14.2187358
57	1	3	3	3	3		Delam. & Crack	SW to SE (Delam.), W(Crack)	67	53		2	0.0625	31	No	67	53	19.0	0.125	62	0.125	0.27678544
	2	3	3	3	3		Delam. & Crack	SW	43	25		0	0.0625	22	Yes	43	25	5.8	0	0	0.000	0
61	2	3	3	3	3		Delam. & Crack	S (Delam.), All(Crack)	48	42		6	0.0625	26	No	48	42	10.8	0.375	156	0.375	2.08928363
62	1	3	3	3	3		Delam. & Crack	S to W	48	36		0	0.0625	N/A	Yes	48	36	9.3	0	0	0.000	0
							Delam. & Crack	NE (Delam.), E(Crack)	33	20		1	0.03125	36	No	33	20	3.5	0.03125	36	0.031	0.04017853
	2	2	3	3	3		Crack	All	0	0		6	0.125	32	No	0	0	0.0	0.75	192	0.750	5.142852
63	1					3	Spall	N	24	24	2				Yes	24	24	3.1	0	0	0.000	0
64	2	3	3	3	3		Crack	S,SW,NW,N	0	0		4	0.125	36	No	0	0	0.0	0.5	144	0.500	2.571426
							Crack	SW	0	0		1	0.015625	36	No	0	0	0.0	0.015625	36	0.016	0.02008927
65	1	3	3	3	3		Delam. & Crack	W	75	24		1	0.015625	36	Yes	75	36	14.5	0	0	0.000	0
							Crack	S	0	0		1	0.0625	24	No	0	0	0.0	0.0625	24	0.063	0.05357138
	2					3	Delam & Cracks	W, N, SW	24	36		4	0.0625	32	No	24	36	4.6	0.25	128	0.250	1.142856
66	1	3	3	3	3		Crack	W,NW,NE,E	0	0		4	0.0625	34	No	0	0	0.0	0.25	136	0.250	1.2142845
	2					3	Cracks	All				5	0.03125	26	No	0	0	0.0	0.15625	130	0.156	0.7254457
67	1	3	3	3	3		Delam.	NW to S	65	30		0	N/A	N/A	Yes	65	30	10.4	0	0	0.000	0
68	1	1	1	1	3		Delam.	W	36	20		0	N/A	N/A	Yes	36	20	3.9	0	0	0.000	0
70	1					3	Spalls & Cracks	NW	14	6	2	3	0.03125	20	Yes	14	20	1.5	0	0	0.000	0
71	2	4	4	4	4		Spall & Delam. & Rebar Repair	S to W to N	84	34		0	0.0625	N/A	Yes	84	34	15.3	0	0	0.000	0
72	1	1	1	1	3		Crack	E	0	0		1	0.015625	19	No	0	0	0.0	0.015625	19	0.016	0.01060267
	2	1	2	3	3		Crack	S	0	0		2	0.125	24	No	0	0	0.0	0.25	48	0.250	0.428571
73	1					3	Spall	N	12	4	1				Yes	12	4	0.3	0	0	0.000	0
						3	Delam	S	24	24					No	24	24	3.1	0	0	0.000	0
76	1					3	Spall & Delam	SW,W	36	60	1				Yes	36	60	11.6	0	0	0.000	0
	2	2	3	3	3		Crack	W, N, E	0	0		3	0.125	31	No	0	0	0.0	0.375	93	0.375	1.24553447
78	1	2	3	3	3	3	Crack	All	0	0		7	0.125	36		0	0	0.0	0.875	252	0.875	7.87499213
	2	2	2	3	3		Crack	S, E	0	0		3	0.0625	23	No	0	0	0.0	0.1875	69	0.188	0.46205311
79	1	3	3	3	3		Delam. & Crack	SW (Delam.), NW(Crack)	42	36		1	0.03125	49	No	42	36	8.1	0.03125	49	0.031	0.05468745
	2					3	Cracks	All				8	0.0625	22	No	0	0	0.0	0.5	176	0.500	3.142854
80	1	2	3	3	3		Delam.	W	21	27		0	N/A	N/A	Yes	21	27	3.0	0	0	0.000	0
						3	Spall	N	6	12	1				Yes	6	12	0.4	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	NW	60	32		3	0.125	45	Yes	60	45	14.5	0	0	0.000	0
							Crack	W,S,SE, & NE	0	0		4	0.0625	23	No	0	0	0.0	0.25	92	0.250	0.82142775
81	1	3	3	3	3		Delam. & Crack	S to W to E (Delam.), N(Crack)	72	20		1	0.0625	24	No	72	20	7.7	0.0625	24	0.063	0.05357138
	2	3	3	3	3		Delam. & Crack	S to W to E (Delam.), S&SE(Crack)	58	30		2	0.0625	26	No	58	30	9.3	0.125	52	0.125	0.23214263
82	2	3	3	3	3		Delam. &Spall&Crack	N	41	40		0	0.125	N/A	Yes	41	40	8.8	0	0	0.000	0
	2					3	Spall & Delam	All	36	48	9				yes	36	48	9.3	0	0	0.000	0
83	2	3	3	3	3		Delam. & Crack	S	36	30		0	0.125	N/A	Yes	36	30	5.8	0	0	0.000	0
84	2	2	3	3	3		Delam. & Crack	E	36	36		3	0.0625	24	Yes	36	36	6.9	0	0	0.000	0

BPA

Designed By: TD
Date: 6/2020

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Drilled Shafts Damage Log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Shafts - Damage Log

Drilled Shafts - Two Shaft Piers, 7-Mile Bridge Rehabilitation

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From Inspection

depth of delamination repair, in. = 9.25 (using 6"cover,#5 stirrup, #11 main bar, 1" past main bar)

depth of crack repair, in. = 8.25

Pier	Drilled	Condition States						Location	Spalls/Delam/Void			Cracks				Repair Dimensions: Spalls/Delam/Void			Repair Dimensions: Cracks			Epoxy
	Shaft	2008	2010	2012	2014	2018	Type	on Column	Width	Height	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
86	1	2	3	3	3		Crack	SW & NE	0	0		2	0.125	38	No	0	0	0.0	0.25	76	0.250	0.67857075
	2					3	Delam. & Spalls	W, N, SW	24	48	1				yes	24	48	6.2	0	0	0.000	0
87	1					3	Cracks	SE				1	0.03125	24	no	0	0	0.0	0.03125	24	0.031	0.02678569
							Cracks	E				1	0.0625	18	no	0	0	0.0	0.0625	18	0.063	0.04017853
88	2	3	3	3	3		Delam. & Crack	S(Delam.), W&NW(Crack)	39	32		3	0.03125	20	No	39	32	6.7	0.09375	60	0.094	0.20089266
							Crack	W	0	0		1	0.015625	17	No	0	0	0.0	0.015625	17	0.016	0.0094866
89	2					3	Cracks,delam. & spalls	S, SW, W, N, NE	24	48	0.5	4	0.03125	25	Yes	24	48	6.2	0	0	0.000	0
93	1	3	3	3	3		Delam. &Spall&Crack	StoNtoNE (Delam.), All(Crack)	151	50		5	0.125	34	Yes	151	50	40.4	0	0	0.000	0
						3	Spall & Delam	SW,NE	36	36	2					36	36	6.9	0	0	0.000	0
							Delam. & Crack	StoNtoNE (Delam.), E(Crack)	36	24		1	0.0625	11	Yes	36	24	4.6	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	E	43	36		7	0.0625	30	No	43	36	8.3	0.4375	210	0.438	3.28124672
94	1					3	Delam.	E	18	24					No	18	24	2.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	SW(Delam.), W,S,SE(Crack)	72	36		5	0.03125	20	No	72	36	13.9	0.15625	100	0.156	0.55803516
96	1	2	3	3	3		Crack	S,W,SW	0	0		5	0.125	26	No	0	0	0.0	0.625	130	0.625	2.90178281
	2	3	3	3	3		Delam. & Crack	SW(Delam.), W,SW,S,E(Crack)	20	14		4	0.03125	22	No	20	14	1.5	0.125	88	0.125	0.39285675
97	1					3	Crack	SW				1	0.125	44	No	0	0	0.0	0.125	44	0.125	0.19642838
	2	3	3	3	3		Crack	S.SW.W.N	0	0		7	0.0625	32	No	0	0	0.0	0.4375	224	0.438	3.4999965
99	1					3	Cracks,delam. & spalls	W, S	36	36	1	1	0.0625	26	Yes	36	36	6.9	0	0	0.000	0
	2					3	Spall	W	5	10	5				Yes	5	10	0.3	0	0	0.000	0
		2	3	3	3		Delam. & Crack	(TBD)(Delam.), All(Crack)	151	36		6	0.125	36	Yes	151	36	29.1	0	0	0.000	0
							Crack	S	0	0		1	0.03125	22	No	0	0	0.0	0.03125	22	0.031	0.02455355
100	1	3	3	3	3		Delam. & Crack	StoW(Delam.), NW(Crack)	48	34		1	0.03125	24	No	48	34	8.7	0.03125	24	0.031	0.02678569
	2	3	3	3	3		Delam. & Crack	NE(Delam.), N(Crack)	40	30		1	0.0625	60	No	40	30	6.4	0.0625	60	0.063	0.13392844
							Crack	NW & SW	0	0		2	0.03125	15	No	0	0	0.0	0.0625	30	0.063	0.06696422
102	1	1	3	3	3		Delam. & Crack	All - perimeter delam.	151	47		0	0.125	N/A	Yes	151	47	38.0	0	0	0.000	0
						3	Spalls & Delam	All	36	40	1				Yes	36	40	7.7	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	All	60	42		2	0.03125	28	No	60	42	13.5	0.0625	56	0.063	0.12499988
104	2					3	Cracks	SW, W, S				5	0.0625	29	No	0	0	0.0	0.3125	145	0.313	1.61830195
105	2	3	3	3	3		Delam. & Crack	S to NW	42	26		0	0.0625	N/A	Yes	42	26	5.8	0	0	0.000	0
106	1	3	3	4	4		Spall & Delam. & Rebar Repair	SW	48	48		0	0.125	N/A	Yes	48	48	12.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	SE to NE	27	21		5	0.125	25	No	27	21	3.0	0.625	125	0.625	2.79017578
107	1	2	2	3	3		Crack	All	0	0		7	0.125	41	No	0	0	0.0	0.875	287	0.875	8.96874103
	2	3	3	3	3		Delam. & Crack	W(Delam.), All(Crack)	36	24		6	0.0625	38	No	36	24	4.6	0.375	228	0.375	3.05356838
108	1					3	Delm. & Spalls	N	36	36	2				Yes	36	36	6.9	0	0	0.000	0
	2	3	3	3	3		Delam. &Spall&Crack	SWtoE(Delam.), N&E(Crack)	72	36		2	0.0625	30	No	72	36	13.9	0.125	60	0.125	0.26785688
109	1					3	Cracks	SW				1	0.015625	36	No	0	0	0.0	0.015625	36	0.016	0.02008927
	2	2	2	3	3		Crack	SW & NW	0	0		4	0.03125	20	No	0	0	0.0	0.125	80	0.125	0.3571425
111	1					3	Cracks	W				2	0.03125	18	No	0	0	0.0	0.0625	36	0.063	0.08035706
	2					3	Cracks	All				9	0.0625	30	No	0	0	0.0	0.5625	270	0.563	5.42410172
112	1					3	Delam	All	36	24					No	36	24	4.6	0	0	0.000	0
						3	Crack	N				1	0	21	No	0	0	0.0	0	21	0.000	0
	2	1	3	3	3		Crack	W,S,SE, & E	0	0		6	0.03125	36	No	0	0	0.0	0.1875	216	0.188	1.44642713
113	2					3	Cracks	SW, W				2	0.0625	24	No	0	0	0.0	0.125	48	0.125	0.2142855
114	1	2	3	3	3		Crack	NE & NW	0	0		3	0.125	22	No	0	0	0.0	0.375	66	0.375	0.88392769
	2	2	2	3	3		Crack	SW,W,NE, & E	0	0		9	0.125	30	No	0	0	0.0	1.125	270	1.125	10.8482034
							Crack	W	0	0		1	0.0625	30	No	0	0	0.0	0.0625	30	0.063	0.06696422
116	1					3	Crack	All				6	0.0625	25	No	0	0	0.0	0.375	150	0.375	2.00892656
	2					3	Delam & Crack	All	44	36		7	0.0625	18	Yes	44	36	8.5	0	0	0.000	0

BPA

Designed By: TD
Date: 6/2020

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
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Pier	Drilled	Condition States						Location	Spalls/Delam/Void			Cracks				Repair Dimensions						Epoxy
	Shaft	2008	2010	2012	2014	2018	Type	on Column	Width	Height	D	#	Width	Length	associated?	Spalls/Delam/Void Width	Height	Vol.(cf)	Cracks Width	Length	Width(dec.)	(Gal)
117	1					3	Spalls & Cracks	N, S, W	36	6	3	3	0.03125	24	Yes	36	24	4.6	0	0	0.000	0
	2					3	Crack	All	12	18	1				No	12	18	1.2	0	0	0.000	0
119	1	3	3	3	3		Delam. & Crack	W	33	42		0	0.0625	N/A	Yes	33	42	7.4	0	0	0.000	0
						3	Spall	SW	8	24	2				Yes	8	24	1.0	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	W	48	42		0	0.0625	N/A	Yes	48	42	10.8	0	0	0.000	0
121	2					3	Crack	W				1	0.0625	33	No	0	0	0.0	0.0625	33	0.063	0.07366064
122	1					3	Crack & Spall	W, S	13	18	2.5	1	0.03125	24	Yes	13	24	1.7	0	0	0.000	0
	2					3	Spall	S	12	18	1				Yes	12	18	1.2	0	0	0.000	0
123	1	3	3	3	3		Delam. & Crack	S	42	31		0	0.0625	23	Yes	42	31	7.0	0	0	0.000	0
	2					3	crack	NW				1	0.03125	24	No	0	0	0.0	0.03125	24	0.031	0.02678569
124	2					3	Crack	S				1	0.125	24	No	0	0	0.0	0.125	24	0.125	0.10714275
125	1					3	Spall	N	12	3	1				Yes	12	3	0.2	0	0	0.000	0
126	1					3	Delamination	N	24	12					No	24	12	1.5	0	0	0.000	0
127	1					3	Spall & cracks	N, S, SW	12	5	1	2	0.03125	14	Yes	12	14	0.9	0	0	0.000	0
128	1	2	2	3	3		Crack	NW, SE, E	0	0		3	0.125	33	No	0	0	0.0	0.375	99	0.375	1.32589153
	2					3	Cracks	N				2	0	32	No	0	0	0.0	0	64	0.000	0
						3	Cracks	S,W				3	0.03125	23	No	0	0	0.0	0.09375	69	0.094	0.23102655
129	2					3	Cracks	N				1	0.0625	18	No	0	0	0.0	0.0625	18	0.063	0.04017853
130	1					3	Spall & Crack	N	12	6	1	1	1/32	24	Yes	12	24	1.5	0	0	0.000	0
131	1					3	Honeycomb	N & S	24	8	1				Yes	24	8	1.0	0	0	0.000	0
	2					3	Spall & Crack	S	48	12	1	3	0.03125	20	Yes	48	20	5.1	0	0	0.000	0
132	2	3	3	3	3		Delam. & Crack	NtoE(Delam.), S(Crack)	30	19		1	0.0625	29	No	30	19	3.1	0.0625	29	0.063	0.06473208
133	1	3	3	4	4		Spall & Delam. & Rebar Repair	W to N	60	34		0	N/A	N/A	Yes	60	34	10.9	0	0	0.000	0
	2	3	3	4	4		Spall & Delam. & Rebar Repair	W to N to NE	72	38		3	0.03125	31	No	72	38	14.6	0.09375	93	0.094	0.31138362
134	1	3	3	4	4		Spall & Delam. & Rebar Repair	StoW(Delam.), E(Crack)	60	60		1	0.03125	17	No	60	60	19.3	0.03125	17	0.031	0.0189732
	2	2	2	3	3		Crack	All	0	0		5	0.0625	33	No	0	0	0.0	0.3125	165	0.313	1.84151602
135	1	3	3	3	3		Spall/Delam./Crk	N to W	50	33		0	0.125	31	Yes	50	33	8.8	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	SE(Delam.), All(Crack)	24	23		5	0.0625	28	No	24	23	3.0	0.3125	140	0.313	1.56249844
137	1	3	3	3	3		Delam. & Crack	SE,SW,W(Crack)	60	34		3	0.03125	7	No	60	34	10.9	0.09375	21	0.094	0.07031243
138	1					3	Spall	N	6	18	2				Yes	6	18	0.6	0	0	0.000	0
	2					3	Cracks	N,NE				2	0.03125	23	No	0	0	0.0	0.0625	46	0.063	0.10267847
139	1					3	Spall	N	24	12	2				Yes	24	12	1.5	0	0	0.000	0
141	4					3	Spall	E	12	12	1				Yes	12	12	0.8	0	0	0.000	0
143	4					3	Crack	N				1	0.03125	24	No	0	0	0.0	0.03125	24	0.031	0.02678569
145	4					3	Spall	E	18	6	1				Yes	18	6	0.6	0	0	0.000	0
146	3					3	Honeycomb	W	36	5	1				Yes	36	5	1.0	0	0	0.000	0
	4					3	Spall	W	5	6	1				Yes	5	6	0.2	0	0	0.000	0
151	4					3	Void	W	6	9	2				Yes	6	9	0.3	0	0	0.000	0
165	1					3	Delam., Spall	E	6	6	2				Yes	6	6	0.2	0	0	0.000	0
170	2	3	3	3	3	3	Delam. & Crack	N to E to S	60	36		0	0.125	N/A	Yes	60	36	11.6	0	0	0.000	0
						3	Spall	NE	2	6	2				Yes	2	6	0.1	0	0	0.000	0
175	1	3	3	4	4		Spall & Delam. & Rebar Repair	SE	28	42		0	0.125	N/A	Yes	28	42	6.3	0	0	0.000	0
178	2	3	3	4	4	4	Spall & Delam. & Rebar Repair	W to N to E (Delam.), All (Crack)	72	46		6	0.0625	36	No	72	46	17.7	0.375	216	0.375	2.89285425
179	1	3	3	3	3		Crack	N	0	0		2	0.125	22	No	0	0	0.0	0.25	44	0.250	0.39285675
	2					3	Delam.	N	24	48					No	24	48	6.2	0	0	0.000	0
180	1	1	3	3	3		Delam. & Crack	N(Delam.), SE&E(Crack)	40	36		3	0.03125	20	No	40	36	7.7	0.09375	60	0.094	0.20089266
	2	1	1	1	3		Crack	N & W	0	0		2	0.03125	16	No	0	0	0.0	0.0625	32	0.063	0.0714285
181	2	2	2	3	3		Delam. & Crack	All(Delam.), S(Crack)	76	33		1	0.125	33	Yes	76	33	13.4	0	0	0.000	0
185	1	3	3	3	4		Spall & Delam. & Rebar Repair	S	48	36		0	0.0625	N/A	Yes	48	36	9.3	0	0	0.000	0
186	2					3	Delam. & Crack	S, W	24	48		1	0.03125	24	Yes	24	48	6.2	0	0	0.000	0

BPA

Designed By: TD
Date: 6/2020

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Drilled Shafts Damage Log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Shafts - Damage Log

Drilled Shafts - Two Shaft Piers, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. height, the greater of the two will define delam. Height
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Cracks with hollow sound per inspection report will be classified and repaired as a delam.

From Inspection

depth of delamination repair, in. = 9.25 (using 6"cover,#5 stirrup, #11 main bar, 1" past main bar)

depth of crack repair, in. = 8.25

Pier	Drilled	Condition States						Location	Spalls/Delam/Void			Cracks				Repair Dimensions: Spalls/Delam/Void			Repair Dimensions: Cracks			Epoxy
	Shaft	2008	2010	2012	2014	2018	Type	on Column	Width	Height	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
188	2	3	3	3	3		Delam. & Crack	S to SW (Delam.), W(Crack)	50	42		1	0.03125	25	No	50	42	11.2	0.03125	25	0.031	0.02790176
190	1	3	3	3	3		Spall/Delam./Crk	W To S to E	60	36		1	0.125	31	No	60	36	11.6	0.125	31	0.125	0.13839272
193	2	1	1	1	3		Spall	SE	36	36		0	N/A	N/A	Yes	36	36	6.9	0	0	0.000	0
194	2					3	Spall	SW	18	12	3				Yes	18	12	1.2	0	0	0.000	0
195	1	2	3	3	3		Crack	S & SE	0	0		2	0.125	30	No	0	0	0.0	0.25	60	0.250	0.53571375
							Crack	S & SE	0	0		1	0.03125	24	No	0	0	0.0	0.03125	24	0.031	0.02678569
	2	2	2	2	3		Delam. & Crack	TBD(Delam.), S&W(Crack)	18	18		1	0.015625	18	Yes	18	18	1.7	0	0	0.000	0
							Crack	S&W	0	0		2	0.125	36	No	0	0	0.0	0.25	72	0.250	0.6428565
196	1	3	3	3	3		Delam. & Crack	SE	48	40		0	0.125	N/A	Yes	48	40	10.3	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	S(Delam.), NW(Crack)	40	32		1	0.03125	17	No	40	32	6.9	0.03125	17	0.031	0.0189732
197	1					3	Spall	N	52	52	1				Yes	52	52	14.5	0	0	0.000	0
	2	3	3	3	3		Delam. & Crack	StoSW(Delam.), N&SE(Crack)	72	57		2	0.0625	32	No	72	57	22.0	0.125	64	0.125	0.285714
198	1	1	1	1	3		Crack	SE	0	0		1	0.015625	20	No	0	0	0.0	0.015625	20	0.016	0.0111607
	2					3	Delam.	W	24	24					No	24	24	3.1	0	0	0.000	0
199	2	1	1	1	3		Crack	S&W	0	0		2	0.125	30	No	0	0	0.0	0.25	60	0.250	0.53571375
							Crack	SW	0	0		1	0.015625	20	No	0	0	0.0	0.015625	20	0.016	0.0111607
201	2					3	Spall	E	24	12	1				Yes	24	12	1.5	0	0	0.000	0
202	1					3	Cracks	S, SE				3	0.0625	30	No	0	0	0.0	0.1875	90	0.188	0.60267797
203	1	2	2	3	3		Crack	All	0	0		5	0.125	26	No	0	0	0.0	0.625	130	0.625	2.90178281
	2					3	Delam./Spall	SE	24	36	1				Yes	24	36	4.6	0	0	0.000	0
207	2					3	Crack	W				1	0.0625	24	No	0	0	0.0	0.0625	24	0.063	0.05357138
214	2	2	3	3	3		Crack	S & SE	0	0		2	0.125	25	No	0	0	0.0	0.25	50	0.250	0.44642813
216	2					3	Spalls & Cracks	N,S	18	12	1	1	0.03125	24	Yes	18	24	2.3	0	0	0.000	0
217	2	3	3	3	3		Delam. & Crack	SW(Delam.), N&E(Crack)	48	27		2	0.125	32	No	48	27	6.9	0.25	64	0.250	0.571428
223	1					3	Spall	SE	46	24	3				Yes	46	24	5.9	0	0	0.000	0
229	2					3	Spall	N	18	6	3				Yes	18	6	0.6	0	0	0.000	0
232	1					3	Spall	N	6	8	1.5				Yes	6	8	0.3	0	0	0.000	0
240	1					3	Spall	N	4	20	1.5				Yes	4	20	0.4	0	0	0.000	0
	2					3	Spall	S	12	24	1				Yes	12	24	1.5	0	0	0.000	0
241	2					3	Spall	W	14	6	1				Yes	14	6	0.4	0	0	0.000	0
245	2					3	Spall	W	6	20	1				Yes	6	20	0.6	0	0	0.000	0
248	1	3	3	3	3		Delam. & Crack	NE(Delam.), SE(Crack)	29	18		1	0.015625	12	No	29	18	2.8	0.015625	12	0.016	0.00669642
253	2					3	Spall/Cracks	S, NW	12	12	0.8	1	0.0625	24	Yes	12	24	1.5	0	0	0.000	0
254	2					3	Spall	N	24	12	2				Yes	24	12	1.5	0	0	0.000	0
257	1	1	1	1	3		Crack	W	0	0		1	0.125	18	No	0	0	0.0	0.125	18	0.125	0.08035706
							Spall	N	8	12	2				Yes	8	12	0.5	0	0	0.000	0
259	1					3	Spall	E, SE	27	10	0.8				Yes	27	10	1.4	0	0	0.000	0
	2					3	Spall	N,S	29	20	2				Yes	29	20	3.1	0	0	0.000	0
263	1					3	Spall	S	18	6	2				Yes	18	6	0.6	0	0	0.000	0
	2					3	Spall	NE	22	15	2				Yes	22	15	1.8	0	0	0.000	0
264	1					3	Spall	N	18	3	2				Yes	18	3	0.3	0	0	0.000	0
266	1					3	Spall	S	48	42	3				Yes	48	42	10.8	0	0	0.000	0
Subtotal (without contingencies)																		1460.5	CF	995.8	LF	169.69
Contingency (100%)																		1460.5	CF	995.8	LF	169.69
Total for Cracks Repair																		2921.1	CF	1992	LF	339
																		Pay Item	400-4-5	411-2		411-1

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Struts damage log

Designed By: TD
Date: 6/2020
Checked By:
Date:

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Struts - Damage Log

Struts, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. length, the greater of the two will define delam. length.
For struts, the delam width is as inspected , else full width of strut (24 in.) if no dimension reported
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Full width delam from inspection is the length of strut per existing plans (11'-2 7/8" = 135 in.) Height = 48'
Cracks with hollow sound per inspection report will be classified and repaired as a delam

From Inspection

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

depth of crack repair, in. = 5.75

Struts

Pier		Condition States						Location	Spalls		Cracks				Final Repair Sizes: Spalls			Cracks		Cracks	
		2008	2010	2012	2014	2018	Type	on Column	Width	Height	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
7		N/A	N/A	N/A		3	Delam.	N, S BF	36	24				No	36	24	3.4	0	0	0	0
9		N/A	N/A	N/A	4		Crack	N face	0	0	1	0.25	135	No	0	0	0.0	1/4	135	0.25	0.840097
		N/A	N/A	N/A			Delam. & Spall	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
10		N/A	N/A	N/A	3		Delam. & Spall	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	S face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	N face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
12		N/A	N/A	N/A	3		Delam.	Bottom Face	48	24	N/A	N/A	N/A	Yes	48	24	4.5	N/A	0	0	0
		N/A	N/A	N/A			Delam.	S face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	N face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
13		N/A	N/A	N/A		3	Crack	S Face			1	0	36	No	0	0	0.0	0	36	0	0
14		N/A	N/A	N/A	3		Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	S and N face	0	0	3	0.125	135	No	0	0	0.0	1/8	405	0.125	1.260145
16		N/A	N/A	N/A	3		Delam.	Bottom Face	96	24	N/A	N/A	N/A	Yes	96	24	9.0	N/A	0	0	0
		N/A	N/A	N/A			Delam.	S face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
17		N/A	N/A	N/A	3		Delam.	Bottom Face	135	24	N/A	0.0625	36	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	S face	12	12	N/A	N/A	N/A	Yes	12	12	0.6	N/A	0	0	0
20		N/A	N/A	N/A	3		Delam.	S face, nr. Col. 1	12	12	N/A	N/A	N/A	Yes	12	12	0.6	N/A	0	0	0
21		N/A	N/A	N/A	3		Delam.	N face	24	24	N/A	N/A	N/A	Yes	24	24	2.3	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	72	No	0	0	0.0	0	72	0.0625	0.112013
22		N/A	N/A	N/A	3		Delam.	S face	135	30	N/A	0.125	N/A	Yes	135	30	15.8	N/A	0	0	0
		N/A	N/A	N/A			Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
24		N/A	N/A	N/A	3		Delam.	Bottom Face	48	24	N/A	N/A	N/A	Yes	48	24	4.5	N/A	0	0	0
25		N/A	N/A	N/A	3		Crack	S face	0	0	2	0.0625	135	No	0	0	0.0	0	270	0.0625	0.420048
		N/A	N/A	N/A			Delam. & Crack	N face	36	24	N/A	0.25	135	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
28		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	1	0.125	135	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
29		N/A	N/A	N/A	3		Delam.& Spall	S face	84	12	N/A	N/A	N/A	Yes	84	12	3.9	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	72	No	0	0	0.0	0	72	0.0625	0.112013
		N/A	N/A	N/A			Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
30		N/A	N/A	N/A	3		Delam.	S face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	96	No	0	0	0.0	0	96	0.0625	0.149351
		N/A	N/A	N/A			Crack	Bottom Face	0	0	2	0.0625	135	No	0	0	0.0	0	270	0.0625	0.420048
31		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.0625	135	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	135	24	N/A	0.0625	135	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
33		N/A	N/A	N/A	3		Delam. & Crack	S face	48	24	N/A	0.0625	48	Yes	48	24	4.5	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	48	24	N/A	0.0625	48	Yes	48	24	4.5	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	48	24	N/A	N/A	N/A	Yes	48	24	4.5	N/A	0	0	0
39		N/A	N/A	N/A	3		Delam. & Crack	S face	84	22	1	0.0625	135	Yes	135	22	11.6	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	48	No	0	0	0.0	0	48	0.0625	0.074675
		N/A	N/A	N/A			Delam.	Bottom Face	96	24	N/A	N/A	N/A	Yes	96	24	9.0	N/A	0	0	0

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Struts damage log

Designed By: TD
Date: 6/2020
Checked By:
Date:

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Struts - Damage Log

Struts, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. length, the greater of the two will define delam. length.
For struts, the delam width is as inspected , else full width of strut (24 in.) if no dimension reported
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Full width delam from inspection is the length of strut per existing plans (11'-2 7/8" = 135 in.) Height = 48'
Cracks with hollow sound per inspection report will be classified and repaired as a delam

From Inspection

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

depth of crack repair, in. = 5.75

Struts

Pier		Condition States						Location	Spalls		Cracks				Final Repair Sizes: Spalls			Cracks		Cracks	
		2008	2010	2012	2014	2018	Type	on Column	Width	Height	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
40		N/A	N/A	N/A	3		Crack	S & N face	0	0	2	0.0625	72	No	0	0	0.0	0	144	0.0625	0.224026
45		N/A	N/A	N/A		3	Spall	S	6	6				No	6	6	0.1	0	0	0	0
52		N/A	N/A	N/A	3		Crack	S & N face	0	0	2	0.0625	84	No	0	0	0.0	0	168	0.0625	0.261363
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	72	No	0	0	0.0	1/8	72	0.125	0.224026
53		N/A	N/A	N/A	3		Delam.	S face	72	36	N/A	N/A	N/A	Yes	72	36	10.1	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
55		N/A	N/A	N/A	3		Crack	S & N face	0	0	2	0.03125	24	No	0	0	0.0	0	48	0.03125	0.037338
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.03125	60	No	0	0	0.0	0	60	0.03125	0.046672
56		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	135	24	2	0.25	84	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
57		N/A	N/A	N/A	3		Spall/Delam.	S face	60	28	N/A	N/A	N/A	Yes	60	28	6.6	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.03125	135	No	0	0	0.0	0	135	0.03125	0.105012
62		N/A	N/A	N/A	3		Crack	N face	0	0	1	0.0625	36	No	0	0	0.0	0	36	0.0625	0.056006
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	24	24	N/A	0.0625	N/A	Yes	24	24	2.3	N/A	0	0	0
64		N/A	N/A	N/A	3		Delam.	S face	72	12	N/A	N/A	N/A	Yes	72	12	3.4	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	72	No	0	0	0.0	0	72	0.0625	0.112013
65		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	12	No	0	0	0.0	0	12	0.0625	0.018669
		N/A	N/A	N/A			Spall/Delam.	Bottom Face	24	15	N/A	N/A	N/A	Yes	24	15	1.4	N/A	0	0	0
66		N/A	N/A	N/A	3		Delam. & Crack	Bottom Face	135	24	1	0.0625	20	Yes	135	24	12.7	N/A	0	0	0
69		N/A	N/A	N/A	3		Delam. & Crack	S face	135	8	1	0.0625	135	Yes	135	8	4.2	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.03125	60	No	0	0	0.0	0	60	0.03125	0.046672
		N/A	N/A	N/A			Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
77		N/A	N/A	N/A		3	Delam.	Bottom Edge	84	12				No	84	12	3.9	0	0	0	0
84		N/A	N/A	N/A	3		Delam.	S face	60	36	N/A	N/A	N/A	Yes	60	36	8.4	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	96	No	0	0	0.0	1/8	96	0.125	0.298701
92		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.125	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.015625	72	No	0	0	0.0	0	72	0.015625	0.028003
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	96	No	0	0	0.0	1/8	96	0.125	0.298701
93		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.015625	72	No	0	0	0.0	0	72	0.015625	0.028003
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	72	No	0	0	0.0	0	72	0.0625	0.112013
		N/A	N/A	N/A			Crack	Bottom Face	0	0	3	0.125	24	No	0	0	0.0	1/8	72	0.125	0.224026
95		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Delam. & Crack	N face	135	24	N/A	0.125	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
96		N/A	N/A	N/A	3		Delam. & Crack	S face	135	36	N/A	0.125	N/A	Yes	135	36	19.0	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	135	24	1	0.125	N/A	Yes	135	24	12.7	N/A	0	0	0
98		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.125	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	135	24	N/A	0.125	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	60	24	1	0.125	60	Yes	60	24	5.6	N/A	0	0	0
99		N/A	N/A	N/A	3		Delam. & Crack	S face	135	48	N/A	0.0625	N/A	Yes	135	48	25.3	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	135	24	N/A	0.25	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Struts damage log

Designed By: TD
Date: 6/2020
Checked By:
Date:

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Struts - Damage Log

Struts, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. length, the greater of the two will define delam. length.
For struts, the delam width is as inspected , else full width of strut (24 in.) if no dimension reported
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Full width delam from inspection is the length of strut per existing plans (11'-2 7/8" = 135 in.) Height = 48'
Cracks with hollow sound per inspection report will be classified and repaired as a delam

From Inspection

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

depth of crack repair, in. = 5.75

Struts

Pier		Condition States						Location	Spalls		Cracks				Final Repair Sizes: Spalls			Cracks		Cracks	
		2008	2010	2012	2014	2018	Type	on Column	Width	Height	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
101		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	3	0.0625	135	No	0	0	0.0	0	405	0.0625	0.630072
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
102		N/A	N/A	N/A	3		Crack	S face	0	0	3	0.0625	135	No	0	0	0.0	0	405	0.0625	0.630072
		N/A	N/A	N/A			Delam.	N face	135	36	N/A	N/A	N/A	Yes	135	36	19.0	N/A	0	0	0
107		N/A	N/A	N/A	3		Crack	Bottom Face	0	0	1	0.125	40	No	0	0	0.0	1/8	40	0.125	0.124459
121		N/A	N/A	N/A	3		CBO	N face	12	12					12	12	0.6	0	0	0	0
122		N/A	N/A	N/A	3		CBO	N face	12	12					12	12	0.6	0	0	0	0
131		N/A	N/A	N/A	3		Delam. & Crack	S face	135	36	N/A	0.0625	N/A	Yes	135	36	19.0	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.25	135	No	0	0	0.0	1/4	135	0.25	0.840097
132		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
137		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	24	No	0	0	0.0	0	24	0.0625	0.037338
		N/A	N/A	N/A			Crack	N face	0	0	1	0.125	36	No	0	0	0.0	1/8	36	0.125	0.112013
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
139		N/A	N/A	N/A	3		Crack	Bottom Face	0	0	1	0.03125	24	No	0	0	0.0	0	24	0.03125	0.018669
140		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.03125	40	No	0	0	0.0	0	40	0.03125	0.031115
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
Middle Section (Piers 141-169)							these are box colum piers(no struts)								0	0	0.0	0	0	0	0
															0	0	0.0	0	0	0	0
177		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
179		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.0625	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.125	60	No	0	0	0.0	1/8	60	0.125	0.186688
		N/A	N/A	N/A			Crack	Bottom Face	0	0	2	0.25	135	No	0	0	0.0	1/4	270	0.25	1.680193
180		N/A	N/A	N/A	3		Delam.	S face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	N face	60	24	N/A	N/A	N/A	Yes	60	24	5.6	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	135	24	N/A	1/4"	40	Yes	135	24	12.7	N/A	0	0	0
185		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
		N/A	N/A	N/A			Spall & Delam.	N face	48	48	N/A	0.0625	N/A	Yes	48	48	9.0	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
188		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.03125	30	No	0	0	0.0	0	30	0.03125	0.023336
		N/A	N/A	N/A			Crack	Bottom Face	0	0	2	0.0625	30	No	0	0	0.0	0	60	0.0625	0.093344
193		N/A	N/A	N/A	3		Delam. & Crack	S face	60	24	N/A	0.03125	N/A	Yes	60	24	5.6	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	72	No	0	0	0.0	0	72	0.0625	0.112013
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	60	No	0	0	0.0	1/8	60	0.125	0.186688
196		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Delam.	Bottom Face	135	24	N/A	N/A	N/A	Yes	135	24	12.7	N/A	0	0	0
197		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.125	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Crack	N face	0	0	1	0.03125	48	No	0	0	0.0	0	48	0.03125	0.037338

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Struts damage log

Designed By: TD
Date: 6/2020
Checked By:
Date:

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Struts - Damage Log

Struts, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
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Cracks with hollow sound per inspection report will be classified and repaired as a delam

From Inspection

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

depth of crack repair, in. = 5.75

Struts

Pier		Condition States						Location	Spalls		Cracks				Final Repair Sizes: Spalls			Cracks		Cracks	
		2008	2010	2012	2014	2018	Type	on Column	Width	Height	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	1	0.125	135	Yes	135	24	12.7	N/A	0	0	0
202		N/A	N/A	N/A			Crack	N face	0	0	1	0.03125	135	No	0	0	0.0	0	135	0.03125	0.105012
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A	3		Delam. & Crack	S face	36	24	1	0.125	135	No	36	24	3.4	1/8	135	0.125	0.420048
203		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
207		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.03125	15	No	0	0	0.0	0	15	0.03125	0.011668
		N/A	N/A	N/A			Crack	Bottom Face	0	0	2	0.0625	15	No	0	0	0.0	0	30	0.0625	0.046672
215		N/A	N/A	N/A	3		Delam. & Crack	N face	60	24	1	0.125	60	Yes	60	24	5.6	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.03125	72	No	0	0	0.0	0	72	0.03125	0.056006
216		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	1/2"	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.25	135	No	0	0	0.0	1/4	135	0.25	0.840097
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	72	No	0	0	0.0	1/8	72	0.125	0.224026
218		N/A	N/A	N/A	3		Crack	N face	0	0	1	0.0625	18	No	0	0	0.0	0	18	0.0625	0.028003
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	10	No	0	0	0.0	0	10	0.0625	0.015557
220		N/A	N/A	N/A	3		Crack	N face	0	0	1	0.015625	48	No	0	0	0.0	0	48	0.015625	0.018669
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.015625	36	No	0	0	0.0	0	36	0.015625	0.014002
		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
221		N/A	N/A	N/A			Crack	S face	0	0	1	0.015625	36	No	0	0	0.0	0	36	0.015625	0.014002
		N/A	N/A	N/A			Delam. & Crack	N face	36	24	1	0.125	N/A	Yes	36	24	3.4	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.25	72	No	0	0	0.0	1/4	72	0.25	0.448052
222		N/A	N/A	N/A	3		Delam. & Crack	N face	36	15	1	0.03125	40	Yes	40	15	2.3	N/A	0	0	0
		N/A	N/A	N/A	3		Crack	S face	0	0	2	0.0625	48	No	0	0	0.0	0	96	0.0625	0.149351
226		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	36	No	0	0	0.0	0	36	0.0625	0.056006
		N/A	N/A	N/A			Crack	Bottom Face	0	0	2	0.0625	24	No	0	0	0.0	0	48	0.0625	0.074675
227		N/A	N/A	N/A	3		Crack	N face	0	0	1	0.125	108	No	0	0	0.0	1/8	108	0.125	0.336039
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	96	No	0	0	0.0	0	96	0.0625	0.149351
		N/A	N/A	N/A	3		Delam. & Crack	S face	60	24	N/A	0.0625	N/A	Yes	60	24	5.6	N/A	0	0	0
228		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	72	No	0	0	0.0	0	72	0.0625	0.112013
		N/A	N/A	N/A			Crack	N face	0	0	1	0.03125	36	No	0	0	0.0	0	36	0.03125	0.028003
		N/A	N/A	N/A			Crack	Bottom Face	0	0	3	0.125	72	No	0	0	0.0	1/8	216	0.125	0.672077
229		N/A	N/A	N/A	3		Delam. & Crack	S face	60	30	1	0.25	96	Yes	96	30	11.3	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.25	108	No	0	0	0.0	1/4	108	0.25	0.672077
230		N/A	N/A	N/A	3		Delam.	S face	48	20	N/A	N/A	N/A	Yes	48	20	3.8	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	96	36	1	0.125	96	No	96	36	13.5	1/8	96	0.125	0.298701
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
232		N/A	N/A	N/A	3		Delam. & Crack	S face	96	30	N/A	0.125	N/A	Yes	96	30	11.3	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	40	40	N/A	0.0625	N/A	Yes	40	40	6.3	N/A	0	0	
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A	4		Spall & Delam.	S face	40	4	N/A	0.25	N/A	Yes	40	4	0.6	N/A	0	0	0
234		N/A	N/A	N/A			Crack	N face	0	0	2	0.25	135	No	0	0	0.0	1/4	270	0.25	1.680193
		N/A	N/A	N/A			Spall & Delam.	Bottom Face	24	4	N/A	N/A	N/A	Yes	24	4	0.4	N/A	0	0	0
		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.125	33	No	0	0	0.0	1/8	33	0.125	0.102678

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Struts damage log

Designed By: TD
Date: 6/2020
Checked By:
Date:

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Struts - Damage Log

Struts, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. length, the greater of the two will define delam. length.
For struts, the delam width is as inspected , else full width of strut (24 in.) if no dimension reported
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Full width delam from inspection is the length of strut per existing plans (11'-2 7/8" = 135 in.) Height = 48'
Cracks with hollow sound per inspection report will be classified and repaired as a delam

From Inspection

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

depth of crack repair, in. = 5.75

Struts

Pier		Condition States						Location	Spalls		Cracks				Final Repair Sizes: Spalls			Cracks		Cracks	
		2008	2010	2012	2014	2018	Type	on Column	Width	Height	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
235		N/A	N/A	N/A			Delam. & Crack	N face	60	15	N/A	0.0625	N/A	Yes	60	15	3.5	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
238		N/A	N/A	N/A	3		Crack	N face	0	0	1	0.0625	30	No	0	0	0.0	0	30	0.0625	0.046672
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	48	No	0	0	0.0	0	48	0.0625	0.074675
239		N/A	N/A	N/A	3		Delam.	S face	24	24	N/A	N/A	N/A	Yes	24	24	2.3	N/A	0	0	0
		N/A	N/A	N/A			Crack	N face	0	0	1	0.125	108	No	0	0	0.0	1/8	108	0.125	0.336039
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
240		N/A	N/A	N/A	3		Crack	N face	0	0	1	0.25	108	No	0	0	0.0	1/4	108	0.25	0.672077
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.25	84	No	0	0	0.0	1/4	84	0.25	0.522727
242		N/A	N/A	N/A	3		Crack	S face	0	0	3	0.0625	60	No	0	0	0.0	0	180	0.0625	0.280032
		N/A	N/A	N/A			Crack	N face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.25	135	No	0	0	0.0	1/4	135	0.25	0.840097
247		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
		N/A	N/A	N/A			Crack	N face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
248		N/A	N/A	N/A	3		Delam. & Crack	S face	60	40	N/A	0.25	N/A	Yes	60	40	9.4	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	60	24	N/A	0.25	N/A	Yes	60	24	5.6	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	48	No	0	0	0.0	0	48	0.0625	0.074675
249		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.03125	18	No	0	0	0.0	0	18	0.03125	0.014002
		N/A	N/A	N/A			Crack	N face	0	0	1	0.015625	18	No	0	0	0.0	0	18	0.015625	0.007001
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	20	No	0	0	0.0	0	20	0.0625	0.031115
250		N/A	N/A	N/A	3		Delam. & Crack	S face	135	24	N/A	0.015625	N/A	Yes	135	24	12.7	N/A	0	0	0
		N/A	N/A	N/A			Delam.	N face	40	30	N/A	0	N/A	Yes	40	30	4.7	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	18	No	0	0	0.0	0	18	0.0625	0.028003
252		N/A	N/A	N/A		3	Crack	Bottom Edge			1	0	24		0	0	0.0	0	24	0	0
253		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
		N/A	N/A	N/A			Crack	N face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.03125	30	No	0	0	0.0	0	30	0.03125	0.023336
254		N/A	N/A	N/A	3		Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
255		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	64	No	0	0	0.0	0	64	0.0625	0.099567
		N/A	N/A	N/A			Delam.	Bottom Face	84	18	N/A	N/A	N/A	Yes	84	18	5.9	N/A	0	0	0
257		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.03125	36	No	0	0	0.0	0	36	0.03125	0.028003
		N/A	N/A	N/A			Crack	N face	0	0	1	0.03125	24	No	0	0	0.0	0	24	0.03125	0.018669
		N/A	N/A	N/A			Delam. & Crack	Bottom Face	36	24	N/A	0.03125	N/A	Yes	36	24	3.4	N/A	0	0	0
259		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	60	No	0	0	0.0	0	60	0.0625	0.093344
		N/A	N/A	N/A			Crack	N face	0	0	1	0.03125	84	No	0	0	0.0	0	84	0.03125	0.065341
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.0625	135	No	0	0	0.0	0	135	0.0625	0.210024
261		N/A	N/A	N/A	3		Delam. & Crack	S face	60	24	N/A	0.03125	N/A	Yes	60	24	5.6	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	36	36	N/A	0.25	N/A	Yes	36	36	5.1	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.015625	48	No	0	0	0.0	0	48	0.015625	0.018669
262		N/A	N/A	N/A	3		Crack	S face	0	0	2	0.0625	48	No	0	0	0.0	0	96	0.0625	0.149351
		N/A	N/A	N/A			Crack	N face	0	0	2	0.0625	48	No	0	0	0.0	0	96	0.0625	0.149351
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	60	No	0	0	0.0	1/8	60	0.125	0.186688
263		N/A	N/A	N/A	3		Delam.	S face	36	24	N/A	N/A	N/A	Yes	36	24	3.4	N/A	0	0	0

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Struts damage log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Struts - Damage Log

Designed By: TD
Date: 6/2020
Checked By:
Date:

Struts, 7-Mile Bridge Rehabilitation

Instructions for spreadsheet:
If associated crack is longer than inspected delam. length, the greater of the two will define delam. length.
For struts, the delam width is as inspected , else full width of strut (24 in.) if no dimension reported
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans
Full width delam from inspection is the length of strut per existing plans (11'-2 7/8" = 135 in.) Height = 48'
Cracks with hollow sound per inspection report will be classified and repaired as a delam

From Inspection

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

depth of crack repair, in. = 5.75

Struts

Pier		Condition States						Location	Spalls		Cracks				Final Repair Sizes: Spalls			Cracks		Cracks	
		2008	2010	2012	2014	2018	Type	on Column	Width	Height	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
263		N/A	N/A	N/A			Delam. & Crack	Bottom Face	135	24	N/A	0.03125	N/A	Yes	135	24	12.7	N/A	0	0	0
264		N/A	N/A	N/A	3		Delam. & Crack	S face	60	20	N/A	0.125	N/A	Yes	60	20	4.7	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	96	24	N/A	0.125	N/A	Yes	96	24	9.0	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
265		N/A	N/A	N/A	3		Delam. & Crack	S face	84	24	N/A	0.125	N/A	Yes	84	24	7.9	N/A	0	0	0
		N/A	N/A	N/A			Delam. & Crack	N face	48	24	N/A	0.125	N/A	Yes	48	24	4.5	N/A	0	0	0
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
266		N/A	N/A	N/A	3		Crack	S face	0	0	1	0.0625	84	No	0	0	0.0	0	84	0.0625	0.130682
		N/A	N/A	N/A			Crack	N face	0	0	1	0.125	84	No	0	0	0.0	1/8	84	0.125	0.261363
		N/A	N/A	N/A			Crack	Bottom Face	0	0	1	0.125	135	No	0	0	0.0	1/8	135	0.125	0.420048
Subtotal (without contingencies)																	883.5	CF	1045.3	LF	30.72264
Contingency (100%)																	883.5	CF	1045.3	LF	30.72264
Total for Cracks Repair																	1767	CF	2091	LF	61.44528
																Pay Item	400-4-5		411-2		411-1

Note:the above table does not include the recontructed struts at piers for jacking: 14 piers x4'x4'x17.15'/27					
Subtotal Reconstructed Strut(without contingencies)		10.2	CY	1	Piers
Contingency (0% for TSS)		0.0	CY		
Total Reconstructed Strut		10.2	CY		
Total (without contingencies)		42.9	CY		
Contingency (100%)		32.7	CY		
Total Repair		75.6	CY		

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Nu 17.09.01 TWO #9
Descriptior Footings damage log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx] Footings - Damage Log

Designed By: TD
Date: 6/2020
Checked By:
Date:

Drilled Shafts - Pile Cap on 4 shafts, 7-Mile Bridge

Instructions for spreadsheet:
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans.
Cracks with hollow sound per inspection report will be classified and repaired as a delam.

Definitions: BF: Bottom Face

From Inspection
(Footing)depth of delamination repair, in. = 8 (using 4"cover,2 rows #11 main bars, 1" past main bar)

depth of crack repair, in. = 7.00

			From Inspection									Final Repair Sizes						
Pier	Condition State				Spalls			Cracks				Spalls			Cracks		Cracks	
	2014	2018	Type	Location	Width	Height	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
141	3	3	Spall	BF	72	36	2	0	0	0	Yes	72	36	12.0	0	0	0	0.00
	3		Crack	S face near Col. 2	0	0		1	0.0625	14	No	0	0	0.0	0.0625	14	0.0625	0.03
142		3	Corrosion 12" dia.	BF							No	0	0	0.0	0	0	0	0.00
	3		Crack	BF near Col. 4	0	0		1	0.03125	60	No	0	0	0.0	0.03125	60	0.03125	0.06
143	3	3	Spall & Crack	BF	36	24	1	1	0.03125	20	No	36	24	4.0	0.03125	20	0.03125	0.02
	3		Delam.	BF near Col. 2	72	72		0	0	0	Yes	72	72	24.0	0	0	0	0.00
144	3		Spall & Delam.	BF betw. Col. 2 & 3	7	50		0	0	0	Yes	7	50	1.6	0	0	0	0.00
	3		Delam.	BF near Col. 3	30	20		0	0	0	Yes	30	20	2.8	0	0	0	0.00
	3		Delam.& Crack	S bottom edge	60	60		0	0	0	Yes	60	60	16.7	0	0	0	0.00
		3	Spall/Delam.	BF S corner	72	36	3				No	72	36	12.0	0	0	0	0.00
145	3		Spall & Delam.	BF near Col. 2	12	10		0	0	0	Yes	12	10	0.6	0	0	0	0.00
	3		Spall/Delam./Crk	BF betw. Col. 2 & 3	72	48		0	0.125	0	Yes	72	48	16.0	0	0	0	0.00
		3	Corrosion 12" dia.	BF							No	0	0	0.0	0	0	0	0.00
146	3		Delam.	BF betw. Col. 2 & 4	72	72		0	0	0	Yes	72	72	24.0	0	0	0	0.00
	3		Crack	W face	0	0		2	0.0625	24	Yes	0	0	0.0	0	0	0	0.00
		3	Spall	BF	12	12	1				No	12	12	0.7	0	0	0	0.00
147	3	3	Spall	BF	36	36	6				No	36	36	6.0	0	0	0	0.00
	3		Spall	NE corner	14	13		0	0	0	Yes	14	13	0.8	0	0	0	0.00
	3		Delam. & Crack	S face	48	72		0	0.03125	0	Yes	48	72	16.0	0	0	0	0.00
	3		Spall & Delam.	SW corner	24	16		0	0	0	Yes	24	16	1.8	0	0	0	0.00
148	3		Delam. & Crack	BF betw. Col. 1 & 3	72	36		0	0	0	Yes	72	36	12.0	0	0	0	0.00
	3		Crack	S face	0	0		4	0.015625	24	No	0	0	0.0	0.015625	96	0.015625	0.05
		3	Spall	BF	36	48	2				No	36	48	8.0	0	0	0	0.00
149	3		Delam. & Crack	BF near Col. 1	84	60		0	0.03125	0	Yes	84	60	23.3	0	0	0	0.00
150	3	3	Spall & Delam.	BF	120	84		0	0.0625	0	Yes	120	84	46.7	0	0	0	0.00
151	3	3	Spall	BF betw. Col. 1 & 3	72	48	2	0	0.0625	0	Yes	72	48	16.0	0	0	0	0.00
		3	Corrosion 12" dia.	BF							No	0	0	0.0	0	0	0	0.00
152	3		Delam. & Crack	BF betw. Col. 2 & 4	24	24		0	0.0625	0	Yes	24	24	2.7	0	0	0	0.00
		3	Corrosion 12" dia.	BF							No	0	0	0.0	0	0	0	0.00
153		3	Spall	BF	36	36	5				No	36	36	6.0	0	0	0	0.00
	3		Delam. & Crack	BF betw. Col. 2 & 4	48	48		0	0.03125	0	Yes	48	48	10.7	0	0	0	0.00
156	3		Delam. & Crack	BF near Col. 2	12	12		1	0.015625	6	Yes	12	12	0.7	0	0	0	0.00
	3		Spall & Crack	BF betw. Col. 1 & 3	15	6	1	0	0.0625	0	Yes	15	6	0.4	0	0	0	0.00
		3	Corrosion 12" dia.								No	0	0	0.0	0	0	0	0.00
157	3		Delam. & Crack	BF betw. Col. 2 & 4	36	12		1	0.015625	36	Yes	36	12	2.0	0	0	0	0.00
	3		Crack	SW corner	0	0		1	0.0625	20	No	0	0	0.0	0.0625	20	0.0625	0.04
		3	Corrosion 12" dia.	BF							No	0	0	0.0	0	0	0	0.00
		3	Spall	BF	36	12	2				No	36	12	2.0	0	0	0	0.00

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Nu 17.09.01 TWO #9
Descriptior Footings damage log
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx] Footings - Damage Log

Designed By: TD
Date: 6/2020
Checked By:
Date:

Drilled Shafts - Pile Cap on 4 shafts, 7-Mile Bridge

Instructions for spreadsheet:
Delam. depth of repair is assumed to be 1" past main bar for every case.
If delaminated area has associated cracks, they are moot, and not shown in repair plans.
Cracks with hollow sound per inspection report will be classified and repaired as a delam.

Definitions: BF: Bottom Face

From Inspection
(Footing)depth of delamination repair, in. = 8 (using 4"cover,2 rows #11 main bars, 1" past main bar)

depth of crack repair, in. = 7.00

			From Inspection										Final Repair Sizes						
Pier	Condition State				Spalls			Cracks					Spalls			Cracks		Cracks	
	2014	2018	Type	Location	Width	Height	D	#	Width	Length	associated?		Width	Height	Vol.(cf)	Width	Length	Width(dec.)	(Gal)
158	3		Crack	BF betw. Col. 2 & 4	72	72		0	0.0625	0	Yes		72	72	24.0	0	0	0	0.00
	3		Delam. & Crack	N face	24	12		1	0.0625	24	Yes		24	12	1.3	0	0	0	0.00
		3	Corrosion 12" dia.								No		0	0	0.0	0	0	0	0.00
		3	Spall	BF	6	4	0.5				No		6	4	0.1	0	0	0	0.00
159	3		Delam. & Crack	BF betw. Col. 2 & 4	7	60		0	0	0	Yes		7	60	1.9	0	0	0	0.00
	3		Crack	NW corner	0	0		1	0.0625	48	No		0	0	0.0	0.0625	48	0.0625	0.09
	3		Crack	E face	0	0		1	0.015625	44	No		0	0	0.0	0.015625	44	0.015625	0.02
		3	Corrosion 12" dia.								No		0	0	0.0	0	0	0	0.00
		3	Spall	BF	24	4	0.5				No		24	4	0.4	0	0	0	0.00
160	3		Delam.	BF betw. Col. 1 & 3	72	36		0	0	0	Yes		72	36	12.0	0	0	0	0.00
	3		Delam. & Crack	BF betw. Col. 3 & 4	36	36		0	0.0625	0	Yes		36	36	6.0	0	0	0	0.00
		3	Spall & Delam	BF	120	120	6				No		120	120	66.7	0	0	0	0.00
161	3		Delam. & Crack	BF betw. Col. 1 & 3	72	72		0	0.03125	0	Yes		72	72	24.0	0	0	0	0.00
162	3		Delam. & Crack	BF betw. Col. 2 & 4	72	72		0	0.0625	0	Yes		72	72	24.0	0	0	0	0.00
	3		Crack	E face	0	0		2	0.03125	24	No		0	0	0.0	0.03125	48	0.03125	0.05
		3	Corrosion 12" dia.								No		0	0	0.0	0	0	0	0.00
163	3		Delam/Spall	BF betw. Col. 2 & 4	72	36		0	0.015625	0	Yes		72	36	12.0	0	0	0	0.00
	3		Crack	N face	0	0		1	0.0625	12	No		0	0	0.0	0.0625	12	0.0625	0.02
		3	Corrosion 12" dia.	BF							No		0	0	0.0	0	0	0	0.00
164		3	Corrosion 12" dia.	BF							No		0	0	0.0	0	0	0	0.00
	3		Delam. & Crack	S face	48	72		0	0.0625	30	Yes		48	72	16.0	0	0	0	0.00
165		3	Corrosion 12" dia.	BF							No		0	0	0.0	0	0	0	0.00
166	3		Delam. & Crack	BF betw. Col. 2 & 4	72	72		0	0.03125	0	Yes		72	72	24.0	0	0	0	0.00
		3	Corrosion 12" dia.	BF							No		0	0	0.0	0	0	0	0.00
167	3		Crack	N face	0	0		1	0.03125	30	No		0	0	0.0	0.03125	30	0.03125	0.03
Subtotal (without contingencies)															481.8	CF	32.66667	LF	0.39
Contingency (100%)															481.8	CF	32.66667	LF	0.39
Total for Cracks Repair															964	CF	65.33333	LF	1
															Pay Item	400-4-5		411-2	411-1

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Low-Level Column Deficiencies

Designed By: TD
Date: 6/2020
Checked By:
Date:

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Columns - Damage Log

Column Deficiencies

Legend:
AS = Column above the strut
BC = Below Cap
CC = Corner of Cap (Exp. Pier)
TC = Top of Column
TDS = Top of Drilled Shaft

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

Location		Deficiency	Condition	From Inspection										Final Repair Sizes					
					Location		Spalls/Delam.			Cracks				Spalls/Delam.			Cracks		
Pier	Column		State	Type	Quad.	Desc.	Width	Length	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Epoxy
2	2	Spall/Delamination 12in. L x 3in. W on the NW top corner.	3	Delam. & Spall	NW	TC	3	12	0.5	-	n/a	-	Yes	3	12	0.1	N/A	N/A	0
3	1	Delamination 50in. L x 24in. W with cracks on the SW quadrant above the strut.	3	Delam. & Crack	SW	AS	50	24	-	-	n/a	-	Yes	50	24	4.7	N/A	N/A	0
	2	Vertical Crack 24in X 1/32in	2	Crack	S	TDS	0	0	-	1	0.03	24	No	0	0	0.0	0.03125	24	2.85359E-05
5	1	Delamination 50in. L x 24in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	50	24	-	-	n/a	-	Yes	50	24	4.7	N/A	N/A	0
6	1	Delamination 96in. L x 48in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	96	48	-	-	n/a	-	Yes	96	48	18.0	N/A	N/A	0
8	2	Spall & delamination 50in. L x 12in. W x 4in. D at bottom SW corner of the cap.	3	Delam. & Spall	SW	CC	50	12	-	-	n/a	-	Yes	50	12	2.3	N/A	N/A	0
9	2	Delamination 35in. L x 36in. W with cracks on the SW quadrant above the strut.	3	Delam. & Crack	SW	AS	35	36	-	-	n/a	-	Yes	35	36	4.9	N/A	N/A	0
10	1	Delamination 24in. L x 30in. W with cracks on the SE quadrant above the strut.	3	Delam. & Crack	SE	AS	24	30	-	-	n/a	-	Yes	24	30	2.8	N/A	N/A	0
11	2	Delamination 48in. L x 56in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	48	56	-	-	n/a	-	Yes	48	56	10.5	N/A	N/A	0
13	1	Delamination 32in. L x 15in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	32	15	-	-	n/a	-	Yes	32	15	1.9	N/A	N/A	0
15	1	Spall 18x8x2; Crack 30x 1/32	3	Spall & Crack	E	TC	18	8	2	1	0.03125	30	No	18	8	0.6	0.03125	30	2.85359E-05
	2	Vertical & horizontal Crack 24in X 1/32in	2	Crack	SE	TDS	0	0	-	2	0.03	24	No	0	0	0.0	0.03125	48	2.85359E-05
16	1	Delamination 24in. L x 30in. W with cracks in the east quadrant at top of column.	3	Delam. & Crack	E	TC	24	30	-	-	n/a	-	Yes	24	30	2.8	N/A	N/A	0
17	1	Delamination 72"x60", Top of drilled shaft	2	Delam	W,N,S	TDS	60	72	-	-	n/a	-	Yes	60	72	16.9	N/A	N/A	0
	2	Delamination 10' L x 48in. W with cracks at the west quadrant.	3	Delam. & Crack	W	AS	120	48	-	-	n/a	-	Yes	120	48	22.5	N/A	N/A	0
18	1	Delamination 30in. L x 24in. W with cracks on the west face above the strut.	3	Delam. & Crack	W	AS	30	24	-	-	n/a	-	Yes	30	24	2.8	N/A	N/A	0
		Delamination 30in. L x 24in. W with cracks on the south face above the strut.	3	Delam. & Crack	S	AS	30	24	-	-	n/a	-	Yes	30	24	2.8	N/A	N/A	0
	2	Delamination 16in. L x 30in. W with cracks on the east face at top of column.	3	Delam. & Crack	E	TC	16	30	-	-	n/a	-	Yes	16	30	1.9	N/A	N/A	0
		Delamination 65in. L x 30in. W with cracks on the SW quadrant above the strut	3	Delam. & Crack	SW	AS	65	30	-	-	n/a	-	Yes	65	30	7.6	N/A	N/A	0
19	1	Spall & delamination 10' L x 48in. W x 1in. D at top of column.	3	Delam. & Spall	W	TC	120	48	-	-	n/a	-	Yes	120	48	22.5	N/A	N/A	0
21	2	Spall & delamination 10'-0in. L x 32in. W x 5in. D with 20% section loss of rebar at top of column.	3	Delam. & Spall & Rebar	W	TC	120	32	-	-	n/a	-	Yes	120	32	15.0	N/A	N/A	0
22	1	Spall & delamination up to 48in. L x 50in. W x 3in. D in the NW & SW top corners of the cap.	3	Delam. & Spall	NW & SW	CC	48	50	-	-	n/a	-	Yes	48	50	9.4	N/A	N/A	0
	2	Spall & delamination up to 72in. L x 12in. W x 9in. D with exposed rebar in the NW & SW corners of the cap.	3	Delam. & Spall	NW & SW	CC	72	12	-	-	n/a	-	Yes	72	12	3.4	N/A	N/A	0
24	1	Spall 16in. L x 24in. W x 6in. D with 20% section loss of rebar, exposing 3in. into bearing area	3	Spall	N	TC	16	24	-	-	n/a	-	Yes	16	24	1.5	N/A	N/A	0
	2	Delamination 45in. L x 15in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	45	15	-	-	n/a	-	Yes	45	15	2.6	N/A	N/A	0
	2	Void-New below shear block	3	Void -New	W	TC	4	4	3	-	n/a	-	Yes	4	4	0.1	N/A	N/A	0
	2	Crack 24in. x 1/32in.	3	Crack	W, N	TC			-	2	0.03125	24	No	0	0	0.0	0.03125	48	2.85359E-05
25	1	Spall, Delam 24in. x 3' x 1in. (S) ; Crack 3' x 6in. x 1/16in. (E) ; Delam 12in.x12in. (NE)	3	Spall, Delam, Crack	S, E, NE	TC	24	36	1	4	0.0625	36	No	24	36	3.4	0.0625	144	0.000114144
	1	Spall & delamination 10'-0in. L x 40in. W x 1in. D at the west quadrant at top of column.	3	Delam. & Spall	W	TC	120	40	-	-	n/a	-	Yes	120	40	18.8	N/A	N/A	0
		Spall & delamination 20in. L x 12in. W x 3in. D in repaired area at the east quadrant at top of	3	Delam. & Spall	E	TC	20	12	-	-	n/a	-	Yes	20	12	0.9	N/A	N/A	0
	2	Spall & delamination 36in. L x 24in. W x 1in. D at the south quadrant above the strut.	3	Delam. & Spall	S	AS	36	24	-	-	n/a	-	Yes	36	24	3.4	N/A	N/A	0
26	1	Delamination 55in. L x 35in. W with cracks on the west face above the strut.	3	Delam. & Crack	W	AS	55	35	-	-	n/a	-	Yes	55	35	7.5	N/A	N/A	0
	2	Spall and delamination 75in. L x 56in. W x 2in. D on the west face above the strut.	3	Delam. & Spall	W	AS	75	56	-	-	n/a	-	Yes	75	56	16.4	N/A	N/A	0
27	1	Seven vertical cracks 20in x 1/32 in	2	Crack	ALL	TDS	0	0	-	7	0.03125	20	No	0	0	0.0	0.03125	140	2.85359E-05
	2	Delamination 80in. L x 55in. W with cracks on the west face above the strut.	3	Delam. & Crack	W	AS	80	55	-	-	n/a	-	Yes	80	55	17.2	N/A	N/A	0
	2	Delamination 72in. L x 48in. W with cracks on the west face above the strut.	3	Delam. & Crack	W	AS	72	48	-	-	n/a	-	Yes	72	48	13.5	N/A	N/A	0
28	1	Three vertical cracks 20in x 1/32 in	2	Crack	W,N	TDS	0	0	-	3	0.03125	20	No	0	0	0.0	0.03125	60	2.85359E-05
	2	Delamination, 3ft x 5ft	2	Delam	SW,W	TDS	36	60	-	-	n/a	-	Yes	36	60	8.4	N/A	N/A	0
30	2	Spall and delamination 30in. L x 50in. W x 2in. D on the west face above the strut.	3	Delam. & Spall	W	AS	30	50	-	-	n/a	-	Yes	30	50	5.9	N/A	N/A	0
36	2	Spall and delamination 32in. L x 50in. W x 3in. D on the SW face above the strut.	3	Delam. & Spall	SW	AS	32	50	-	-	n/a	-	Yes	32	50	6.3	N/A	N/A	0
39	1	Delamination/Spall 60in. L x 36in. W with cracks at top of column. - INCREASED	3	Delam. & Crack	W	TC	60	36	1	-	n/a	-	Yes	60	36	8.4	N/A	N/A	0
40	1	Spall & delamination 30in. L x 9' W x 2in. D with 5% section loss, 4in. into bearing on the west quadrant at top of column \\ 30in. x 9' x 2in. (SW) INCREASE	3	Delam. & Spall	SW	TC	30	108	2	-	n/a	-	Yes	30	108	12.7	N/A	N/A	0
41	1	Delamination 36in. L x 36in. W with cracks on the NE quadrant at top of column.	3	Delam. & Crack	NE	TC	36	36	-	-	n/a	-	Yes	36	36	5.1	N/A	N/A	0
42	1	Delamination 24in. L x 30in. W with cracks on the south quadrant above the strut.	3	Delam. & Crack	S	AS	24	30	-	-	n/a	-	Yes	24	30	2.8	N/A	N/A	0
43	2	Delamination 84in. L x 24in. W with cracks on the south quadrant above the strut.	3	Delam. & Crack	S	AS	84	24	-	-	n/a	-	Yes	84	24	7.9	N/A	N/A	0
44	1	Delamination 30in. L x 24in. W with cracks on the SW quadrant above the strut.	3	Delam. & Crack	SW	AS	30	24	-	-	n/a	-	Yes	30	24	2.8	N/A	N/A	0
	2	Honey-comb/void	3	Honey comb	W	AS	6	4	-	-	n/a	-	Yes	6	4	0.1	N/A	N/A	0
45	1	Delamination 96in. L x 36in. W with cracks on the west quadrant at top of column.	3	Delam. & Crack	W	TC	96	36	-	-	n/a	-	Yes	96	36	13.5	N/A	N/A	0
46	2	Delamination 50in. L x 22in. W with cracks on the SW quadrant above the strut.	3	Delam. & Crack	SW	AS	50	22	-	-	n/a	-	Yes	50	22	4.3	N/A	N/A	0

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Low-Level Column Deficiencies
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Columns - Damage Log

Designed By: TD
Date: 6/2020
Checked By:
Date:

Column Deficiencies

Legend:
AS = Column above the strut
BC = Below Cap
CC = Corner of Cap (Exp. Pier)
TC = Top of Column
TDS = Top of Drilled Shaft

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

Location		Deficiency	Condition	From Inspection										Final Repair Sizes					
					Location		Spalls/Delam.			Cracks				Spalls/Delam.			Cracks		
Pier	Column		State	Type	Quad.	Desc.	Width	Length	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Epoxy
47	1	Delamination 44in. L x 25in. W with cracks on the west quadrant 2' below the top.	3	Delam. & Crack	W	TC	44	25	-	-	n/a	-	Yes	44	25	4.3	N/A	N/A	0
	2	Delamination 65in. L x 45in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	65	45	-	-	n/a	-	Yes	65	45	11.4	N/A	N/A	0
50	2	Vertical Crack 24in x 1/32 in; Delam 24in x 3ft	2	Delam. & Crack	N,S	TDS	24	36	-	1	0.03125	24	No	24	36	3.4	0.03125	24	2.85359E-05
51	1	Delamination 70in. L x 32in. W with cracks on the SW quadrant above the strut.	3	Delam. & Crack	SW	AS	70	32	-	-	n/a	-	Yes	70	32	8.8	N/A	N/A	0
52	1	Spall & delamination 33in. L x 30in. W x 1in. D in the SE quadrant at top of column.	3	Delam. & Spall	SE	TC	33	30	-	-	n/a	-	Yes	33	30	3.9	N/A	N/A	0
53	1	Spall & delamination 16in. L x 22in. W x 1in. D at the east face at top of column.	3	Delam. & Spall	E	TC	16	22	-	-	n/a	-	Yes	16	22	1.4	N/A	N/A	0
		Delamination 17in. L x 17in. W with cracks on the south quadrant above the strut.	3	Delam. & Crack	S	AS	17	17	-	-	n/a	-	Yes	17	17	1.1	N/A	N/A	0
	1	Crack 33in. x 1/16in. (S, NE)	3	Crack	S, NE				-	3	0.0625	33	No	0	0	0.0	0.0625	99	0.000114144
57	2	Spall from shear block rubbing cap, 20x5x2.5	3	Spall	W	CC	20	5	2.5	-		-	Yes	20	5	0.4	N/A	N/A	0
58	1	Delamination 15in. L x 3in. W	2	Delam	S	TDS	3	15	-	-	n/a	-	Yes	3	15	0.2	N/A	N/A	0
60	2	Delam 24in x 24in	2	Delam	SW,W	TDS	24	24	-	-	n/a	-	Yes	24	24	2.3	N/A	N/A	0
61	1	Delamination 48in. L x 36in. W	2	Delam	NW	TDS	36	48	-	-	n/a	-	Yes	36	48	6.8	N/A	N/A	0
69	2	Delamination 3in. L x 3in. W with cracks on the south quadrant at top of column.	3	Delam. & Crack	S	TC	3	3	-	-	n/a	-	Yes	3	3	0.0	N/A	N/A	0
70	2	Four cracks 24 in x 1/32in	2	Crack	S	TDS	0	0	-	4	0.03125	24	No	0	0	0.0	0.03125	96	2.85359E-05
71	1	Delamination 36in. L x 20in. W	2	Delam	S	TDS	20	36	-	-	n/a	-	Yes	20	36	2.8	N/A	N/A	0
73	1	Spall 8in.Xin.4in.1in.	3	Spall	N	TC	8	4	1	-		-	Yes	8	4	0.1	N/A	N/A	0
	2	Crack 12 in x 1/32in	2	Crack	N	TDS	0	0	-	1	0.03125	12	No	0	0	0.0	0.03125	12	2.85359E-05
74	1	Spall & delamination 40in. L x 20in. W x 6.5in. D with 20% section loss of rebar, 3.5in. into bearing area at top of column.	3	Delam. & Spall	E	TC	40	20	6.5	-	n/a	-	Yes	40	20	3.1	N/A	N/A	0
	2	Two Cracks 24 in x 1/32in	2	Crack	NE	TDS	0	0	-	2	0.03125	24	No	0	0	0.0	0.03125	48	2.85359E-05
75	2	Spall & delamination 52in. L x 32in. W x 1in. D with cracks on the west quadrant above the	3	Delam. & Spall	W	AS	52	32	-	-	n/a	-	Yes	52	32	6.5	N/A	N/A	0
76	2	Delamination 40in. L x 50in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	40	50	-	-	n/a	-	Yes	40	50	7.8	N/A	N/A	0
83	1	Delamination w/ corrosion bleedout - NEW	3	Delam.	N	TDS	36	16	-	-		-	Yes	36	16	2.3	N/A	N/A	0
	2	Spall	3	Spall	S	AS	24	18	1	-		-	Yes	24	18	1.7	N/A	N/A	0
84	1	Spall/Delamination	3	Spall/delam.	N	AS	18	16	1.8	-		-	Yes	18	16	1.1	N/A	N/A	0
87	1	Spall & delamination 20in. L x 22in. W x 5in. D with 20% section loss of rebar, 2.5in. into bearing area at top of column.	3	Delam. & Spall	S	TC	20	22	-	-	n/a	-	Yes	20	22	1.7	N/A	N/A	0
88	2	Spall & delamination 26in. L x 36in. W x 5in. D with exposed rebar, 4in. into bearing area at top of column. INCREASE	3	Delam. & Spall	E	TC	26	36	4	-	n/a	-	Yes	26	36	3.7	N/A	N/A	0
	2	Spall, Delam 3'-3in. x 4'-1in. (S); Crack 20in. x 1/32in. (N, NE, NW)	3	Spall, Delam, Crack	N,NE,NW,S	TC	39	49	-	1	0.03125	20	No	39	49	7.5	0.03125	20	2.85359E-05
89	1	Spall & delamination 30in. L x 20in. W x 6in. D with 20% section loss of rebar, 4in. into bearing area at top of column.	3	Delam. & Spall	SE	TC	30	20	4	-	n/a	-	Yes	30	20	2.3	N/A	N/A	0
90	1	Spall	3	Spall	W	TDS	18	16	1.3	-		-	Yes	18	16	1.1	N/A	N/A	0
	2	Delamination 24in. L x 24in. W in repaired area in the south quadrant above the strut.	3	Delam.	S	AS	24	24	-	-	n/a	-	Yes	24	24	2.3	N/A	N/A	0
93	2	Spall 21in. L x 16in. W x 6in. D with exposed rebar, 2in. into bearing area in the north quadrant at top of column. INCREASE	3	Spall	N	TC	22	18	4	-	n/a	-	Yes	22	18	1.5	N/A	N/A	0
94	2	Spall 40in. L x 20in. W x 5in. D with exposed rebar, unsupported bearing pad area of 30in.x3in.. INCREASE	3	Spall	E, N	TC	40	20	5	-	n/a	-	Yes	40	20	3.1	N/A	N/A	0
97	2	Delamination 36in. L x 36in. W	2	Delam	NE	TDS	36	36	-	-	n/a	-	Yes	36	36	5.1	N/A	N/A	0
102	1	Spall & Delam 3' - 4in. High x Full circumference x 1in.	3	Spall & Delam	ALL	AS	36	40	1	-	n/a	-	Yes	36	40	5.6	N/A	N/A	0
	2	Delam 3' high x full circumference	3	Delam	ALL	BC	36	36	-	-	n/a	-	Yes	36	36	5.1	N/A	N/A	0
	2	Spall 22in. L x 17in. W x 7in. D with 25% section loss exposing 3in. of bearing pad in the south	3	Spall	S	TC	22	17	-	-	n/a	-	Yes	22	17	1.5	N/A	N/A	0
107	1	Spall & delamination 20in. L x 16in. W x 5in. D extending 2in. into the bearing area in the east quadrant at top of column.	3	Delam. & Spall	E	TC	20	16	-	-	n/a	-	Yes	20	16	1.3	N/A	N/A	0
114	1	Delamination 54in. L x 32in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	54	32	-	-	n/a	-	Yes	54	32	6.8	N/A	N/A	0
115	1	Spall	2	Spall	S	TC	20	3	3	-	n/a	-	Yes	20	3	0.2	N/A	N/A	0
116	1	Delamination 65in. L x 40in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	65	40	-	-	n/a	-	Yes	65	40	10.2	N/A	N/A	0
118	2	Delamination 36in. L x 32in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	36	32	-	-	n/a	-	Yes	36	32	4.5	N/A	N/A	0
120	1	Vertical crack 24in x 1/32in; Delam 3 ft x 24in	2	Delam. & Crack	N, SW	TDS	24	36	-	1	0.03125	24	No	24	36	3.4	0.03125	24	2.85359E-05
121	1	Three vertical cracks 20in x 1/32 in	2	Crack	SW,S	TDS	0	0	-	3	0.03125	20	No	0	0	0.0	0.03125	60	2.85359E-05
124	1	Delamination 20in. L x 12in. W	2	Delam	N	AS	12	20	-	-	n/a	-	Yes	12	20	0.9	N/A	N/A	0
125	2	Vertical cracks 24in x 1/32 in	2	Crack	E	TDS	0	0	-	1	0.03125	24	No	0	0	0.0	0.03125	24	2.85359E-05
126	2	Delamination 72in. L x 48in. W with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	72	48	-	-	n/a	-	Yes	72	48	13.5	N/A	N/A	0
129	2	Delam	3	Delam	N	TDS	40	16	-	-	n/a	-	Yes	40	16	2.5	N/A	N/A	0
132	2	Spall	3	Spall	E	TDS	10	8	0.5	-	n/a	-	Yes	10	8	0.3	N/A	N/A	0

BPA

Project: US-1 / 7 mile Bridge Repairs
Project Number: 17.09.01 TWO #9
Description: Low-Level Column Deficiencies
P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]Columns - Damage Log

Designed By: TD
Date: 6/2020
Checked By:
Date:

Column Deficiencies

Legend:
AS = Column above the strut
BC = Below Cap
CC = Corner of Cap (Exp. Pier)
TC = Top of Column
TDS = Top of Drilled Shaft

depth of delamination repair, in. = 6.75 (using 4"cover,#5 stirrup, #8 main bar, 1" past main bar)

Location		Deficiency	Condition	From Inspection										Final Repair Sizes					
					Location		Spalls/Delam.			Cracks				Spalls/Delam.			Cracks		
Pier	Column		State	Type	Quad.	Desc.	Width	Length	D	#	Width	Length	associated?	Width	Height	Vol.(cf)	Width	Length	Epoxy
133	2	Spall	3	Spall	N	AS	24	12	1	-	n/a	-	Yes	24	12	1.1	N/A	N/A	0
134	1	Core hole	3	crack	N	BC	0	0	-	1	10	10	No	0	0	0.0	10	10	2.922075
	2	Delamination 40in. L x 20in. W	2	Delam	E	TDS	20	40	-	-	n/a	-	Yes	20	40	3.1	N/A	N/A	0
135	1	Spall	3	Spall	SW	TDS	36	20	1	-	n/a	-	Yes	36	20	2.8	N/A	N/A	0
136	1	Delamination 62in. L x 60in. W with cracks on the SW quadrant above the strut.	3	Delam. & Crack	SW	AS	62	60	-	-	n/a	-	Yes	62	60	14.5	N/A	N/A	0
	1	Spall	3	Spall	N	TC	3	3	1	-	n/a	-	Yes	3	3	0.0	N/A	N/A	0
138	1	Spall & delamination 30in. L x 17in. W x 1in. D in the west quadrant at top of column.	3	Delam. & Spall	W	TC	30	17	-	-	n/a	-	Yes	30	17	2.0	N/A	N/A	0
152	-	Pier wall Spall	3	Spall	N	Pier Wall	8	2	1	-	n/a	-	Yes	8	2	0.1	N/A	N/A	0
155	-	Pier wall delamination/Spall	3	Delam./ Spall	S	Pier Wall	20	3	1.5	-	n/a	-	Yes	20	3	0.2	N/A	N/A	0
159	-	Pier wall Delam./ Spall	3	Delam./Spall	NE	Pier Wall	16	6	1	-	n/a	-	Yes	16	6	0.4	N/A	N/A	0
156	-	Delamination 36in. L x 5in. W with cracks on the SW corner at 3' from the top.	3	Delam. & Crack	SW	TC	36	5	-	-	n/a	-	Yes	36	5	0.7	N/A	N/A	0
160	-	Delamination 24in. L x 12in. W with cracks on the SE corner at 6' from the bottom cap.	3	Delam. & Crack	Se	CC	24	12	-	-	n/a	-	Yes	24	12	1.1	N/A	N/A	0
171	2	Delamination/spalls with no exposed steel	3	Delam.	SE	TC	9	3	2.5	-	n/a	-	Yes	9	3	0.1	N/A	N/A	0
174	1	Delamination/spalls with no exposed steel	3	Delam.	W	TC	18	12	2	-	n/a	-	Yes	18	12	0.8	N/A	N/A	0
175	1	Spall with exposed rebar	3	Spall	W	TDS	4	3	1	-	n/a	-	Yes	4	3	0.0	N/A	N/A	0
188	1	Spall with exposed rebar, with unsuported bearing pad area 10in x 1.5 in	3	Spall	SW	TC	20	14	4	-	n/a	-	Yes	20	14	1.1	N/A	N/A	0
	1	Spall	3	Spall	NE	TC	12	6	2	-	n/a	-	Yes	12	6	0.3	N/A	N/A	0
	2	Spall 36in. L x 40in. W x 7in. D with exposed rebars, 4in. into bearing area at top of column.	3	Spall	N	TC	36	40	-	-	n/a	-	Yes	36	40	5.6	N/A	N/A	0
189	2	Spall	3	Spall	SE	TC	6	5	2	-	n/a	-	Yes	6	5	0.1	N/A	N/A	0
190	2	Spall and delamination 30in. L x 16in. W x 2in. D on the west face at the south top corner.	3	Delam. & Spall	S	TC	30	16	-	-	n/a	-	Yes	30	16	1.9	N/A	N/A	0
192	1	Delamination 36in. L x 40in. W in repaired area on the south quadrant at top of column.	3	Delam.	S	Bearing	36	40	-	-	n/a	-	Yes	36	40	5.6	N/A	N/A	0
	2	Spall	3	Spall	W	TC	6	6	1	-	n/a	-	Yes	6	6	0.1	N/A	N/A	0
193	2	Spall & delamination 30in. L x 16in. W x 6in. D with exposed rebars, 5in. into bearing area at top of column. Usupported bearing pad area of 14in.x14in..	3	Delam. & Spall	E	TC	30	16	6	-	n/a	-	Yes	30	16	1.9	N/A	N/A	0
197	2	Spall near shear block	3	Spall	W	CC	10	16	3	-		-	Yes	10	16	0.6	N/A	N/A	0
199	1	Delamination 32in. L x 7in. W x0.5 in SW quadrant at top of column.	3	Delam.	SW	TC	32	7	0.5	-	n/a	-	Yes	32	7	0.9	N/A	N/A	0
207	1	Spall & delamination 32in. L x 32in. W x 4in. D with exposed rebars, 2in. into bearing area in	3	Delam. & Spall	E	TC	32	32	4	-	n/a	-	Yes	32	32	4.0	N/A	N/A	0
217	1	Spall 12in. L x 6in. W x 0.5in. D with exposed steel in the south quadrant above the strut.	3	Spall	S	AS	12	6	-	-	n/a	-	Yes	12	6	0.3	N/A	N/A	0
219	2	Spall	3	Spall	E	TC	14	8	1	-	n/a	-	Yes	14	8	0.4	N/A	N/A	0
220	2	Delamination with corrosion bleedout	3	Delamination	S	TDS	48	18	-	-	n/a	-	Yes	48	18	3.4	N/A	N/A	0
221	1	Spall	3	Delam./Spall	S	TC	14	10	3	-	n/a	-	Yes	14	10	0.55	N/A	N/A	0
223	1	Delamination 24in. L x 16in. W in repaired area on the south quadrant at top of column.	3	Delam.	S	TC	24	16	-	-	n/a	-	Yes	24	16	1.5	N/A	N/A	0
226	2	Spall & Delam 30in. L x 10in. W x 5in. D with exposed rebars, 2.5in. into bearing area in the	3	Spall & Delam	W	TC	30	10	3	-	n/a	-	Yes	30	10	1.2	N/A	N/A	0
229	1	Spall & delamination 126in. L x 40in. W x 4in. D in repaired area along the west quadrant.	3	Delam. & Spall	W	TC	126	40	2	-	n/a	-	Yes	126	40	19.7	N/A	N/A	0
230	1	Spall	2	Spall	N	TC	4	12	3	-	n/a	-	Yes	4	12	0.2	N/A	N/A	0
234	1	Spall	3	Spall	W	TC	12	4	3	-	n/a	-	Yes	12	4	0.2	N/A	N/A	0
235	1	Spall & delamination 36in. L x 24in. W x 0.8in. D in repaired area on the west quadrant at top	3	Delam. & Spall	W	TC	36	24	0.8	-	n/a	-	Yes	36	24	3.4	N/A	N/A	0
239	2	Spall/ delamination	3	Delam./ Spall	S	AS	36	16	1	-	n/a	-	Yes	36	16	2.3	N/A	N/A	0
244	1	Delamination 24in. L x 40in. W in repaired area at top of column. Spall with no exposed steel	3	Delam & Spall	S	TC	24	40	-	-	n/a	-	Yes	24	40	3.8	N/A	N/A	0
	1	NW quadrant, spall, 26in. x 8in. x 1in.	3	Spall	NW	TC	26	8	1	-	n/a	-	Yes	26	8	0.8	N/A	N/A	0
248	1	Delamination 72in. L x 30in. W in repaired area in the west face at top of column.	3	Delam.	W	TC	72	30	-	-	n/a	-	Yes	72	30	8.4	N/A	N/A	0
251	1	Spall 55in. L x 25in. W x 5in. D with exposed rebars, 2.5in. into bearing area in the north	3	Spall	N	TC	55	25	5	-	n/a	-	Yes	55	25	5.4	N/A	N/A	0
	1	Spall with exposed rebar with unsupported bearing pad ares	3	Spall	NW	TC	18	17	-	-	n/a	-	Yes	18	17	1.2	N/A	N/A	0
252	1	Spall 25in. L x 20in. W x 3in. D with exposed rebar in the NW quadrant at top of column.	3	Spall	NW	TC	25	20	3	-	n/a	-	Yes	25	20	2.0	N/A	N/A	0
	2	Spall	3	Spall	N	TC	11	6	2	-	n/a	-	Yes	11	6	0.3	N/A	N/A	0
256	1	Delamination 24in x 24in; Two cracks 24in x 1/32in	2	Delam & Crack	NW,W	TDS	24	24	-	2	0.03125	24	No	24	24	2.3	0.03125	48	2.85359E-05
257	2	NW and east quadrants on top edge, spalls, up to 9in. x 4in. x 1in.	3	Spall	NW,E	TC	4	1	-	-	n/a	-	Yes	4	1	0.0	N/A	N/A	0
	2	Spall	3	Spall	N	AS	12	3.5	-	-	n/a	-	Yes	12	3.5	0.2	N/A	N/A	0
	2	Delamination 60in. L x 36in. W with cracks in NW quadrant above the strut.	3	Delam. & Crack	NW	AS	60	36	-	-	n/a	-	Yes	60	36	8.4	N/A	N/A	0
258	1	Spall & delamination 33in. L x 14in. W x 3in. D, exposed rebar	3	Delam. & Spall	W	TC	33	14	3	-	n/a	-	Yes	33	14	1.8	N/A	N/A	0
261	1	Delamination 35in. L x 30 Win. with cracks on the west quadrant above the strut.	3	Delam. & Crack	W	AS	35	30	-	-	n/a	-	Yes	35	30	4.1	N/A	N/A	0
264	2	Delamination 43in. L x 34 Win. W with cracks in the NW quadrant above the strut.	3	Delam. & Crack	NW	AS	43	34	-	-	n/a	-	Yes	43	34	5.7	N/A	N/A	0
Subtotal (without contingencies)																601.2	CF	79.9	2.92
Contingency (100%)																601.2	CF	79.9	2.92
Total for Cracks Repair																1202	CF	91.2	5.85

Pay Item 400-4-5 411-2

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
1-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
1-2	2020	3	Crack	30	0.03	6.75	1	0.026298675	3	0
1-3	2020	3	Spall w/ no exposed steel	24	3	2	1	0	0	0.083333333
5-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
8-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
8-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
8-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
15-7	2020	3	Crack	8	0.06	6.75	1	0.01402596	1	0
Pier 21	2020	3	Crack	18	0.06	6.75	1	0.03155841	2	0
22-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
25-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
26-5	2020	3	Spall w/ no exposed steel	3	1.5	1	3	0	0	0.0078125
Pier 39	2020	3	Crack	12	0.03	6.75	1	0.01051947	1	0
41-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
Pier 43	2020	3	Crack	36	0.03	6.75	2	0.06311682	3	0
Pier 44	2020	3	Unsound patch	49	39	6.75	1	0	0	7.46484375
Pier 47	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
47-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
Pier 51	2020	3	Crack	120	0.03	6.75	1	0.1051947	10	0
53-7	2020	3	Crack	402	0.06	6.75	1	0.70480449	34	0
55-6	2020	3	Sound patch	2	2	6.75	1	0	0	0.015625
Pier 56	2020	3	Unsound patch	36	48	6.75	1	0	0	6.75
Pier 57	2020	3	Crack	80	0.03	6.75	2	0.1402596	7	0
57-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
Pier 59	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
Pier 60	2020	3	Crack	120	0.03	6.75	1	0.1051947	10	0
60-3	2020	3	Crack	204	0.03	6.75	1	0.17883099	17	0
61-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
Pier 62	2020	3	Crack; hollow sounding	36	0.06	6.75	1	0.06311682	3	0
62-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
63	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
63-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
64	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
65-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
68-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
75-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
76-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
77-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
79-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
80-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
88-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
84-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
86-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
88	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
89-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
92-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
95-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
97-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
101	2020	3	Spall	24	3	6.75	1	0	0	0.28125
101-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
103	2020	3	Crack; hollow sounding	204	0.06	6.75	1	0	0	0.0478125

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
107-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
109-4	2020	3	Fire damage; sound patches	15	7	6.75	1	0	0	0.41015625
113-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
115	2020	3	Crack; hollow sounding	204	0.06	6.75	1	0	0	0.0478125
120-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
122-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
127-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
131	2020	3	Gouge	60	2	0.25	1	0	0	0.017361111
131-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
138-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
138-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
138-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
138-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
138-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
138-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
139-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
139-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
139-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
139-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
139-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
139-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
40	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
140-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
140-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
140-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
140-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
140-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
140-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
140-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
141-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
141-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
141-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
141-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
141-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
141	2020	3	Sound patch	12	10	6.75	1	0	0	0.46875
142	2020	3	Unsound patch w corrosion bl	15	10	6.75	1	0	0	0.5859375
142-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
142-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
143-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
144-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
144-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
145-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
146-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
148-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
148-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
148-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
148-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
148-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
148-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
148-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-8	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
149-9	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
150-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
151-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
151-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
151-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
151-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
151-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
151-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
152-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
153-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154-1	2020	3	Spall	24	3	2	1	0	0	0.083333333
154-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
154-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
155-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
155-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
155-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
155-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
155-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
155-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
155-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
156-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
157-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
158	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
158-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
158-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
158-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
158-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
158-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
158-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
159-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
160-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
161-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
162-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
162-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
163-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
164-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
165-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
165-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
166-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
167-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
168-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
168-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
169-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
170-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
171-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
172-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
172-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
173-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
174-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
175-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
175-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
176-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
177-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
178-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
179-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
179-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
180-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
181-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
182	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
182-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
182-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
182-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
182-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
182-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
183-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
184-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-1	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-2	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-3	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-4	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-5	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-6	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
185-7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
189*8	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
189-7	2020	3	2 spalls/delam	18	3	2	2	0	0	0.125
190*7	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
191*8	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
192*8	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
193	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
194	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
195	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
196	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
197	2020	3	Crack	204	0.06	6.75	1	0.35766198	17	0
197-3	2020	3	Spall/delam	18	3	2	1	0	0	0.0625
198	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
199	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
199-1	2020	3	Spall	24	3.5	2	1	0	0	0.097222222
200	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
201	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
202	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
202-7	2020	3	unsound patch	12	10	6.75	1	0	0	0.46875
203	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
204	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
205	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
206	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
207	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
208	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
209	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
210	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
211	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
212	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
213	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
214	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
215	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
216	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
217	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
218	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
219	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
220	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
220-3	2020	3	Spall	11	10	2	1	0	0	0.127314815
221	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
222	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
223	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
224	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
225	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
226	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
228	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
229	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
230	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
231	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
232	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
233	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
234	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
235	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
236	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
Pier	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
237	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
238	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
239	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
240	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
241	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
241-2	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
242	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
243	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
244	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
245	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
245	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
246	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
247	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
248	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
248-2	2020	3	Spall	11	10	2	1	0	0	0.127314815
249	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
249	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
250	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
250-1	2020	3	Sound patch	12	10	6.75	1	0	0	0.46875
251	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
252	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
253	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
254	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
254	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
255	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
256	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Girder Top Flange-2020

PS Concrete Top Flange

				Dimensions						
		Condition								
Pier	Year	State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
257	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
258	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
259	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
260	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
261	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
262	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
263	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
264	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
265	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
266	2020	3	Crack	204	0.06	6.75	1	2.86129584	17	0
							Total =	358.0	8112.8	17.7
							Contingency (100%) =	716.1	16225.7	35.5

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	**Location**	**Year**	**Condition State**	**Deficiency**	**Length**	**Width**	**Depth**	**Quantity**	**Epoxy (GA)**	**Length (LF)**	**Volume (cf)**
2-3	Bot W corner at 2/3 point	2020	3	spalls/delam with exposed corroded rebar	20	8	0.5	2	0	0	0.093
2-5	Bot W edge	2020	3	spalls/delam with exposed corroded rebar	14	8	2	1	0	0	0.130
3	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	72	24	4	6	0	0	24.000
3-2	At 3/4 point	2020	3	spalls/delam with exposed rebar	24	16	2	2	0	0	0.889
3-2	Bot W corner at 1/4 & 1/2 points	2020	3	spalls/delam with exposed corroded rebar	40	15	3	4	0	0	4.167
3-3	Bot W corner	2020	3	Spall	30	18	3	3	0	0	2.813
3-4	At 1/4 point	2020	3	spalls/delam with exposed rebar	15	6	2	2	0	0	0.208
3-5	Adjecent to 3-6	2020	3	spall	30	20		3	0	0	0.000
4-1	At 2/3 point	2020	3	Spall	15	20	1	2	0	0	0.347
4-1	At 1/2 point	2020	3	Spall with exposed rebar	24	4	1	2	0	0	0.111
4-3	At 3/4 point	2020	3	spalls/delam with exposed corroded rebar	18	6	1	2	0	0	0.125
4-4	At 3/4 point	2020	3	Spall with exposed rebar	30	10	3	3	0	0	1.563
5-1	At 1/2 point	2020	3	spalls/delam with exposed corroded rebar	24	15	3	2	0	0	1.250
5-1	Bottom W edge	2020	3	Spall	5	4	0.5	1	0	0	0.006
5-2	Bottom W edge	2020	3	spalls/delam with exposed corroded rebar	48	12	3	4	0	0	4.000
5-5	At 1/4 point	2020	3	spalls/delam with exposed corroded rebar	20	8	2	2	0	0	0.370
6-1	At 3/4 point	2020	3	spalls/delam with exposed rebar	38	18	3	3	0	0	3.563
6-6	Bottom	2020	3	crack	144	0.013		12	0	12	0.000

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
7-6	At 3/4 point	2020	3	spalls/delam with exposed rebar	36	12	2	3	0	0	1.500
7-7	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	26	12	2	2	0	0	0.722
10	Over col 10-2	2020	3	spalls/delam with exposed corroded rebar	26	10	2	2	0	0	0.602
10-2	Bot	2020	3	Spall with exposed corroded rebar	4	3	0.5	1	0	0	0.003
13-7	W	2020	3	Spall with exposed rebar	14	5	2	2	0	0	0.162
14	E shear block	2020	3	Spall with exposed rebar	12	10	3	1	0	0	0.208
14	Bot	2020	3	spalls/delam with exposed corroded rebar	12	8		1	0	0	0.000
15	Bolt edge at SW bearing	2020	3	Spall/delam	33	14	2	3	0	0	1.604
16-2	Bot W corner	2020	3	Spall with exposed corroded rebar	14	12	2	1	0	0	0.194
16-6	Adjecent to 16-5	2020	3	Spall with exposed rebar	14	8	3	2	0	0	0.389
18-1	At 1/2 point	2020	3	spalls/delam with exposed rebar	12	7	2	1	0	0	0.097
18-2	At 1/3 point	2020	3	spalls/delam with exposed rebar	16	13	2	2	0	0	0.481
18-3	At 1/2 point	2020	3	spalls/delam with exposed rebar	24	6	2	2	0	0	0.333
18-5	At 1/2 point	2020	3	spalls/delam with exposed rebar	30	8	2	3	0	0	0.833
19-1	Bot W corner	2020	3	Spall with exposed corroded rebar	34	19	3	3	0	0	3.365
19-3	West	2020	3	Spall with exposed corroded rebar	18	15	2	2	0	0	0.625

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
19-5	West	2020	3	Spall with exposed corroded rebar	17	15	1	2	0	0	0.295
20	Bot W corner	2020	3	Spall with exposed corroded rebar	60	14	3	5	0	0	7.292
20-3	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	12	5	2	1	0	0	0.069
22-5	At seg 22-4	2020	3	Spall with exposed rebar	12	8	1	1	0	0	0.056
22-6	West	2020	3	spalls/delam with exposed corroded rebar	14	13	3	2	0	0	0.632
23	Bot E corner	2020	3	spall	8	3	1	1	0	0	0.014
23	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	28	12	4	2	0	0	1.556
23-2	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	67	11	3	7	0	0	8.957
24-7	1 ft from bot	2020	3	spalls/delam with exposed corroded rebar	18	8	2	2	0	0	0.333
25-1	Bottom at 1/4 point	2020	3	unsound	12	8		1	0	0	0.000
25-1	Seg 25-2	2020	3	Spall with exposed rebar	13	6	1	1	0	0	0.045
25-5	Bottom at 1/4 point	2020	3	Spall with exposed rebar	8	8	1	1	0	0	0.037
25-7	Bot W corner	2020	3	Spall with exposed corroded rebar	7	5	1	1	0	0	0.020
26-1	Bot edge	2020	3	spalls/delam with exposed corroded rebar	18	15	3	2	0	0	0.938
26-5	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	16	3	3	2	0	0	0.167
27-3	1/3 point	2020	3	Spall with exposed rebar	11	11	1	1	0	0	0.070
29	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	20	15	1	2	0	0	0.347

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
29-2	Bot E corner	2020	3	spalls/delam with exposed corroded rebar	12	12	2	1	0	0	0.167
32-7	1/2 point	2020	3	Spall with exposed rebar	5	3	1	1	0	0	0.009
35	bearing	2020	3	Spall with exposed rebar	16	12	2	2	0	0	0.444
36	Bot W corner	2020	3	spalls/delam	26	8	0.75	2	0	0	0.181
36	Bot W corner	2020	3	spalls/delam	30	8	0.5	3	0	0	0.208
41	1/4 point	2020	3	spalls/delam with exposed rebar	20	12	1	2	0	0	0.278
41-1	1/4 point	2020	3	Spall with exposed rebar	5	3	0.5	1	0	0	0.004
41-7	Seg 41-6	2020	3	Spall with exposed corroded rebar	10	7	1	1	0	0	0.041
42	Shear block	2020	3	spalls/delam with exposed rebar	24	10	3	2	0	0	0.833
42	bearing	2020	3	spalls/delam with exposed rebar	26	10	3	2	0	0	0.903
43	Adjacent to NE bearing	2020	3	Spall with exposed corroded rebar	24	8	2	2	0	0	0.444
44	Bot W corner	2020	3	Spall with exposed corroded rebar	25	10	3	2	0	0	0.868
46-1	1/2 point	2020	3	Spall with exposed rebar	6	4	0.5	1	0	0	0.007
46-3	Bot W corner	2020	3	Spall with exposed rebar	10	7	1	1	0	0	0.041
48-1	W	2020	3	Spall with exposed rebar	10	6	2	1	0	0	0.069
49	bearing	2020	3	spalls/delam with exposed rebar	32	15	2	3	0	0	1.667
49-2	bot edge	2020	3	spalls/delam with exposed rebar	10	8	1	1	0	0	0.046
49-7	Seg 49-6	2020	3	Spall with exposed rebar	18	5	1	2	0	0	0.104
50	NE Bearing	2020	3	Spall with exposed corroded rebar	30	15	12	3	0	0	9.375

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
50-3	Seg 50-4	2020	3	Spall	4	2	2	1	0	0	0.009
50-4	Seg 50-3	2020	3	Spall	5	3	1	1	0	0	0.009
51	Bot W corner	2020	3	spalls/delam with exposed rebar	21	10		2	0	0	0.000
51-5	near east scupper	2020	3	Spall	7	4	1	1	0	0	0.016
51-6	bot at 51-5	2020	3	Spall with exposed corroded rebar	7	6	0.5	1	0	0	0.012
52-2	bot edge	2020	3	Spall with exposed corroded rebar	10	9	0.75	1	0	0	0.039
52-2	near bot at 1/3	2020	3	Spall with exposed corroded rebar	10	6	0.5	1	0	0	0.017
52-4	1/2 point	2020	3	Spall with exposed rebar	9	7	1	1	0	0	0.036
53-3	1/2 point	2020	3	Spall with exposed rebar	7	5	1	1	0	0	0.020
53-3	Bot near seg 53-4	2020	3	Spall with exposed corroded rebar	6	6		1	0	0	0.000
53-7	1/2 point	2020	3	Spall with exposed rebar	8	6	1	1	0	0	0.028
54-7	near centerline	2020	3	Crack	129	0.013	6.75	11	0.0490032	11	0.000
55-1	S	2020	3	Spall	27	10	0.25	2	0	0	0.078
55-5	centerline	2020	3	crack	204	0.013	6.75	17	0.0774934	17	0.000
55-6	3ft from bot	2020	3	Void, heavy corrosion	8	2	2.25	1	0	0	0.021
55-6	throughout	2020	3	cracks	204	0.013	6.75	17	0	0	0.176
55-7	throughout	2020	3	cracks	204	0.02	6.75	17	0	0	0.271
55-7	seg 55-6	2020	3	spall	5	4	2	1	0	0	0.023
55-7	centerline	2020	3	crack	204	0.02	6.75	17	0.1192207	17	0.000
56-5	N	2020	3	Spall	7	3	0.25	1	0	0	0.003
57-7	centerline	2020	3	crack	204	0.013	6.75	17	0.0774934	17	0.000
59	Shear block	2020	3	spalls/delam with exposed rebar	24	8	3	2	0	0	0.667
59-7	centerline	2020	3	crack	204	0.013	6.75	17	0.0774934	17	0.000

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
60-7	centerline	2020	3	crack	204	0.013	6.75	17	0.0774934	17	0.000
66	W	2020	3	spalls/delam with exposed rebar	24	10	2	2	0	0	0.556
69-6	access hatch	2020	3	crack	144	0.016	6.75	12	0.0673246	12	0.000
71-7	centerline	2020	3	crack	204	0.013	6.75	17	0.0774934	17	0.000
72	SW and SE	2020	3	Spall/delam	18	12	0.75	2	0	0	0.188
84	Shear block	2020	3	Spall with exposed rebar	6	5	2		0	0	0.000
85	NW bearing	2020	3	Spall/delam with exposed corroded rebar	30	16	1	3	0	0	0.833
85-2	E/W	2020	3	crack	48	0.013	6.75	4	0.0182337	4	0.000
92	Bot W corner at NW bearing	2020	3	Spall/delam	33	13	1	3	0	0	0.745
92	NE Bearing	2020	3	Spall/delam	36	12	1	3	0	0	0.750
98	W	2020	3	Spall/delam with exposed corroded rebar	19	9	2	2	0	0	0.396
101	Bot W edge	2020	3	Spall/delam	17	8	1.75	17	0	0	2.341
105	W	2020	3	Spall/delam with exposed corroded rebar	32	12	2	3	0	0	1.333
106	NW bearing	2020	3	Spall/delam	20	15	1	2	0	0	0.347
106	SW bearing	2020	3	Spall/delam	30	16	0.75	3	0	0	0.625
126	bearing	2020	3	Spall/delam	16	9	2	1	0	0	0.167
127	Bot E corner	2020	3	Spall/delam	20	20	2	2	0	0	0.926
127	Bot E corner	2020	3	Spall/delam	19	15	2	2	0	0	0.660
132	E and W shear blocks	2020	3	spalls with exposed rebar	12	12	2	1	0	0	0.167
133	Bot W corner	2020	3	Spall/delam with exposed corroded rebar	16	10	3	2	0	0	0.556
138	E shear block	2020	3	Spall/delam	29	16	0.5	2	0	0	0.269

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
140-7	Bot	2020	3	spalls with exposed corroded rebar	18	7	1	2	0	0	0.146
141	NW bearing	2020	3	spalls/delam with exposed corroded rebar	36	13	4	3	0	0	3.250
141	SE bearing	2020	3	spalls/delam with exposed corroded rebar	36	16	1	1	0	0	0.333
141	N	2020	3	spalls/delam with exposed corroded rebar	24	18	4	2	0	0	2.000
141-7	Bot	2020	3	spalls/delam with exposed corroded rebar	26	8	2	2	0	0	0.481
151	E bearing	2020	3	Spall	15	4	0.5	1	0	0	0.017
154-3	SW corner	2020	3	spall	27	4	1	2	0	0	0.125
155	SW bearing	2020	3	Spall/delam	18	16	1	2	0	0	0.333
155	NW bearing	2020	3	Spall/delam	30	20	2	2	0	0	1.389
155	NE bearing	2020	3	spalls/delam with exposed corroded rebar	28	14	2	2	0	0	0.907
155	near rebar pipe	2020	3	spall	14	10	4	2	0	0	0.648
155	E/W	2020	3	crack	30	0.009		6	0	3	0.000
162	NE Bearing	2020	3	spalls/delam with exposed corroded rebar	20	16	2	1	0	0	0.370
162	near rebar pipe	2020	3	Spall	17	14	3	1	0	0	0.413
162	SW bearing	2020	3	spalls/delam with exposed corroded rebar	41	14	1.5	1	0	0	0.498
166-7	W	2020	3	Spall with exposed rebar	24	8	3	2	0	0	0.667
171	W bearing	2020	3	spalls/delam with exposed corroded rebar	18	12	2	1	0	0	0.250
176	SW bearing	2020	3	Spall/delam	19	4	1.75	1	0	0	0.077
176	NW bearing	2020	3	Spall/delam	22	12	1	1	0	0	0.153
176	SE bearing	2020	3	Spall/delam	14	6	1	1	0	0	0.049

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
181-6	centerline	2020	3	crack	64	0.013		6	0	5	0.000
183	NW shear block	2020	3	Spall with exposed rebar	8	4	0.5	1	0	0	0.009
183	Bot W corner	2020	3	Spall/delam	25	10	2	1	0	0	0.289
190	Bot edge	2020	3	Spall/delam	20	9	2		0	0	0.000
190	Bot W corner	2020	3	spalls/delam with exposed corroded rebar	24	9	1	2	0	0	0.250
192	E shear block	2020	3	Spall with exposed rebar	10	6	2	1	0	0	0.069
197	SE bearing	2020	3	Spall/delam	30	11	2	2	0	0	0.764
197	NE Bearing	2020	3	Spall/delam	20	7	1	1	0	0	0.081
197	N	2020	3	spall	23	12	2	2	0	0	0.639
204-1	All faces	2020	3	crack	48	0.013		3	0	4	0.000
204	NW bearing	2020	3	spall/delam	22	10	1.5	1	0	0	0.191
211-1,-2	All faces	2020	3	crack	48	0.013	6.75	2	0.0182337	4	0.000
211	at expansion joint	2020	3	Spall/delam	25	12	2	1	0	0	0.347
211	NE Bearing	2020	3	Spall with exposed corroded rebar	10	6	0.75	1	0	0	0.026
211	NW bearing	2020	3	Spall/delam	17	8	2	1	0	0	0.157
218	SW bearing	2020	3	spalls/delam with exposed corroded rebar	48	20	0.5	4	0	0	1.111
218	NW bearing	2020	3	delam	23	8	6.75	2	0	0	1.438
218	Bot E corner	2020	3	delam	10	10	6.75	1	0	0	0.391
224	W bearing	2020	3	spalls/delam with exposed corroded rebar	9	9	1	1	0	0	0.047
225	N or SW bearing	2020	3	Spall	20	20	2	1	0	0	0.463
225-1,-2	All faces	2020	3	crack	48	0.013	6.75	3	0.0182337	4	0.000
227	W bearing	2020	3	spall/delam	20	10	2	2	0	0	0.463
232	NW bearing	2020	3	Sound patch	24	12	6.75	2	0	0	2.250
237	W bearing	2020	3	spalls/delam with exposed corroded rebar	39	8	1.75	3	0	0	0.948

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Ex - 2020

PS Closed Box Girder EXT

					Dimensions						
Pier	**Location**	**Year**	**Condition State**	**Deficiency**	**Length**	**Width**	**Depth**	**Quantity**	**Epoxy (GA)**	**Length (LF)**	**Volume (cf)**
239	NE Bearing	2020	3	Spall/delam	24	12	0.5	1	0	0	0.083
239	NW bearing	2020	3	spalls/delam with exposed corroded rebar	28	13	3	2	0	0	1.264
241	W shear block	2020	3	Spall with exposed rebar	10	8	3	1	0	0	0.139
253	NW bearing	2020	3	Spall/delam	34	12	2	3	0	0	1.417
260	SW bearing	2020	3	Spall/delam	10	6		1	0	0	0.000
265-1	1 ft from bot	2020	3	Spall	10	7	1	1	0	0.000	0.041
								Total =	0.678	161	128.537
164 to be repaired								Contingency (100%) =	1.355	321	257.07

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
2	over water main at N edge	2020	3	Unsound patch	18	8	6.75	2	0	0	1.125
2	W web	2020	3	Unsound patch	30	12	6.75	3	0	0	4.21875
2-4	W web	2020	3	Spall	16	10	6.75	1	0	0	0.625
2-6	W web	2020	3	Spall	8	3	6.75	1	0	0	0.09375
2-7	W web	2020	3	Spall	14	6	6.75	1	0	0	0.328125
2-7	below water main	2020	3	Spall	14	11	6.75	1	0	0	0.6015625
3-5	W web	2020	3	Delam	16	4	6.75	1	0	0	0.25
3-5	Shear key joint	2020	3	Spall	9	4	6.75	1	0	0	0.140625
4-1	W web	2020	3	Spall	12	2	6.75	1	0	0	0.09375
5-3	Bwtn Dev	2020	3	crack	8	0.02	6.75	1	0.00467532	1	0
6-3	Bwtn Dev	2020	3	crack	3	0.015	6.75	3	0.003944801	0	0
7-7	Pier seg 8	2020	3	crack	8	0.013	6.75	8	0.024311664	1	0
8	E	2020	3	crack	18	0.007	6.75	18	0.066272661	2	0
8-4	W web	2020	3	spall	8	7	0.5	1	0	0	0.016203704
8-4	Shear key joint	2020	3	Spall	5	1.5	6.5	1	0	0	0.028211806
9-3	Shear key joint	2020	3	Spall	7	2	7	1	0	0	0.056712963
11-6	Seg 11-7	2020	3	Spall	3	0.75	1	1	0	0	0.001302083
12-2	Dev	2020	3	Spall	24	6	0.75	2	0	0	0.125
13	Dia, N	2020	3	Spall	10	6	0.5	1	0	0	0.017361111
13	Dia, S	2020	3	Spall	40	6	5	1	0	0	0.694444444
13-1	W web	2020	3	crack	21.7	0.02	6.75	22	0.278999721	2	0
13-6	W web	2020	3	crack	17.1	0.016	6.75	17	0.135911552	1	0
13-4	Dev	2020	3	Spall	5	5	1	1	0	0	0.014467593
14-1	Dev	2020	3	crack	39.8	0.012	6.75	40	0.558233208	3	0
14-2	Dev	2020	3	crack	39.8	0.012	6.75	40	0.558233208	3	0
14-7	web	2020	3	crack	6.1	0.03	6.75	6	0.032084384	1	0
15-1	near tendon	2020	3	spall	24	18	0.25	2	0	0	0.125
16-1	W web	2020	3	crack	22.1	0.02	6.75	22	0.284142573	2	0
16-2	W web	2020	3	crack	22.1	0.02	6.75	22	0.284142573	2	0
16-7	above top tendon	2020	3	spall	23	7	2.5	2	0	0	0.465856481
17-6	dev	2020	3	crack	30.2	0.02	6.75	30	0.52947999	3	0
18	dia	2020	3	spall	10.5	10	1	1	0	0	0.060763889
18-1	W web	2020	3	crack	17.3	0.013	6.75	17	0.111719693	1	0
18-2	dev	2020	3	crack	8	0.013	6.75	8	0.024311664	1	0
18-3	W web	2020	3	Spall	9	2	3.5	1	0	0	0.036458333
18-6	W web	2020	3	Spall	12	2	0.5	1	0	0	0.006944444
18-7	dev	2020	3	crack	39.5	0.02	6.75	40	0.9233757	3	0
19-1	W web	2020	3	crack	1	0.013	6.75	1	0.00037987	0	0
19-3	W web	2020	3	crack	34.3	0.012	6.75	34	0.408926864	3	0
19-3	top flange	2020	3	spall	34	5	0.375	3	0	0	0.110677083
19-6	W web	2020	3	crack	26.7	0.013	6.75	26	0.26370558	2	0
20-1	dev	2020	3	crack	31.3	0.016	6.75	31	0.4536463	3	0
20-2	W web	2020	3	crack	1.5	0.016	6.75	1	0.000701298	0	0
20-6	w web	2020	3	crack	31.1	0.016	6.75	31	0.450747601	3	0
21	dia	2020	3	Spall	10	3	1.5	1	0	0	0.026041667
21-1	Shear key joint	2020	3	Spall	10	5	3	1	0	0	0.086805556
22	dia	2020	3	Spall	11	2.5	1.5	1	0	0	0.023871528
22	dia	2020	3	hollow	11	7	6.75	1	0	0	0.30078125
23-3	top flange	2020	3	Spall	42	6	0.5	3	0	0	0.21875
23-6	W web	2020	3	crack	21.1	0.013	6.75	21	0.168320286	2	0
24-6	W web	2020	3	crack	24.9	0.01	6.75	25	0.181899169	2	0
25	dia	2020	3	Spall	14	4	2	1	0	0	0.064814815
25-1	bot flange	2020	3	crack	30.2	0.013	6.75	25	0.286801661	3	0
25-5	joint	2020	3	Spall	8	2	5.5	1	0	0	0.050925926
25-6	W web	2020	3	Spall/delam	25	5.5	0.5	2	0	0	0.079571759
26	W corner	2020	3	spall	20	4	0.5	2	0	0	0.046296296
27	W web	2020	3	spall	9	2.5	0.5	1	0	0	0.006510417
27-4	w web	2020	3	spall	4	1	4	1	0	0	0.009259259
27-5	w web	2020	3	spall	1	3	4	1	0	0	0.006944444
28-5	top flange	2020	3	spall	10	4.5	0.5	2	0	0	0.026041667
29	dia	2020	3	Delam	11	8	6.75	1	0	0	0.34375
29-4	bot flange	2020	3	spall	15	12	2	1	0	0	0.208333333
31-1	W web	2020	3	crack	17.3	0.009	6.75	17	0.077344403	1	0
31-6	W web	2020	3	crack	28.5	0.009	6.75	29	0.217358549	2	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
32-1	W web	2020	3	crack	19.2	0.013	6.75	19	0.138576485	2	0
33-1	W web	2020	3	crack	18.6	0.016	6.75	19	0.165225809	2	0
34	dia	2020	3	spall	32	4.75	0.75	1	0	0	0.065972222
34-6	joint	2020	3	spall	6	2	4	1	0	0	0.027777778
35	dia	2020	3	spall	8	0	0.5	1	0	0	0
36	dia	2020	3	Delam	11	6	6.75	1	0	0	0.2578125
36	dia	2020	3	Delam	15	12	6.75	1	0	0	0.703125
36	W web	2020	3	spall	5	6	1	1	0	0	0.017361111
36-1	W web	2020	3	spall	12	10	2	1	0	0	0.138888889
36-5	Shear key joint	2020	3	spall	7	3.5	4	1	0	0	0.056712963
38-6	W web	2020	3	crack	33.5	0.02	6.75	34	0.665648685	3	0
40-1	W web	2020	3	crack	5.2	0.013	6.75	5	0.009876614	0	0
40-2	W web	2020	3	crack	26.2	0.02	6.75	26	0.398103498	2	0
41	top flange	2020	3	spall	32	8	3.5	1	0	0	0.518518519
41-1	Shear key joint	2020	3	spall	9	5	2	1	0	0	0.052083333
41-1	W web	2020	3	crack	4.5	0.016	6.75	2	0.004207788	0	0
41-6	W web	2020	3	crack	28.6	0.013	6.75	29	0.315063971	2	0
42-1	pier 43	2020	3	crack	4.5	0.013	6.75	5	0.008547069	0	0
42-7	pier 43	2020	3	crack	2	0.013	6.75	2	0.001519479	0	0
43	W web	2020	3	spall	9	4	1	2	0	0	0.041666667
43-6	w bot flange	2020	3	crack	37.3	0.02	6.75	37	0.806551142	3	0
44-3	Shear key joint	2020	3	spall	11	4	1.5	1	0	0	0.038194444
44-4	Shear key joint	2020	3	spall	24	5	2	1	0	0	0.138888889
45-1	W web	2020	3	spall	5	1.5	2	1	0	0	0.008680556
45-1	W web	2020	3	crack	28.6	0.013	6.75	29	0.315063971	2	0
45-5	W web	2020	3	crack	56.2	0.013	6.75	56	1.195526077	5	0
45-7	W web	2020	3	crack	4	0.013	6.75	4	0.006077916	0	0
47-4	Shear key joint	2020	3	spall	5	4	2	1	0	0	0.023148148
47-5	Shear key joint	2020	3	spall	8	6	2	5	0	0	0.277777778
48-1	w web	2020	3	crack	29.7	0.02	6.75	30	0.520713765	2	0
48-3	Shear key joint	2020	3	spall	5	3	2	1	0	0	0.017361111
48-6	W web	2020	3	crack	22.9	0.013	6.75	23	0.200077397	2	0
48-7	pier 48	2020	3	crack	1.5	0.013	6.75	3	0.001709414	0	0
49-1	W web	2020	3	crack	40	0.03	6.75	40	1.402596	3	0
49-3	Shear key joint	2020	3	spall	4	1	3	1	0	0	0.006944444
49-4	Shear key joint	2020	3	spall	10	1.5	2	1	0	0	0.017361111
49-5	joint	2020	3	spall	22	5	2.5	1	0	0	0.159143519
49-7	W web	2020	3	crack	18.3	0.02	6.75	18	0.192506301	2	0
49-7	W web	2020	3	crack	8.3	0.02	6.75	8	0.038805156	1	0
50	top flange	2020	3	crack	1.5	0.025	6.75	1	0.001095778	0	0
50	dia	2020	3	crack	2.25	0.03	6.75	36	0.071006423	0	0
50	w web	2020	3	crack	12.25	0.016	6.75	13	0.074454471	1	0
50-1	W web	2020	3	crack	3	0.03	6.75	18	0.047337615	0	0
50-1	w web	2020	3	spall	20	6	2	3	0	0	0.416666667
50-1	w bot flange	2020	3	crack	12.3	0.013	6.75	12	0.056068775	1	0
50-2	w bot flange	2020	3	crack	18	0.016	6.75	18	0.151480368	2	0
50-3	w bot flange	2020	3	crack	18	0.02	6.75	18	0.18935046	2	0
50-3	dev	2020	3	spall	9	9	1.5	1	0	0	0.0703125
50-3	Shear key joint	2020	3	shear key spall	4	10	1	1	0	0	0.023148148
50-4	W web	2020	3	crack	18	0.016	6.75	18	0.151480368	2	0
50-5	W web	2020	3	crack	18	0.016	6.75	18	0.151480368	2	0
50-6	W web	2020	3	spall	6	4	0.125	2	0	0	0.003472222
50-6	W web	2020	3	crack	18	0.016	6.75	21	0.176727096	2	0
50-7	W web	2020	3	crack	18	0.016	6.75	18	0.151480368	2	0
51	dia	2020	3	crack	4.6	0.02	6.75	12	0.032259708	0	0
51-1	w bot flange	2020	3	crack	58	0.02	6.75	58	1.96597206	5	0
51-1	Shear key joint	2020	3	spall	9	6	1	1	0	0	0.03125
51-1	E web	2020	3	crack	120	0.02	6.75	10	0.701298	10	0
51-1	pier 51	2020	3	crack	144	0.04	6.75	12	2.01973824	12	0
51-2	E web	2020	3	spall	9	6	1	1	0	0	0.03125
51-2	E web	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
51-2	segment length	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
51-3	E web	2020	3	spall	9	2.5	2	1	0	0	0.026041667
51-3	water main	2020	3	spall	10	4	0.5	1	0	0	0.011574074
51-3	E web	2020	3	spall	9	2.5	2	1	0	0	0.026041667

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
51-3	top flange	2020	3	spall	10	4	0.5	1	0	0	0.011574074
51-3	dev	2020	3	crack	216	0.02	6.75	25	3.155841	18	0
51-4	E web	2020	3	spall	4	3	2.5	1	0	0	0.017361111
51-5	E web	2020	3	spall	4	3	2	1	0	0	0.013888889
51-5	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
51-6	top flange	2020	3	spall	10	4	1	1	0	0	0.023148148
51-6	bot flange	2020	3	crack	120	0.016	6.75	10	0.5610384	10	0
51-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
52-1	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
52-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
52-5	bot flange	2020	3	crack	120	0.013	6.75	10	0.4558437	10	0
52-6	bot flange	2020	3	crack	128	0.018	6.75	11	0.740570688	11	0
52-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
53-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
53-5	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
53-5	E web	2020	3	crack	75	0.016	6.75	18	0.6311682	6	0
53-6	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
53-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
54-1	E web	2020	3	spall	5	4	1.5	1	0	0	0.017361111
54-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
54-2	E web	2020	3	spall	5	4	2	1	0	0	0.023148148
54-3	bot flange	2020	3	crack	156	0.04	6.75	13	2.37038724	13	0
54-3	top flange	2020	3	spall	14	6	0.25	2	0	0	0.024305556
54-3	E web	2020	3	spall	4	4	2	1	0	0	0.018518519
54-4	dev	2020	3	spall	9	7	1	1	0	0	0.036458333
54-4	E web	2020	3	spall	4	4	2	1	0	0	0.018518519
54-6	top flange	2020	3	spall	15	8	2	2	0	0	0.277777778
54-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
55	E web	2020	3	spall	6	2	2	1	0	0	0.013888889
55-3	E web	2020	3	spall	6	6	2	1	0	0	0.041666667
56-1	bot flange	2020	3	crack	120	0.016	6.75	18	1.00986912	10	0
56-2	bot flange	2020	3	crack	96	0.02	6.75	8	0.44883072	8	0
56-4	dev	2020	3	spall	48	4	1.125	4	0	0	0.5
56-6	dev	2020	3	spall	10	9	2	1	0	0	0.104166667
57-2	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
57-5	dev	2020	3	spall	10	6	1	2	0	0	0.069444444
57-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
57-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
58-1	E web	2020	3	crack	64	0.013	6.75	6	0.145869984	5	0
58-2	E web	2020	3	spall	7	3	2	1	0	0	0.024305556
58-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
58-5	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
58-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
59-5	e web	2020	3	spall	6	2	1.5	1	0	0	0.010416667
59-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
59-7	E web	2020	3	crack	120	0.013	6.75	10	0.4558437	10	0
60-2	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
60-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
60-7	bot flange	2020	3	crack	60	0.016	6.75	5	0.1402596	5	0
61-7	bot flange	2020	3	crack	84	0.013	6.75	7	0.223363413	7	0
62-4	Shear key joint	2020	3	spall	7	3.5	1.5	1	0	0	0.021267361
63-1	E web	2020	3	crack	214	0.013	6.75	18	1.463258277	18	0
63-2	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
63-3	bot flange	2020	3	spall	9	3	1.5	1	0	0	0.0234375
64-1	dev	2020	3	crack	2	0.02	6.75	3	0.00350649	0	0
64-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
65-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
66-1	bot flange	2020	3	crack	96	0.016	6.75	8	0.359064576	8	0
66-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
68-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
68-3	Shear key joint	2020	3	spall	4	4	1.5	1	0	0	0.013888889
68-6	Shear key joint	2020	3	spall	10	8	3	1	0	0	0.138888889
68-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
70-1	top flange	2020	3	spall	3	12	2	1	0	0	0.041666667
70-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0

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Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
70-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
70-7	E web	2020	3	crack	24	0.02	6.75	2	0.02805192	2	0
70-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
71-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
71-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
71-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
71-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
72-3	bot flange	2020	3	crack	108	0.016	6.75	9	0.454441104	9	0
72-6	bot flange	2020	3	crack	120	0.025	6.75	10	0.8766225	10	0
72-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
73-2	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
73-6	bot flange	2020	3	crack	120	0.02	6.75	10	0.701298	10	0
73-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
73-7	E web	2020	3	crack	80	0.013	6.75	7	0.21272706	7	0
74-1	E web	2020	3	crack	62	0.013	6.75	6	0.141311547	5	0
74-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
74-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
74-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
74-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
75-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
75-2	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
75-6	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
75-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
76-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
76-2	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
77-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
77-2	bot flange	2020	3	spall	8	4	2	1	0	0	0.037037037
77-8	e web	2020	3	crack	214	0.016	6.75	18	1.800933264	18	0
78-2	bot flange	2020	3	crack	214	0.016	6.75	18	1.800933264	18	0
78-6	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
78-7	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
78-7	E web	2020	3	crack	48	0.013	6.75	4	0.072934992	4	0
78-3	bot flange	2020	3	spall	3	16	5	1	0	0	0.138888889
78-6	bot flange	2020	3	spall	12	10	3	1	0	0	0.208333333
78-6	Shear key joint	2020	3	spall	15	5	2	2	0	0	0.173611111
79-1	bot flange	2020	3	crack	216	0.02	6.75	16	2.01973824	18	0
79-2	bot flange	2020	3	crack	120	0.02	6.75	10	0.701298	10	0
79-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
79-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
80-5	Shear key joint	2020	3	spall	5	12	4	1	0	0	0.138888889
80-6	bot flange	2020	3	spall	3	15	1.5	1	0	0	0.0390625
80-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
80-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
81-1	E web	2020	3	crack	214	0.013	6.75	18	1.463258277	18	0
81-5	bot flange	2020	3	spall	14	2	4	1	0	0	0.064814815
81-6	bot flange	2020	3	spall	9	2	3	1	0	0	0.03125
81-6	bot flange	2020	3	crack	144	0.012	6.75	12	0.605921472	12	0
81-7	bot flange	2020	3	crack	144	0.012	6.75	12	0.605921472	12	0
82-2	bot flange	2020	3	spall	10	3.5	2	1	0	0	0.040509259
82-2	top flange	2020	3	spall	10	1	5	1	0	0	0.028935185
82-5	top flange	2020	3	spall	10	2	3.5	1	0	0	0.040509259
82-6	E web	2020	3	spall	16	1.5	11	2	0	0	0.305555556
83-1	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
83-2	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
83-5	bot flange	2020	3	crack	96	0.016	6.75	8	0.359064576	8	0
83-5	bot flange	2020	3	spall	2	10	6	1	0	0	0.069444444
83-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
83-6	bot flange	2020	3	spall	7	1	4	1	0	0	0.016203704
83-7	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
84-1	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
84-2	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
84-3	Shear key joint	2020	3	spall	5.5	10	3	3	0	0	0.286458333
84-4	Shear key joint	2020	3	spall	2	12	3.5	3.5	0	0	0.170138889
84-6	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
84-7	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
84-7	e web	2020	3	crack	48	0.013	6.75	4	0.072934992	4	0
85-1	e web	2020	3	crack	60	0.013	6.75	5	0.113960925	5	0
85-1	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
85-2	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
85-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
85-6	bot flange	2020	3	spall	5	8	2	4	0	0	0.185185185
85-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
86-1	Shear key joint	2020	3	spall	2.5	6	2.5	4	0	0	0.086805556
86-1	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
86-2	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
86-3	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
86-5	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
86-6	bot flange	2020	3	crack	96	0.016	6.75	8	0.359064576	8	0
86-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
87-1	top flange	2020	3	spall	1.5	17	3	1	0	0	0.044270833
87-1	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
87-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
87-3	top flange	2020	3	spall	1.5	16	3.5	1	0	0	0.048611111
87-3	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
87-4	top flange	2020	3	spall	1.5	18	3	1	0	0	0.046875
87-4	E web	2020	3	spall	1.5	6	4	1	0	0	0.020833333
87-4	bot flange	2020	3	crack	48	0.013	6.75	4	0.072934992	4	0
87-4	dev	2020	3	crack	44	0.03	6.75	4	0.15428556	4	0
87-4	Shear key joint	2020	3	spall	1	7	5	1	0	0	0.02025463
87-5	bot flange	2020	3	crack	48	0.013	6.75	4	0.072934992	4	0
87-5	bot flange	2020	3	crack	42	0.03	6.75	3.5	0.128863508	4	0
87-5	top flange	2020	3	spall	1.5	20	3	1	0	0	0.052083333
87-5	bot flange	2020	3	spall	2	9	6	1	0	0	0.0625
88-1	top flange	2020	3	spall	1.5	6	3	1	0	0	0.015625
88-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
88-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
88-2	E web	2020	3	spall	2	10	4.5	2	0	0	0.104166667
88-3	top flange	2020	3	spall	2.5	11	3.5	1	0	0	0.055700231
88-4	top flange	2020	3	spall	2	10	3.5	1	0	0	0.040509259
88-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
88-6	bot flange	2020	3	spall	10	12	4.8	1	0	0	0.333333333
88-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
89-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
89-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
89-2	bot flange	2020	3	spall	2	10	2	1	0	0	0.023148148
89-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
89-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
90-1	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
90-2	bot flange	2020	3	crack	84	0.016	6.75	7	0.274908816	7	0
90-5	top flange	2020	3	spall	2	9	4	1	0	0	0.041666667
90-6	bot flange	2020	3	spall	7	18	4	1	0	0	0.291666667
90-6	top flange	2020	3	spall	2	15	6.5	1	0	0	0.112847222
90-6	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
90-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
91-1	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
91-2	top flange	2020	3	spall	2	22	3	1	0	0	0.076388889
91-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
91-4	bot flange	2020	3	crack	46	0.013	6.75	4	0.069896034	4	0
91-4	top flange	2020	3	spall	1	12	2	1	0	0	0.013888889
91-5	bot flange	2020	3	crack	34	0.013	6.75	5	0.064577858	3	0
91-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
91-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
91-7	e web	2020	3	crack	192	0.016	6.75	16	1.436258304	16	0
92-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
92-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
92-3	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
92-6	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
92-6	bot flange	2020	3	spall	7	15	4.75	1	0	0	0.288628472
92-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
93-1	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0

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Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
93-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
93-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
93-7	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
94-1	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
94-2	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
94-4	bot flange	2020	3	spall	2	10	3	1	0	0	0.034722222
94-5	e web	2020	3	spall	2	12	5.5	1	0	0	0.076388889
94-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
94-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
95-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
95-1	e web	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
95-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
95-6	top flange	2020	3	spall	1.5	16	3	1	0	0	0.041666667
95-6	bot flange	2020	3	spall	2.5	7	5	1	0	0	0.050636574
95-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
95-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
95-7	e web	2020	3	crack	60	0.013	6.75	5	0.113960925	5	0
95-7	top flange	2020	3	spall & delam	18	16	1	1	0	0	0.166666667
96-1	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
96-2	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
96-2	bot flange	2020	3	spall	1.5	10	5	1	0	0	0.043402778
96-6	bot flange	2020	3	spall	1.5	11	5	1	0	0	0.047743056
96-7	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
97-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
97-2	top flange	2020	3	spall	0.5	14	3	1	0	0	0.012152778
97-3	top flange	2020	3	spall	12	4	2	1	0	0	0.055555556
97-6	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
97-7	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
98-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
98-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
98-3	top flange	2020	3	spall	2	8	3.5	1	0	0	0.032407407
98-4	top flange	2020	3	spall	7	3	1.5	1	0	0	0.018229167
98-5	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
98-6	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
98-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
99-1	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
99-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
99-4	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
99-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
99-7	top flange	2020	3	spall	6	14	0.5	1	0	0	0.024305556
100-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
100-2	bot flange	2020	3	spall	2	12	8	1	0	0	0.111111111
100-2	top flange	2020	3	spall	1.5	24	8	1	0	0	0.166666667
100-3	top flange	2020	3	spall	2	18	3	1	0	0	0.0625
100-6	bot flange	2020	3	spall	9	12	2	1	0	0	0.125
100-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
100-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
101-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
101-3	bot flange	2020	3	spall	2	14	5	1	0	0	0.081018519
101-3	top flange	2020	3	spall	12	2	4	1	0	0	0.055555556
101-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
101-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
102-1	bot flange	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
102-2	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
102-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
102-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
106-1	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
107-6	bot flange	2020	3	spall	7	3	1.5	1	0	0	0.018229167
107-6	e web	2020	3	spall	9	1	0.75	1	0	0	0.00390625
108-1	bot flange	2020	3	crack	84	0.015	6.75	7	0.257727015	7	0
108-1	e web	2020	3	crack	200	0.015	6.75	17	1.49025825	17	0
108-2	e web	2020	3	crack	84	0.015	6.75	7	0.257727015	7	0
108-2	top flange	2020	3	spall	20	3	2	2	0	0	0.138888889
108-6	bot flange	2020	3	spall	15	13	2	2	0	0	0.451388889
109-1	bot flange	2020	3	crack	84	0.015	6.75	7	0.257727015	7	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
112	dia	2020	3	spall	8	6	1	1	0	0	0.027777778
112-1	bot flange	2020	3	spall	22	15	3	2	0	0	1.145833333
114-5	top flange	2020	3	spall	7	4.5	1.5	1	0	0	0.02734375
116-1	top flange	2020	3	spall	24	14	0.5	2	0	0	0.194444444
116-7	top flange	2020	3	spall & delam	13	10	1	1	0	0	0.075231481
118-3	Shear key joint	2020	3	spall	9	8	2	1	0	0	0.083333333
120-1	e web	2020	3	crack	50	0.013	6.75	5	0.094967438	4	0
120-1	bot flange	2020	3	spall	18	9	1	2	0	0	0.1875
120-3	top flange	2020	3	spall	8	6	1	1	0	0	0.027777778
122-1	e web	2020	3	spall	11	5	2	1	0	0	0.063657407
123-4	top flange	2020	3	spall	21	3	2	2	0	0	0.145833333
123-7	top flange	2020	3	spall & delam	10	10	0.5	1	0	0	0.028935185
124-1	e web	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
125-1	e web	2020	3	crack	56	0.013	6.75	6	0.127636236	5	0
126-7	e web	2020	3	crack	62	0.04	6.75	6	0.43480476	5	0
127-7	top flange	2020	3	spall & delam	19	17	1.25	2	0	0	0.467303241
128-1	e web	2020	3	crack	214	0.013	6.75	18	1.463258277	18	0
130-1	e web	2020	3	crack	216	0.015	6.75	18	1.70415414	18	0
131-4	top flange	2020	3	spall	5	2.5	1	1	0	0	0.007233796
131-5	top flange	2020	3	spall	14	1.5	0.5	2	0	0	0.012152778
133-1	e web	2020	3	crack	78	0.016	6.75	7	0.255272472	7	0
135-4	Shear key joint	2020	3	spall	7	2	2	1	0	0	0.016203704
136-1	e web	2020	3	crack	214	0.013	6.75	18	1.463258277	18	0
138-1	e web	2020	3	crack	214	0.013	6.75	18	1.463258277	18	0
139	top flange	2020	3	spall & delam	39	16	0.5	4	0	0	0.722222222
139-1	top flange	2020	3	spall	1.5	8	4	1	0	0	0.027777778
139-1	e web	2020	3	crack	115	0.013	6.75	10	0.436850213	10	0
139-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
139-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
139-4	dev	2020	3	crack	44	0.016	6.75	4	0.082285632	4	0
139-4	dev	2020	3	crack	44	0.016	6.75	4	0.082285632	4	0
139-6	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
139-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
140-1	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
140-2	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
140-3	bot flange	2020	3	crack	48	0.026	6.75	4	0.145869984	4	0
140-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
140-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
140-7	e web	2020	3	crack	42	0.025	6.75	4	0.12272715	4	0
141-1	e web	2020	3	crack	42	0.02	6.75	4	0.09818172	4	0
141-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
141-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
141-2	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
141-4	e web	2020	3	spall	2	4	4.5	1	0	0	0.020833333
141-4	bot flange	2020	3	crack	44	0.013	6.75	4	0.066857076	4	0
141-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
141-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
142-1	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
142-1	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
142-2	e web	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
142-2	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
142-5	dev	2020	3	crack	44	0.013	6.75	4	0.066857076	4	0
142-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
142-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
143	top flange	2020	3	spall & delam	1.25	23	3.5	1	0	0	0.05823206
143-1	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
143-1	top flange	2020	3	spall	3.25	23	4	1	0	0	0.173032407
143-1	top flange	2020	3	spall	1	8	4	1	0	0	0.018518519
143-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
143-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
143-2	dev	2020	3	crack	36	0.013	6.75	3	0.041025933	3	0
143-3	bot flange	2020	3	crack	108	0.013	6.75	9	0.369233397	9	0
143-3	top flange	2020	3	spall	2	16	3.5	1	0	0	0.064814815
143-4	top flange	2020	3	spall	1	16	3	1	0	0	0.027777778
143-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
143-5	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
144-1	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
144-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
144-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
144-3	bot flange	2020	3	crack	108	0.016	6.75	9	0.454441104	9	0
144-5	bot flange	2020	3	crack	42	0.013	6.75	3.5	0.055840853	4	0
144-6	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
144-6	dev	2020	3	crack	44	0.013	6.75	4	0.066857076	4	0
144-7	bot flange	2020	3	crack	216	0.025	6.75	18	2.8402569	18	0
144-7	e web	2020	3	crack	96	0.012	6.75	8	0.269298432	8	0
145-1	bot flange	2020	3	crack	216	0.03	6.75	18	3.40830828	18	0
145-2	bot flange	2020	3	crack	144	0.025	6.75	12	1.2623364	12	0
145-3	bot flange	2020	3	crack	144	0.02	6.75	15	1.2623364	12	0
145-5	top flange	2020	3	spall	2	7	3	1	0	0	0.024305556
145-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
145-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
145-7	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
146-1	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
146-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
146-2	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
146-5	bot flange	2020	3	crack	144	0.013	6.75	12	0.656414928	12	0
146-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
146-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
147-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
147-1	top flange	2020	3	spall	3	15	4	1	0	0	0.104166667
147-1	e web	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
147-2	e web	2020	3	crack	216	0.012	6.75	18	1.363323312	18	0
147-3	top flange	2020	3	spall	2	16	3	1	0	0	0.055555556
147-5	bot flange	2020	3	crack	96	0.016	6.75	8	0.359064576	8	0
147-5	dev	2020	3	crack	44	0.013	6.75	4	0.066857076	4	0
147-6	bot flange	2020	3	crack	108	0.016	6.75	9	0.454441104	9	0
147-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
147-7	e web	2020	3	crack	48	0.03	6.75	4	0.16831152	4	0
148-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
148-2	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
148-3	dev	2020	3	crack	44	0.013	6.75	4	0.066857076	4	0
148-4	bot flange	2020	3	spall	2	7	5	1	0	0	0.040509259
148-5	bot flange	2020	3	crack	48	0.016	6.75	4	0.089766144	4	0
148-6	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
148-7	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
149-1	Shear key joint	2020	3	spall	16	2	2	1	0	0	0.037037037
149-1	e web	2020	3	crack	216	0.013	6.75	18	1.476933588	18	0
149-1	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
149-2	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
149-5	bot flange	2020	3	crack	96	0.013	6.75	8	0.291739968	8	0
149-6	bot flange	2020	3	crack	144	0.016	6.75	12	0.807895296	12	0
149-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
150-1	e web	2020	3	crack	80	0.013	6.75	7	0.21272706	7	0
150-1	top flange	2020	3	spall	1.75	18	3.5	1	0	0	0.063802083
150-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
150-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
150-6	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
150-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
151-1	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
151-2	bot flange	2020	3	crack	144	0.02	6.75	12	1.00986912	12	0
151-3	top flange	2020	3	spall	10	1.5	0.5	1	0	0	0.004340278
151-6	bot flange	2020	3	crack	144	0.025	6.75	12	1.2623364	12	0
151-6	dev	2020	3	crack	44	0.013	6.75	4	0.066857076	4	0
151-7	bot flange	2020	3	crack	216	0.02	6.75	18	2.27220552	18	0
153	bot flange	2020	3	crack	216	0.02	6.75	36	4.54441104	18	0
154	bot flange	2020	3	crack	216	0.016	6.75	48	4.847371776	18	0
154-2	top flange	2020	3	spall	1	13	3.5	1	0	0	0.026331019
154-4	top flange	2020	3	spall	1.5	12	3	1	0	0	0.03125
154-5	top flange	2020	3	spall	1.75	15	3	1	0	0	0.045572917
154-6	top flange	2020	3	spall	1	15	3	1	0	0	0.026041667

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
155	bot flange	2020	3	crack	216	0.02	6.75	68	8.58388752	18	0
156	bot flange	2020	3	crack	216	0.02	6.75	40	5.0493456	18	0
157	bot flange	2020	3	crack	192	0.016	6.75	28	2.513452032	16	0
158-1	top flange	2020	3	spall	1	14	3	1	0	0	0.024305556
158-2	top flange	2020	3	spall	1	14	2.5	1	0	0	0.02025463
158	bot flange	2020	3	crack	216	0.016	6.75	72	7.271057664	18	0
159	bot flange	2020	3	crack	216	0.01	6.75	72	4.54441104	18	0
160	bot flange	2020	3	crack	216	0.016	6.75	90	9.08882208	18	0
160-6	e web	2020	3	spall	2	7	2.5	1	0	0	0.02025463
161-1	top flange	2020	3	spall	1.5	9	0.5	1	0	0	0.00390625
161	bot flange	2020	3	crack	216	0.013	6.75	36	2.953867176	18	0
162-1	top flange	2020	3	spall & delam	18	21	1	2	0	0	0.4375
162	bot flange	2020	3	crack	216	0.016	6.75	36	3.635528832	18	0
163	bot flange	2020	3	crack	216	0.016	6.75	36	3.635528832	18	0
164	bot flange	2020	3	crack	216	0.016	6.75	48	4.847371776	18	0
164-4	e web	2020	3	spall	9	2.5	6	1	0	0	0.078125
164-7	top flange	2020	3	delam	8	6	6.75	1	0	0	0.1875
165-1	top flange	2020	3	spall & delam	17	29	1.5	2	0	0	0.855902778
165	bot flange	2020	3	crack	216	0.016	6.75	90	9.08882208	18	0
166-3	e web	2020	3	spall	12	3	6	1	0	0	0.125
166-5	top flange	2020	3	spall	1	14	3	1	0	0	0.024305556
166	bot flange	2020	3	crack	216	0.016	6.75	20	2.01973824	18	0
167-1	top flange	2020	3	delam	17	21	6.75	1.5	0	0	2.091796875
167-5	top flange	2020	3	spall	1	14	7.75	1	0	0	0.062789352
167	bot flange	2020	3	crack	216	0.016	6.75	20	2.01973824	18	0
168	bot flange	2020	3	crack	216	0.016	6.75	120	12.11842944	18	0
169	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
170	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
171	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
172	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
173	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
174	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
175	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
176	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
177	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
178	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
179	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
180	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
181	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
182	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
183	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
184	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
185	bot flange	2020	3	crack	216	0.016	6.75	3	0.302960736	18	0
186	bot flange	2020	3	crack	216	0.016	6.75	5	0.50493456	18	0
187	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
188	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
189	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
190	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
191	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
192	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
193	bot flange	2020	3	crack	216	0.016	6.75	24	2.423685888	18	0
194	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
195	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
196	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
197	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
198	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
199	bot flange	2020	3	crack	216	0.016	6.75	48	4.847371776	18	0
200	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
201	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
202	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
203	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
204	bot flange	2020	3	crack	216	0.016	6.75	40	4.03947648	18	0
205	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
206	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
207	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
208	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
209	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
210	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
211	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
212	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
213	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
214	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
215	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
216	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
217	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
218	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
219	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
220	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
221	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
222	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
223	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
224	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
225	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
226	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
227	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
228	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
229	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
230	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
231	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
232	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
233	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
234	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
235	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
236	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
237	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
238	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
239	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
240	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
241	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
242	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
243	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
244	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
245	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
246	bot flange	2020	3	crack	216	0.016	6.75	62	6.261188544	18	0
247	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
248	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
249	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
250	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
251	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
252	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
253	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
254	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
255	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
256	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
257	bot flange	2020	3	crack	216	0.016	6.75	12	1.211842944	18	0
258	bot flange	2020	3	crack	216	0.016	6.75	18	1.817764416	18	0
259	bot flange	2020	3	crack	216	0.016	6.75	32	3.231581184	18	0
260	bot flange	2020	3	crack	216	0.016	6.75	50	5.0493456	18	0
170-2	e web	2020	3	spall	1.5	8	4	1	0	0	0.027777778
171	top flange	2020	3	spall & delam	17	39	0.5	2	0	0	0.383680556
171-1	top flange	2020	3	spall	1.25	11	3	1	0	0	0.023871528
173-3	e web	2020	3	spall	2.5	8	3.5	1	0	0	0.040509259
173-5	top flange	2020	3	spall	3	9	2	2	0	0	0.0625
174	e web	2020	3	spall	21	4	2	2	0	0	0.194444444
174-1	top flange	2020	3	delam	11	11	6.75	1	0	0	0.47265625
174-2	e web	2020	3	spall	4	7	1	1	0	0	0.016203704
175-1	top flange	2020	3	spall	3.5	7.5	0.5	1	0	0	0.007595486
177-7	top flange	2020	3	spall & delam	8	8	0.5	1	0	0	0.018518519
178-6	bot flange	2020	3	spall	6	12	3	1	0	0	0.125
178-7	top flange	2020	3	delam	12	12	6.75	1	0	0	0.5625

BPA

Designed By: TD

Project: US-1 / 7 mile Bridge Repairs

Date: 6/2020

Project Number: 17.09.01 TWO #9

Description: Superstructure Inspections

P:_design projects\17.09.01 FDOT 6 DW Rehabilitation\Engineering\Structures\TWO # 9\7 Mile LCCA Calcs\Rehabilitation_Alternative\[Rehab Cost Estimate - 7 year Cycles.xlsx]PS Box Int - 2020

PS Closed Box Girder INT

					Dimensions						
Pier	Location	Year	Condition State	Deficiency	Length	Width	Depth	Quantity	Epoxy (GA)	Length (LF)	Volume (cf)
179-2	bot flange	2020	3	spall	1.5	8	2.5	1	0	0	0.017361111
179-2	Shear key joint	2020	3	spall	11	2	4	1	0	0	0.050925926
180-6	e web	2020	3	delam	13	9	6.75	1.5	0	0	0.685546875
181-1	e web	2020	3	spall	7	5.5	2	1	0	0	0.044560185
182-1	top flange	2020	3	spall & delam	7	10	0.75	1	0	0	0.030381944
183	dia	2020	3	spall	10	7	2		0	0	0
183-7	top flange	2020	3	delam	10	7	6.75	1	0	0	0.2734375
185	top flange	2020	3	spall	2	21	3	1	0	0	0.072916667
185-1	top flange	2020	3	delam	10	7	6.75	1	0	0	0.2734375
185-2	top flange	2020	3	spall	1.5	12	4	1	0	0	0.041666667
186-1	top flange	2020	3	delam	10	10	6.75	1	0	0	0.390625
186-5	e web	2020	3	spall	2.5	17	6	1	0	0	0.147569444
187-3	top flange	2020	3	spall	1	15	3	1	0	0	0.026041667
189-5	e web	2020	3	spall	3.5	12	6	1	0	0	0.145833333
189-7	top flange	2020	3	delam	10	14	6.75	1	0	0	0.546875
191-7	top flange	2020	3	spall	10	7.5	1.25	1	0	0	0.054253472
191-7	top flange	2020	3	delam	7	5	6.75	1	0	0	0.13671875
192-5	e web	2020	3	spall	2.5	9	6	1	0	0	0.078125
193	top flange	2020	3	spall	3.5	12	2	1	0	0	0.048611111
194	top flange	2020	3	spall	3.5	12	2	1	0	0	0.048611111
194-1	top flange	2020	3	delam	7	12	6.75	1	0	0	0.328125
194-7	top flange	2020	3	delam	12	17	6.75	1	0	0	0.796875
195-3	e web	2020	3	delam	2.5	21	6.75	4.5	0	0	0.922851563
195-7	top flange	2020	3	delam	10	20	6.75	1	0	0	0.78125
196-1	top flange	2020	3	delam	11	22	6.75	1	0	0	0.9453125
197-1	top flange	2020	3	spall	13	3	1.25	1	0	0	0.028211806
197-1	e web	2020	3	spall	4	30	2	1	0	0	0.138888889
197-5	top flange	2020	3	spall	20	1.75	5.5	2	0	0	0.222800926
197-6	top flange	2020	3	spall	13	2	5	1	0	0	0.075231481
198-1	e web	2020	3	spall	3.5	20	8	1	0	0	0.324074074
199-6	e web	2020	3	spall	3	15	6.5	1	0	0	0.169270833
200-6	e web	2020	3	spall	3	15	7	1	0	0	0.182291667
202-7	top flange	2020	3	spall & delam	13	10	0.5	2	0	0	0.075231481
204-4	e web	2020	3	spall	13	2.5	2.5	1	0	0	0.047019676
206-2	e web	2020	3	spall	3	13	5	1	0	0	0.112847222
206-4	e web	2020	3	spall	3	11	4.5	1	0	0	0.0859375
210-2	e web	2020	3	spall	2	7	6	1	0	0	0.048611111
213-5	e web	2020	3	spall	7	5.5	1.5	1	0	0	0.033420139
214-4	top flange	2020	3	spall	2.5	18	5.25	1	0	0	0.13671875
215-5	e web	2020	3	spall	17	3	6	1	0	0	0.177083333
215-6	top flange	2020	3	spall	14	3.5	1.5	1	0	0	0.042534722
216-1	e web	2020	3	spall	9	2	7	1	0	0	0.072916667
222-3	e web	2020	3	spall	2.5	9	6	1	0	0	0.078125
222-4	e web	2020	3	spall	2.5	14	6	1	0	0	0.121527778
222-5	e web	2020	3	spall	3	12	7.75	1	0	0	0.161458333
233-5	bot flange	2020	3	spall	1.5	7	3	1	0	0	0.018229167
237-1	e web	2020	3	spall	2	7.5	5	1	0	0	0.043402778
237-5	bot flange	2020	3	spall	1	6	3.25	1	0	0	0.011284722
239-2	bot flange	2020	3	spall	9	12	1	1	0	0	0.0625
242-6	e web	2020	3	spall	3	7	4.5	1	0	0	0.0546875
244-3	bot flange	2020	3	spall	2	8	3	1	0	0	0.027777778
245-6	bot flange	2020	3	spall	1	8	4	1	0	0	0.018518519
								Total =	779.50	5775	40.41
								Contingency (100%) =	1558.99	11550	80.82