### Date: 11/08/2022

### J6I3585 - I-64 PEL Study Bridge Rehabilitation/Replacement Summary

# FC





Note: Estimated rehabilitation and replacement construction cost based on 2022 pricing, accounting for current market conditions. Estimated replacement cost includes removal of existing bridges.

#	Bridge No.	Route & Feature Crossed	Built	Structure Type	Bridge Length	Bridge Width	General Scope & Recommendation	10 Yr Rehab	25 Yr Rehab	50 Yr Rehab	Replacement
1	A3735	EB I-64 On-Ramp from Papin over EB I-64 Ramp to Vandeventer Ave.	1977	Continuous Composite Curved WF Beam Spans	261'-0"	28'-2"	(50 Yr) - Deck Replacement & Full Repaint			\$1,503,560	
2	L0669	EB I-64 over Vandeventer WB I-64 On-Ramp	1956	Simple WF Beam Spans	79'-0"	54'-10"	(10 Yr) - Crack Filler & Misc. Repairs  (25 Yr) - Replace Concrete Overlay & Repaint	\$213,787	\$918,327		
3	A3651	WB I-64 over Sarah	1981	Continuous P/S Concrete I- Girders	157'-0"	54'-10"	(25 Yr) - Hydro/Latex		\$743,998		
4	A3893	EB I-64 over Sarah	1982	P/S Concrete I-Girders	150'-0"	62'-2"	(25 Yr) - Hydro/Latex		\$471,620		
5	L0667	EB 1-64	1956	Continuous Steel Plate Girder Spans	1391'-0"	63'-0"	(50 Yr) - Superstructure Replacement & Substructure Repair  Replacement			\$21,965,448	\$43,984,446
6	A3594	WB I-64	1982	Continuous Steel Plate Girder Spans	5403'-0"	54'-10"	(25 Yr) - Hydro-Latex, Full Repaint, Expansion Joint Replacement, Rehab  (50 Yr) - Deck Replacement & Full Repaint		\$44,344,750	\$59,985,726	
7	A3740	WB I-64 On-Ramp from Grand over Fill	1981	Continuous P/S Concrete I- Girders	305'-0"	28'-2"	(10 Yr) - Expansion Joint Replacement & Foxy Overlay  (25 Yr) - Expansion Joint Replacement & Hydro/Latex	\$180,928	\$322,977		
8	L0638	Grand over I-64	1954	Concrete Box Girder Span	88'-0"	80'-0"	(25 Yr) - Hydro/Latex, Deck repair, Substructure Repair & Overhang replacement  Replacement		\$2,179,533		\$6,335,299
9	A0549	EB I-64 Off-Loop Ramp to Grand	1960	Continuous Concrete Solid Slab Spans	71'-0"	32'-8"	Replacement				\$675,769
10	A3741	WB I-64 On-Ramp from Market over Fill	1981	Continuous Concrete Solid Slab Spans	91'-0"	28'-2"	(25 Yr) - Hydro-Latex, Deck repair, Expansion Joint  Replacement		\$201,842		\$808,741
11	A0832	EB I-64 over Market	1963	Continuous Concrete Box Girder Spans	211'-0"	56'-0"	(25 Yr) - Remove & Replace Exist. Concrete Overlay w/ New Hydro/Latex & Eliminate Longitudinal Joint  Replacement		\$896,643		\$5,174,156
12	A3636	WB I-64 On-Ramp from Market over Forest Park Pkwy	1981	Continuous P/S Concrete I- Girders	156'-0"	28'-2"	(25 Yr) - Hydro/Latex		\$386,205		
13	A0835	EB I-64 Off-Ramp to Market over Forest Park Pkwy	1963	Continuous Concrete Box Girder Spans	203'-0"	32'-8"	Replacement				\$2,508,051

# **FJ**

Bridge No.

## J6I3585 - I-64 PEL Study Bridge #1 - A3735 (50 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

**BRIDGE NO. 1 - A3735** 

Bridge Name: EB I-64 On-Ramp from Papin over EB I-64 Ramp to Vandeventer Ave. A3735 Rehab/Replace Alternative: 50 Yr Fix 10/25/50 Yr Remark (original): (50 Yr) - Deck Replacement & Full Repaint

### Scope/Recommendation:

Replace deck (barrier, expansion joints, and conduit replaced) Replace approach slabs & add vertical drain at end bents Substructure Repair (formed/unformed) Concrete Protective Coating (Epoxy) Full repaint of girders Clean, coat, and reset rocker bearings

Assume full closure of A3735 but limited access to bridge (over I-64 ramp). Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	65	\$58.50	\$3,802.50
2162500	Removal of Existing Bridge Deck	Sq. Ft.	7364	\$11.05	\$81,368.63
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	1339	\$123.50	\$165,366.50
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	818	\$130.00	\$106,364.22
7034212	Slab on Steel	Sq. Yd.	818	\$487.50	\$398,865.82
7034219A	Type D Barrier	Lin. Ft.	550	\$149.50	\$82,202.58
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	241	\$169.00	\$40,799.58
7071000	Conduit System on Structure	Lump Sum	1	\$12,220.00	\$12,220.00
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$19,487.00	\$19,487.00
7123100	Cleaning and Coating Existing Bearings	Each	8	\$650.00	\$5,200.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	9300	\$26.00	\$241,800.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	9300	\$3.25	\$30,225.00
7125365A	Intermediate Field Coat (System G)	Sq. Ft.	9300	\$2.60	\$24,180.00
7125370A	Finish Field Coat (System G)	Sq. Ft.	9300	\$2.60	\$24,180.00
7129902	Reset Rocker Bearing	Each	8	\$650.00	\$5,200.00
7151001	Vertical Drain at End Bents	Lin. Ft.	110	\$58.50	\$6,444.17
7172001	Strip Seal Expansion Joint System	Lin. Ft.	62	\$585.00	\$36,270.00
	TOTAL BASE COST =				\$1,280,173

Misc. Construction Costs (10%): \$128,017.35

> Sub-total: \$1,408,190.84

Mobilization (6%): \$84,491.45 \*Surveying (1%): \$10,878.06

Total Rehab Cost (2022): \$1,503,560.35

\*1% for surveying cost does not include base superstructure paint cost.

Cost/SF of Bridge: \$204.19

## J6I3585 - I-64 PEL Study Bridge #2 - L0669 (10 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

**BRIDGE NO. 2 - L0669** 

 Bridge Name:
 EB I-64 over Vandeventer WB I-64 On-Ramp

 Bridge No.
 L0669

 Rehab/Replace Alternative:
 10 Yr Fix

 10/25/50 Yr Remark (original):
 (10 Yr) - Crack Filler

Scope: Substructure repair & epoxy crack filler Seal deck with silane Apply concrete protective coating (epoxy) at abutments Expansion jt. seal replacement

Assume staging of rehabilitation work required. Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2165000	Removal of Existing Expansion Joint Sealant	Lin. Ft.	193	\$71.50	\$13,799.50
7033013	Penetrating Concrete Sealer	Sq. Yd.	441	\$26.00	\$11,466.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	234	\$169.00	\$39,490.12
7040104	Half-Sole Repair	Sq. Ft.	250	\$104.00	\$26,000.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	196	\$117.00	\$22,960.67
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$55,835.00	\$55,835.00
7172054	Open Cell Foam Joint Seal (no armor)	Lin. Ft.	193	\$71.50	\$13,799.50
	TOTAL BASE COST =				\$183,350.78

Misc. Construction Costs (10%): \$18,335.08

Sub-total: \$201,685.86

Mobilization (6%): \$12,101.15

Total Rehab Cost (2022): \$213,787.01

Cost/SF of Bridge:

\$49.70

# **HDR**

## J6I3585 - I-64 PEL Study Bridge #2 - L0669 (25 Yr Rehab)

### MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Bridge Name: Bridge No. Rehab/Replace Alternative:

**BRIDGE NO. 2 - L0669** 

EB I-64 over Vandeventer WB I-64 On-Ramp L0669 25 Yr Fix 10/25/50 Yr Remark (original): (25 Yr) - Replace Concrete Overlay & Repaint

### Scope:

Remove and replace concrete overlay Repaint girders Apply concrete protective coating (epoxy) at abutments Substructure repair & epoxy crack filler Expansion jt. seal replacement

Assume staging of rehabilitation work required. Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	3967	\$3.25	\$12,892.75
2161503	Removal of Existing Deck Repair	Sq. Ft.	1460	\$52.00	\$75,920.00
2165000	Removal of Existing Expansion Joint Sealant	Lin. Ft.	193	\$71.50	\$13,799.50
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	923	\$130.00	\$119,990.00
7040101	Substructure Repair (Formed)	Sq. Ft.	234	\$169.00	\$39,490.12
7040104	Half-Sole Repair	Sq. Ft.	1700	\$78.00	\$132,600.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	196	\$117.00	\$22,960.67
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$55,835.00	\$55,835.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	4400	\$58.50	\$257,400.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	4400	\$3.90	\$17,160.00
7125365A	Intermediate Field Coat (System G)	Sq. Ft.	4400	\$2.93	\$12,870.00
7125370A	Finish Field Coat (System G)	Sq. Ft.	4400	\$2.93	\$12,870.00
7172054	Open Cell Foam Joint Seal (no armor)	Lin. Ft.	193	\$71.50	\$13,799.50
	TOTAL BASE COST =				\$787,587.53

Misc. Construction Costs (10%): \$78,758.75

> \$866,346.28 Sub-total:

Mobilization (6%): \$51,980.78

Total Rehab Cost (2022): \$918,327.06

> Cost/SF of Bridge: \$213.47

## J6I3585 - I-64 PEL Study Bridge #2 - L0669 (25 Yr Rehab)

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Bridge No. 3 - A3651

Bridge Name:WB I-64 over SarahBridge No.A3651Rehab/Replace Alternative:25 Yr Fix10/25/50 Yr Remark (original):(25 Yr) - Hydro/Latex, etc.

Scope:

Scarification & hydro demolition of deck Replace approach slabs & add vertical drains at end bent Latex modified concrete wearing surface Superstructure repair (unformed) Misc. half-sole and full depth repair on deck Provide open cell foam jt. seal between abutment and slab

Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	70	\$58.50	\$4,095.00
2161000	Scarification of Bridge Deck	Sq. Yd.	896	\$15.60	\$13,971.70
2161001	Total Surface Hydro Demolition	Sq. Yd.	896	\$65.00	\$58,215.42
2161503	Removal of Existing Deck Repair	Sq. Ft.	10	\$52.00	\$520.00
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	3260	\$123.50	\$402,610.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	896	\$130.00	\$116,430.83
7040103	Superstructure Repair (Unformed)	Sq. Ft.	75	\$169.00	\$12,675.00
7040104	Half-Sole Repair	Sq. Ft.	50	\$104.00	\$5,200.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7151001	Vertical Drain at End Bents	Lin. Ft.	146	\$58.50	\$8,513.58
7172053	Open Cell Foam Joint System (no armor)	Lin. Ft.	122	\$71.50	\$8,695.44
	TOTAL BASE COST =				\$638,076.97

Misc. Construction Costs (10%): \$63,807.70

Sub-total: \$701,884.67

Mobilization (6%): \$42,113.08

Total Rehab Cost (2022): \$743,997.75

Cost/SF of Bridge: \$86.68

## J6I3585 - I-64 PEL Study Bridge #4 - A3893 (25 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 4 - A3893

Bridge Name:EB I-64 over SarahBridge No.A3893Rehab/Replace Alternative:25 Yr Fix10/25/50 Yr Remark (original):(25 Yr) - Hydro/Latex, etc.

Scope:

Total hydro demolition and scarification of bridge deck Remove and replace existing deck repair as needed Latex modified concrete wearing surface Superstructure repair (unformed) and slab edge repair for overhangs Misc. half-sole and full depth repairs on deck and approach slab Clean and epoxy coat girders with collision damage Replace conduit on Column 1 Provide expansion joint seal at deck/approach slabs

Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	1463	\$15.60	\$22,822.80
2161001	Total Surface Hydro Demolition	Sq. Yd.	1463	\$52.00	\$76,076.00
2161503	Removal of Existing Deck Repair	Sq. Ft.	250	\$52.00	\$13,000.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	1463	\$130.00	\$190,190.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	30	\$201.50	\$6,045.00
7040103	Superstructure Repair (Unformed)	Sq. Ft.	188	\$169.00	\$31,772.00
7040104	Half-Sole Repair	Sq. Ft.	400	\$78.00	\$31,200.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	10	\$260.00	\$2,600.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	50	\$117.00	\$5,850.00
7040113	Cleaning and Epoxy Coating	Sq. Ft.	20	\$117.00	\$2,340.00
7071000	Conduit System on Structure	Lump Sum	1	\$1,391.00	\$1,391.00
7174001	Preformed Silicone Expansion Joint Seal (no armor)	Lin. Ft.	135	\$104.00	\$14,040.00
	TOTAL BASE COST =				\$404,476.80

Misc. Construction Costs (10%): \$40,447.68

Sub-total:	\$444,924.48
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Mobilization (6%): \$26,695.47

Total Rehab Cost (2022): \$471,619.95

Cost/SF of Bridge: \$50.18

## J6I3585 - I-64 PEL Study Bridge #5 - L0667 (50 Yr Rehab)

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Bridge No. 5 - L0667

 Bridge Name:
 EB I-64

 Bridge No.
 L0667

 Rehab/Replace Alternative:
 50 Yr Fix

 10/25/50 Yr Remark (original):
 (50 Yr) - Superstructure Replacement and Substructure Repair, etc.

Scope:

Superstructure replacement (girders, bearings, drains, barriers, expansion joints) (assume pedestals required for new bearings)

Approach slab replacement and vertical drains at end bents added

Crack filler and substructure repair throughout

Substructure protective coating

Drainage system on structure replaced

Protective coating on bent caps and sacrificial graffiti protection on columns

Assume staging of rehabilitation work required and increase cost for seismic retrofit.

Say 15% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	100	\$58.50	\$5,850.00
2169901	Removal of Existing Superstructure (steel superstructure)	Lump Sum	1	\$1,072,929.00	\$1,072,929.00
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	2373	\$123.50	\$293,106.50
7034001	Class B-1 Concrete (Substructure)	Cu. Yd.	50.0	\$2,730.00	\$136,500.00
7034212	Slab on Steel	Sq. Yd.	9170	\$377.00	\$3,457,199.76
7034219A	Type D Barrier	Lin. Ft.	2820	\$110.50	\$311,610.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	388	\$169.00	\$65,528.29
7040110	Epoxy Pressure Injecting	Lin. Ft.	150	\$117.00	\$17,550.00
7071000	Conduit System on Structure	Lump Sum	1	\$132,912.00	\$132,912.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	6000	\$3.77	\$22,620.00
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$179,400.00	\$179,400.00
7110400	Sacrificial Graffiti Protection System	Lump Sum	1	\$18,200.00	\$18,200.00
7120900	Expansion Device (Finger Plate)	Lin. Ft.	178	\$2,600.00	\$462,799.74
7121122	Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W	Lb.	2372813	\$4.23	\$10,025,134.93
7123611	Slab Drain with Grate	Each	46	\$5,460.00	\$251,160.00
7123620	Drainage System (On Structure)	Lump Sum	1	\$542,490.00	\$542,490.00
7125365A	Intermediate Field Coat System (System G)	Sq. Ft.	160200	\$2.60	\$416,520.00
7125370A	Finish Field Coat System (System G)	Sq. Ft.	22200	\$2.60	\$57,720.00
7151001	Vertical Drain at End Bents	Lin. Ft.	151	\$58.50	\$8,833.50
7162000	Laminated Neoprene Bearing Pad Assembly	Each	144	\$2,730.00	\$393,120.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	119	\$546.00	\$64,974.00
	TOTAL BASE COST =				\$17,936,157.72

Misc. Construction Costs (15%): \$2,690,423.66

Sub-total: \$20,626,581.38

Mobilization (6%): \$1,237,594.88

\*Surveying (1%): \$101,272.06

### Total Rehab Cost (2022): \$21,965,448.33

ge: \$266.14

Cost/SF of Bridge:

\*1% for surveying cost does not include base fabricated structural steel or superstructure paint cost.

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## J6I3585 - I-64 PEL Study Bridge #5 - L0667 (Replacement)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Bridge No. 5 - L0667

Bridge Name:EB I-64Bridge No.L0667Rehab/Replace Alternative:Replacement10/25/50 Yr Remark (original):-

Scope: Replace with 14-Span Continuous Composite Steel Plate Girder Bridge

Other Considerations (recommended individual % increase per EPG): Staged Construction (10%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Over railroad and multiple roads Interstate bridge

Increase bridge cost by 15% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	82533	\$26.00	\$2,145,858.00
-	14-Span Continuous Composite Steel Plate Girder Bridge	Sq. Ft.	82533	\$396.50	\$32,724,334.50
-	MSE walls	Sq. Ft.	8108	\$119.60	\$969,716.80
	TOTAL BASE COST =				\$35,839,909.30

Sub-total:	\$41,106,958.57
**Misc. Roadway Costs (1%):	\$358,399.09
Misc. Bridge Costs (15%):	\$4,908,650.18

Mobilization (6%): \$2,466,417.51 Surveying (1%): \$411,069.59

Total Cost of Removal and Replacement (2022): \$43,984,445.67

Cost/SF of Bridge: \$532.93

\*\*Additional percentage of base cost included to cover misc. roadway costs such as concrete approach pavement, striping and guardrail.

## J6I3585 - I-64 PEL Study Bridge #6 - A3594 (25 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 6 - A3594

Bridge Name: WB I-64 Bridge No. A3594 Rehab/Replace Alternative: 25 Yr Fix 10/25/60 Vr Remark (original): (25 Yr) Hydro Ia

10/25/50 Yr Remark (original): (25 Yr) - Hydro-latex, full repaint, expansion joint replacement, rehab, etc.

Total hydro demolition Remove and replace existing half-sole repairs Latex modified concrete overlay Remove and replace expansion joints Substructure repairs (formed/unformed) and epoxy crack filler Protective coating on concrete bents (epoxy) Full repaint

Assume staging of rehabilitation work required. Say 15% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161001	Total Surface Hydro Demolition	Sq. Yd.	33238	\$52.00	\$1,728,376.00
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	299142	\$2.80	\$836,101.89
2161503	Removal of Existing Deck Repair	Sq. Ft.	25	\$52.00	\$1,300.00
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	909.0	\$455.00	\$413,595.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	84	\$910.00	\$76,440.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	33238	\$130.00	\$4,320,940.00
7034214	Class B-2 Concrete	Cu. Yd.	151.5	\$2,860.00	\$433,290.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	825	\$169.00	\$139,425.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	367	\$117.00	\$42,939.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	40910	\$2.86	\$117,002.60
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$86,749.00	\$86,749.00
7120900	Expansion Device (Finger Plate)	Lin. Ft.	466	\$2,600.00	\$1,211,600.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	653100	\$32.50	\$21,225,750.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	653100	\$3.25	\$2,122,575.00
7125365A	Intermediate Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7125370A	Finish Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7171001	Preformed Compression Seal Expansion Joint System	Lin. Ft.	110	\$409.50	\$45,045.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	331	\$546.00	\$180,724.91
	TOTAL BASE COST	=			\$36,377,973.40

Misc. Construction Costs (15%): \$5,456,696.0

Sub-total:	\$41,834,669.41
Mobilization (6%):	\$2,510,080.2

Total Rehab Cost (2022): \$44,344,749.57

Cost/SF of Bridge: \$140.27

ge:

### Scope:

## J6I3585 - I-64 PEL Study Bridge #6 - A3594 (50 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 6 - A3594

Bridge Name: WB I-64 Bridge No. A3594 Rehab/Replace Alternative: 50 Yr Fix 10/25/50 Yr Remark (original): (50 Yr) - Deck Replacement & Full Repaint

Scope:

Deck replacement (barriers, expansion joints, drains) Replace drainage system on structure Remove and replace approach slab and add vertical drains at end bents Substructure repairs (formed/unformed) and epoxy crack filler Protective coating on concrete bents (epoxy)

Full repaint

Assume staging of rehabilitation work required and increase cost for seismic retrofit. Say 15% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	95	\$58.50	\$5,557.50
2162500	Removal of Existing Bridge Deck	Sq. Ft.	316135	\$11.05	\$3,493,291.75
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	2057	\$123.50	\$253,998.35
7034212	Slab on Steel	Sq. Yd.	34279	\$377.00	\$12,923,294.70
7034219A	Type D Barrier	Lin. Ft.	11432	\$110.50	\$1,263,236.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	825	\$169.00	\$139,425.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	367	\$117.00	\$42,939.00
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$86,749.00	\$86,749.00
7120900	Expansion Device (Finger Plate)	Lin. Ft.	466	\$2,600.00	\$1,211,600.00
7123611	Slab Drain with Grate	Each	84	\$5,460.00	\$458,640.00
7123620	Drainage System (On Structure)	Lump Sum	1	\$2,107,170.00	\$2,107,170.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	653100	\$32.50	\$21,225,750.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	653100	\$3.25	\$2,122,575.00
7125365A	Intermediate Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7125370A	Finish Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7151001	Vertical Drain at End Bents	Lin. Ft.	176	\$58.50	\$10,296.00
7171001	Preformed Compression Seal Expansion Joint System	Lin. Ft.	110	\$409.50	\$45,045.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	331	\$546.00	\$180,724.91
	TOTAL BASE COST	=			\$48,966,412.21

\$7,344,961.8 Misc. Construction Costs (15%):

Sub-total:	\$56,311,374.04
Mobilization (6%): *Surveying (1%):	\$3,378,682.4 \$295,669.3
Total Rehab Cost (2022):	\$59,985,725.78
Cost/SF of Bridge:	\$189.75

 $^{\star}$  1% for surveying cost does not include base superstructure paint cost.

\$189.75

## J6I3585 - I-64 PEL Study Bridge #7 - A3740 (10 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 7 - A3740

 Bridge Name:
 WB I-64 On-Ramp from Grand over Fill

 Bridge No.
 A3740

 Rehab/Replace Alternative:
 10 Yr Fix

 10/25/50 Yr Remark (original):
 (10 Yr) - Expansion joint replacement & EP Overlay, etc.

Scope: Scarification of bridge deck Epoxy polymer overlay Substructure repairs (formed/unformed) and misc. crack repair Protective coating concrete (epoxy) at Bent 1 Superstructure repair (unformed) & slab edge repair Expansion joint replacement

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	892	\$15.60	\$13,922.97
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	29	\$455.00	\$13,195.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	12	\$910.00	\$10,920.00
6233000	Epoxy Polymer Wearing Surface	Sq. Yd.	892	\$52.00	\$46,409.90
7034214	Class B-2 Concrete	Cu. Yd.	4.7	\$4,290.00	\$20,163.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	15	\$201.50	\$3,022.50
7040103	Superstructure Repair (Unformed)	Sq. Ft.	86	\$169.00	\$14,534.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	15	\$260.00	\$3,900.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	\$11,700.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	\$4,784.13
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$3,042.00	\$3,042.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	\$16,965.00
	TOTAL BASE COST	=			\$162,558.50

Misc. Construction Costs (5%): \$8,127.92

Sub-total: \$170,686.42

Mobilization (6%): \$10,241.19

Total Rehab Cost (2022): \$180,927.61

Cost/SF of Bridge: \$21.03

## J6I3585 - I-64 PEL Study Bridge #7 - A3740 (25 Yr Rehab)

### MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Bridge Name: Bridge No. Rehab/Replace Alternative:

Bridge No. 7 - A3740

WB I-64 On-Ramp from Grand over Fill A3740 25 Yr Fix 10/25/50 Yr Remark (original): (25 Yr) - Expansion joint replacement & Hydro/Latex, etc.

### Scope:

**FJ** 

Total hydro demolition & scarification of bridge deck Latex modified concrete overlay Substructure repairs (formed/unformed) and misc. crack repair Protective coating concrete (epoxy) at Bent 1 Superstructure repair (unformed) & slab edge repair Expansion joint replacement

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	892	\$15.60	\$13,922.97
2161001	Total Surface Hydro Demolition	Sq. Yd.	892	\$65.00	\$58,012.37
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	29	\$455.00	\$13,195.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	12	\$910.00	\$10,920.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	892	\$130.00	\$116,024.74
7034214	Class B-2 Concrete	Cu. Yd.	4.7	\$4,290.00	\$20,163.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	15	\$201.50	\$3,022.50
7040103	Superstructure Repair (Unformed)	Sq. Ft.	86	\$169.00	\$14,534.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	15	\$260.00	\$3,900.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	\$11,700.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	\$4,784.13
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$3,042.00	\$3,042.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	\$16,965.00
	TOTAL BASE COST	=			\$290,185.71

Misc. Construction Costs (5%): \$14,509.29

> Sub-total: \$304,695.00

Mobilization (6%): \$18,281.70

Total Rehab Cost (2022): \$322,976.70

> Cost/SF of Bridge: \$37.54

## J6I3585 - I-64 PEL Study Bridge #8 - L0638 (25 Yr Rehab)

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Bridge No. 8 - L0638

 Bridge Name:
 Grand over I-64

 Bridge No.
 L0638

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro/Latex & Substructure Repair, etc.

Scope:

Total hydro demolition Remove and replace existing half-sole repairs Latex modified concrete overlay Remove and replace overhang Substructure repairs (formed/unformed) Crack filler on substructure Superstructure repair (unformed)

Assume staging of rehabilitation work required.

\*Lump Sum cost for Remove and Replace Existing Overhang shall

include partial removal of existing bridge deck, Class B-2 Concrete, Reinforcing Steel (Epoxy Coated), Resin Anchor system and any

ancillary materials or labor required to replace the existing

overhangs.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Total Surface Hydro Demolition	Sq. Yd.	748	\$65.00	\$48,620.00
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	6732	\$3.25	\$21,879.00
2161503	Removal of Existing Deck Repair	Sq. Ft.	6600	\$52.00	\$343,200.00
2169901	Remove and Replace Existing Overhang*	Lump Sum	1	\$785,960.00	\$785,960.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	748	\$130.00	\$97,240.00
7034219A	Type D Barrier	Lin. Ft.	200	\$149.50	\$29,850.07
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	198	\$169.00	\$33,462.00
7040103	Superstructure Repair (Unformed)	Sq. Ft.	119	\$169.00	\$20,111.00
7040104	Half-Sole Repair	Sq. Ft.	8200	\$58.50	\$479,700.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	40	\$117.00	\$4,680.00
7071000	Conduit System on Structure	Lump Sum	1	\$4,537.00	\$4,537.00
	TOTAL BASE COST =				\$1,869,239.07

Misc. Construction Costs (10%): \$186,923.91

Sub-total: \$2,056,162.97

Mobilization (6%): \$123,369.78

Total Rehab Cost (2022): \$2,179,532.75

Cost/SF:

\$267.10

# **HDR**

Scope:

## J6I3585 - I-64 PEL Study Bridge #8 - L0638 (Replacement)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Bridge Name: Bridge No. Rehab/Replace Alternative: 10/25/50 Yr Remark (original):

Bridge No. 8 - L0638

L0638 Replacement

Grand over I-64

Replace with Simple Span Prestressed Concrete NU-Girder Bridge with MSE walls at abutments

Other Considerations (recommended individual % increase per EPG): Staged Construction (10%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Over and under interestate

Increase by bridge cost by 20% for misc. construction cost and increase by MSE wall replacement by 10%.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	8200	\$52.00	\$426,400.00
-	Simple Span NU-Girder Bridge	Sq. Ft.	8200	\$169.00	\$1,385,800.00
-	MSE walls	Sq. Ft.	4500	\$119.60	\$538,200.00
	TOTAL BASE COST =				\$2,350,400.00

Total Cost of Removal and Replacement (2022):	\$6,335,298.80
Mobilization (6%): Surveying (1%):	\$355,250.40 \$59,208.40
Sub-total:	\$5,920,840.00
**Roadway Cost (Lump Sum):	\$3,239,460.00
Misc. MSE Wall Costs (10%):	\$53,820.00
Misc. Bridge Costs (20%):	\$277,160.00

Cost/SF of Bridge: \$772.60

\*\*To meet vertical clearance standard of 16'-6" over I-64, a proposed grade raise of 18" was assumed for roadway costs (assuming similar structure depth). Lump sum cost for road work is based off of recent projects and estimated for approximate area of impact based on the proposed grade raise.

# **HDR**

## J6I3585 - I-64 PEL Study Bridge #9 - A0549 (Replacement)

### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 9 - A0549

Bridge Name: Bridge No. Rehab/Replace Alternative: 10/25/50 Yr Remark (original):

EB I-64 Off-Loop Ramp to Grand over Federal Sign Company Entrance A0549 Replacement

Scope:

Replace with 3-span 16" concrete slab bridge with 2 column bents and similar span arrangement

### Other Considerations (recommended individual % increase per EPG):

Horizontally Curved (5%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%)

- Nearby retaining walls (for off ramp and adjacent existing bridge)

Increase bridge cost by 15% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	2350	\$18.20	\$42,770.00
-	3-Span Concrete Slab Bridge (16")	Sq. Ft.	2180	\$214.50	\$467,610.00
	TOTAL BASE COST =				\$510,380.00

Misc. Bridge Costs (15%): \$70,141.50 \*\*Misc. Roadway Costs (10%):

\$51,038.00

\$631,559.50 Sub-total:

<u>Total Cost of Removal and Replacement (2022):</u>	\$675,768.67
Surveying (1%):	\$6,315.60
Mobilization (6%):	\$37,893.57

Cost/SF of Bridge: \$309.99

\*\*Additional percentage of base cost included to cover misc. roadway costs such as concrete approach pavement, striping and guardrail.

## J6I3585 - I-64 PEL Study Bridge #10 - A3741 (25 Yr Rehab)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

FJS

Bridge Name: Bridge No.

Bridge No. 10 - A3741

WB I-64 On-Ramp from Market over Fill A3741 Rehab/Replace Alternative: 25 Yr Fix 10/25/50 Yr Remark (original): (25 Yr) - Hydro-latex, expansion jt replacement, rehab, etc.

Scope:

Total hydro demolition & scarification of bridge deck Latex modified concrete overlay Superstructure repair (unformed) & slab edge repair Misc. half-sole and full depth repairs Expansion joint replacement

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	311	\$15.60	\$4,844.59
2161001	Total Surface Hydro Demolition	Sq. Yd.	311	\$65.00	\$20,185.78
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	29	\$455.00	\$13,195.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	12	\$910.00	\$10,920.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	311	\$130.00	\$40,371.56
7034214	Class B-2 Concrete	Cu. Yd.	4.7	\$4,290.00	\$20,163.00
7040103	Superstructure Repair (Unformed)	Sq. Ft.	130	\$169.00	\$21,970.00
7040104	Half-Sole Repair	Sq. Ft.	150	\$104.00	\$15,600.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	20	\$260.00	\$5,200.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	\$4,784.13
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	\$16,965.00
	TOTAL BASE COST =				\$181,349.06

\$9,067.45 Misc. Construction Costs (5%):

Sub-total:	\$190,416.51

Mobilization (6%): \$11,424.99

Total Rehab Cost (2022): \$201,841.50

> Cost/SF of Bridge: \$77.43

# **HDR**

## J6I3585 - I-64 PEL Study Bridge #10 - A3741 (Replacement)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Bridge Name: Bridge No. Rehab/Replace Alternative: 10/25/50 Yr Remark (original): Bridge No. 10 - A3741

WB I-64 On-Ramp from Market A3741 Replacement

Scope:

Replace with 2-Span 17" Concrete Slab Bridge

Other Considerations (recommended individual % increase per EPG): Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Interstate ramp

Increase bridge cost by 10% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	2650	\$18.20	\$48,230.00
-	2-Span Concrete Slab Bridge	Sq. Ft.	2650	\$221.00	\$585,650.00
	TOTAL BASE COST =				\$633,880.00

Misc. Bridge Costs (10%): \$58,565.00 Misc. Roadway Costs (10%):

\$63,388.00

#### Sub-total: \$755,833.00

Mobilization (6%): \$45,349.98 \$7,558.33 Surveying (1%):

Total Cost of Removal and Replacement (2022): \$808,741.31

> Cost/SF of Bridge: \$305.19

\*\*Additional percentage of base cost included to cover misc. roadway costs such as concrete approach pavement, striping and guardrail.

## J6I3585 - I-64 PEL Study Bridge #11 - A0832 (25 Yr Rehab)

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Bridge No. 11 - A0832

 Bridge Name:
 EB I-64 over Market

 Bridge No.
 A0832

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Remove & Replace Ex Concrete overlay w/ new hydro/latex & eliminate L-joint, etc.

Scope:

Total hydro demolition & scarification of bridge deck Remove existing wearing surface (original deck) Remove and replace existing deck repair where needed (beneath wearing surface) Latex modified concrete overlay Remove L-joint between bridges and at approach slabs Repair barrier Repair approach slab Misc. half-sole and full depth repairs

Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	559	\$15.60	\$8,717.35
2161000	Total Surface Hydro Demolition	Sq. Yd.	1744	\$52.00	\$90,672.69
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	5908	\$3.25	\$19,201.00
2161503	Removal of Existing Deck Repair	Sq. Ft.	85	\$52.00	\$4,425.20
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	252	\$650.00	\$163,800.00
2169904	Partial Removal and Replacement of Approach Slab	Sq. Ft.	159	\$104.00	\$16,536.00
5050004	Supplementary Wearing Surface Material	Cu. Yd.	5	\$910.00	\$4,550.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	1744	\$130.00	\$226,681.72
7034214	Class B-2 Concrete	Cu. Yd.	26.2	\$4,290.00	\$112,373.37
7040103	Superstructure Repair (Unformed)	Sq. Ft.	119	\$169.00	\$20,111.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	20	\$260.00	\$5,200.00
7049903	Parapet Repair (Formed)	Lin. Ft.	20	\$195.00	\$3,900.00
7040104	Half-Sole Repair	Sq. Ft.	700	\$104.00	\$72,800.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7101000	Reinforcing Steel (Bridges)	Lb.	7072	\$1.82	\$12,871.86
	TOTAL BASE COST =				\$768,990.19

Misc. Construction Costs (10%): \$76,899.02

Sub-total: \$845,889.21

Mobilization (6%): \$50,753.35

Total Rehab Cost (2022): \$896,642.56

Cost/SF of Bridge: \$75.60

# **HDR**

## J6I3585 - I-64 PEL Study Bridge #11 - A0832 (Replacement)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 11 - A0832

Bridge Name: EB I-64 over Market Bridge No. A0832 Rehab/Replace Alternative: 10/25/50 Yr Remark (original): -

Replacement

Scope: Replace with 3-Span Prestressed Concrete NU-Girder Bridge

Other Considerations (recommended individual % increase per EPG): Staged Construction (10%) Horizontally Curved (5%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Interstate bridge over interstate off ramp

Increase by bridge cost by 18% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	11860	\$24.70	\$292,950.95
-	3-Span NU-Girder Bridge	Sq. Ft.	11950	\$169.00	\$2,019,550.00
	TOTAL BASE COST =				\$2,312,500.95
		I	Misc. Bridge	Costs (18%):	\$363,519.00
		**Rc	adway Cost	(Lump Sum):	\$2,159,640.00
				Sub-total:	\$4,835,659.95
			Mobil	ization (6%):	\$290,139.60
			Su	veying (1%):	\$48,356.60
	Total Cost of R	emoval and	d Replacem	ent (2022):	\$5,174,156.15

Cost/SF of Bridge: \$432.98

\*\*To meet vertical clearance standard of 16'-6" over Market St., a proposed grade raise of 24" was assumed for roadway costs (assuming similar structure depth). Lump sum cost for road work is based off of recent projects and estimated for approximate area of impact based on the proposed grade raise.

## J6I3585 - I-64 PEL Study Bridge #12 - A3636 (25 Yr Rehab)

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

**HDR** 

Bridge No. 12 - A3636

 Bridge Name:
 WB I-64 On-Ramp from Market over Forest Park Ave

 Bridge No.
 A3636

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro/latex

### Scope:

Total hydro demolition and scarification of bridge deck Latex modified concrete overlay Superstructure repair (unformed) and crack filler Replace approach slabs and add vertical drain at end bents Provide joint seal at abutments/approach slab Misc. full depth and half-sole deck repairs

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	35	\$58.50	\$2,047.50
2161000	Scarification of Bridge Deck	Sq. Yd.	430	\$15.60	\$6,715.70
2161001	Total Surface Hydro Demolition	Sq. Yd.	430	\$65.00	\$27,982.10
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	1320	\$123.50	\$163,020.00
5050004	Supplementary Wearing Surface Material	Cu. Yd.	2	\$910.00	\$1,820.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	430	\$130.00	\$55,964.20
7040103	Superstructure Repair (Unformed)	Sq. Ft.	88	\$169.00	\$14,872.00
7040104	Half-Sole Repair	Sq. Ft.	100	\$104.00	\$10,400.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	\$11,700.00
7151001	Vertical Drain at End Bents	Lin. Ft.	85	\$58.50	\$4,958.47
7174001	Preformed Silicone Expansion Joint Seal (with armor)	Lin. Ft.	69	\$585.00	\$40,365.00
	TOTAL BASE COST =	•			\$346,994.97

Misc. Construction Costs (5%): \$17,349.75

Sub-total:	\$364,344.72

\$87.88

Mobilization (6%): \$21,860.68

Total Rehab Cost (2022): \$386,205.40

Cost/SF of Bridge:

## J6I3585 - I-64 PEL Study Bridge #13 - A0835 (Replacement)

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

**HDR** 

Bridge No. 13 - A0835

 Bridge Name:
 EB

 Bridge No.
 A08

 Rehab/Replace Alternative:
 Rep

 10/25/50 Yr Remark (original):

EB I-64 Off-Ramp to Market over Forest Park Ave A0835 Replacement

Scope: Replace with 3-Span Prestressed Concrete NU-Girder Bridge

### Other Considerations (recommended individual % increase per EPG): Horizontally Curved (5%)

Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Interstate ramp over interestate off ramp

Increase by bridge cost by 10% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	6650	\$22.10	\$146,965.00
-	3-Span NU-Girder Bridge	Sq. Ft.	6250	\$162.50	\$1,015,625.00
	TOTAL BASE COST =				\$1,162,590.00
			Misc. Brid	ge Costs (10%):	\$101,562.50
		*	*Roadway Co	ost (Lump Sum):	\$1,079,820.00
				Sub-total:	\$2,343,972.50
			M	obilization (6%):	\$140,638.35
				Surveying (1%):	\$23,439.73
	Total Cost of	of Removal	and Replac	ement (2022):	\$2,508,050.58
			Cos	st/SF of Bridge:	\$401.29

\*\*To meet vertical clearance standard of 16'-6" over Forest Park Parkway, a proposed grade raise of 18" was assumed for roadway costs (assuming similar structure depth). Lump sum cost for road work is based off of recent projects and estimated for approximate area of impact based on the proposed grade raise.

## Appendix A: Quantity Calculations

Bridge Name:

MoDOT Job Number J6I3585 St. Louis County 7/13/2022 Project: I-64 PEL Study Subject: No-Build Option (A3735) Task: Cost Estimates Job #: 10333314

**BRIDGE NO. 1 - A3735** 

EB I-64 On-Ramp from Papin over EB I-64 Ramp to Vandeventer Ave.

Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22

### Bridge No. A3735 Rehab/Replace Alternatives: 50 Yr Fix 10/25/50 Yr Remark (original): (50 Yr) - Deck Replacement & Full Repaint **Bridge Description** Original Construction: 1977 Superstructure Type: Continuous Composite Curved W-Beam 42'-58'-57'-55'-43' Span Arrangement: Roadway Width: 24'-10" Out-to-Out Width: 28'-2" AADT: 2,371 (2020); 2,964 (2040) Condition 5 Deck: Superstructure: 7 Substructure: 6 Sufficiency rating: 94.1% Vertical Clearance: Posted at 15'-3"; Actual: 16'-5" (I-64 to Vandeventer), 23'-4" (Vandeventar to I-64) Inspection Notes Railing and App Pavement Components and Ratings Barrier Minor issues only. Does not meet current standards for bridge rail. Spalls (large) & wear (medium) on west approach Approach pavement Drainage, Expansion devices, Bank/slope & Deck protective components Minor issues only. OK (1.75" latex modified 2009) Wearing surface Strip Seal at both abutments (2009 rehab) Expansion device Slope protection Minor eroding and settlement. **Deck Components** Moderate to Large deficiencies throughout Deck

Superstructure Components: Girders Paint peeling/rusting throughout

c:\pwworking\central01\d3052554\A3735 - Conceptual Scope and Estimate.xlsx

FJS	Project: I-64 PEL Study Subject: No-Build Option (A3735) Task: Cost Estimates Job #: 10333314	Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22
MoDOT Job Number J6l3585 St. Louis County 7/13/2022 Substructure Components:	BRIDGE NO. 1 - A3735	
Abut 1 Bent 2 Bent 3 Bent 4 Bent 5 Abut 6	Beam cap: Crack/Delam @ Bay 3 (few) Epoxy seal peeling at top e Bearings: Brgs 3&4 rusting (light), Brgs 1-3 tipped (Medium) HL cracking (few) at top Col 2 Minor issues only. OK. Minor issues only. OK. Column 1: Spalls @ bottom (small) and vertical cracks (minor) Backwall: Delam and cracking throughout (moderate) Stem: Delam at random (Large), rust stains throughout (moderate), (light) & vertical cracks (minor) Bearings: Tipped throughout (excessive)	
Clearance Information:	See above	
Structure Paint Information:	Poor. 74 tons of steel. Original System B Basic Lead Chromium (19	79), Repaint Experimental Coatings(1999)
<u>Requested Items:</u>	Flush debris from Exp. Jts. 10SF of patching w/asphalt on east App. Slab Repair guardrail Repair both abut cap/stem delaminations Repair west app Repair overhead hazard from deck Cleanup west abutment slope Roadway surface resealed Future Redeck & paint	
Utility attachments:	Conduit in right barrier	
Additional Recommendations	Replace approach slabs & add vertical drain at end bents Substructure repair (assume 15% of substructure front face) Apply Concrete Protective Coating (Epoxy) @ abutments & columns Abutment bearing rehabilitation	s near roadways (10' above ground)
Other Recommendations to Consider	Vertical Clearance (15'-3" posted); new bridge would require 16'-6"	



MoDOT Job Number J6l3585 St. Louis County 7/13/2022 Substructure Repair (Google Earth)(cont.) Abut 6, Assume 15% of face requires repair. (assume this covers top of cap repair needed)

Project: I-64 PEL Study Subject: No-Build Option (A3735) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22

### **BRIDGE NO. 1 - A3735**







# **H**

Project: I-64 PEL Study Subject: No-Build Option (A3735) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22

### **BRIDGE NO. 1 - A3735**

MoDOT Job Number J6I3585 St. Louis County 7/13/2022

Bridge Name: EB I-64 On-Ramp from Papin over EB I-64 Ramp to Vandeventer Ave. Bridge No. A3735 Rehab/Replace Alternative: 50 Yr Fix 10/25/50 Yr Remark (original (50 Yr) - Deck Replacement & Full Repaint

### Scope/Recommendation:

Replace deck (barrier, expansion joints, and conduit replaced) Replace approach slabs & add vertical drain at end bents Substructure Repair (formed/unformed) Concrete Protective Coating (Epoxy) Full repaint of girders Clean, coat, and reset rocker bearings

### Existing properties/dimensions

Skew:		
Deck width:	28.1667 ft	
Deck length:	261.432 ft	(along BL)
Left Barrier length:	281.22 ft	
Right Barrier length:	268.63 ft	
Steel Weight:	74 tons	

### **Quantities**

Class 1 Excavation Accuracy 5 Cu. Yd. Assume 3' width excavated to bottom of diaphragm Length (ft)

Total			65.0	Cu. Yd.
Abut 6	6.20	57.0	39.3	
Abut 1	4.083	53.200	24.1	
	Height (ft)	(abut & wings)	Volume (yd <sup>3</sup> )	
		Lengin (ii)		

### Removal of Existing Bridge Deck

Accuracy 1 Sq. Ft.

	Width (ft) 28.1667	Length (ft) 261.432	Area (ft <sup>2</sup> ) 7364	
Total			7364	Sq. Ft.
Removal and Replacement o	f Approach Sla	b		Accuracy 1 Sq. Ft.
App. Slab			Area (ft <sup>2</sup> )	
1			747	(from Google Earth)
4			592	(from Google Earth)
Total			1339	Sq. Ft.
Latex Modified Concrete Wea	aring Surface			Accuracy 1 Sq. Yd.
Total			818	Sq. Yd.
Slab on Steel				Accuracy 1 Sq. Yd.

Sq. Yd	
	Sq. Yd

	Width (ft) 28.1667	Length (ft) 261.432	Area (yd <sup>2</sup> ) 818	
Total			818	Sq. Yd.

FJK			Subject: No-B Task: C	I-64 PEL Study suild Option (A3735) ost Estimates 1: 10333314
MoDOT Job Number J6l3 St. Louis County	3585		BRIDGE	NO. 1 - A3735
7/13/2022 Type D Barrier			Length (ft)	Accuracy 1 Lin. Ft.
Left Barrier Right Barrier			281.2 268.6	
Total			550	Lin. Ft.
Substructure Repair (For	rmed)			Accuracy 1 Sq. Ft.
Abut 1	at Day 2 (take 5% a	rea of how 2)		
Beam cap - Cracks/delam			450/ 4 (92)	
	Width (ft)	Length (ft)	15% Area (ft <sup>2</sup> )	
Bay 3	2	9.333	9	
Bent 5				
Column 1 spalls (Assume	5' above around nee	ds substructure	formed)	
	Height (ft)	Diameter (ft)	Area (ft <sup>2</sup> )	
Column 1	5	2.5	39	
Abut 6				
Backwall - Moderate delar	n at random (assume	e 10% of face ar	rea)	
Stem - Large delam and la	arge spalls on front fa	ace (assume 15º	% of front face)	
	Height (ft)	Length (ft)	x% Area (ft <sup>2</sup> )	
Backwall	6.20	10.00		
	0.20	49.96	31	(Height varies, approx ave)
Stem	21.67	49.96 49.96	31 162	(Height varies, approx ave)
Stem Total Substructure Repa	21.67			(Height varies, approx ave) Sq. Ft.
	21.67 ir (Formed)	49.96	162 <b>241</b>	
Total Substructure Repa	21.67 ir (Formed) cture (up to 2.5" dia	49.96	162 <b>241</b>	Sq. Ft.
Total Substructure Repa Conduit System on Struc	21.67 ir (Formed) cture (up to 2.5" dia	49.96 m.)	162 241 Accurac 269	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height	49.96 m.) Pers (Epoxy) Length /	162 241 Accurac 269 Accurac	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con	21.67 ir (Formed) cture (up to 2.5" dia 1) crete Bents and Pie	49.96 m.) ers (Epoxy)	162 241 Accurac 269	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con <u>Abut 1</u>	21.67 ir (Formed) cture (up to 2.5" dia 1) crete Bents and Pie Width / Height (ft)	49.96 m.) ers (Epoxy) Length / Diameter (ft)	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> )	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con <u>Abut 1</u> Backwall (front face)	21.67 ir (Formed) cture (up to 2.5" dia 1) crete Bents and Pie Width / Height (ft) 4.083	49.96 m.) Pers (Epoxy) Length / Diameter (ft) 31.2	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height (ft) 4.083 2	49.96 m.) Pers (Epoxy) Length / Diameter (ft) 31.2 33.3	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con <u>Abut 1</u> Backwall (front face) Top of Cap Cap (front face)	21.67 ir (Formed) cture (up to 2.5" dia 1) crete Bents and Pie Width / Height (ft) 4.083	49.96 m.) Pers (Epoxy) Length / Diameter (ft) 31.2	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height (ft) 4.083 2 3	49.96 m.) ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face)	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height (ft) 4.083 2 3 6.20	49.96 m.) ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9	Sq. Ft.
Total Substructure Repa Conduit System on Struc Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33	49.96 m.) ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face)	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33 3.5	49.96 m.) Pers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face)	21.67 ir (Formed) cture (up to 2.5" dia n) crete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33 3.5 21.667	49.96 m.) Pers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face) Stem (front face)	21.67 ir (Formed) cture (up to 2.5" dia trip crete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33 3.5 21.667 coating 10' above gro	49.96 m.) Ders (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96 9.96 49.96	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8 1082.4	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face) Stem (front face) Bent 2 (Apply to columns of Two Columns	21.67 ir (Formed) cture (up to 2.5" dia trete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33 3.5 21.667 coating 10' above grow 10	49.96 m.) Pers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96 49.96 2.5	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face) Stem (front face) Stem (front face) Bent 2 (Apply to columns of Two Columns	21.67 ir (Formed) cture (up to 2.5" dia cture (up to 2.5" dia treation (up to 2.5" dia trea	49.96 m.) Ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96 49.96 49.96 2.5 50000)	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8 1082.4 157.1	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face) Bent 2 (Apply to columns of Two Columns Bent 3 (Apply to columns of Two Columns	21.67 ir (Formed) cture (up to 2.5" dia trete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33 3.5 21.667 coating 10' above growned 10 coating 10' above growned 10	49.96 m.) ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96 49.96 2.5 2.5	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8 1082.4	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face) Bent 2 (Apply to columns of Two Columns Bent 3 (Apply to columns of Two Columns	21.67 ir (Formed) cture (up to 2.5" dia treation to 2.5" dia t	49.96 m.) ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96 49.96 49.96 2.5 50000 2.5 50000	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8 1082.4 157.1 157.1	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)
Total Substructure Repa Conduit System on Struct Total (right barrier length Protective Coating - Con Abut 1 Backwall (front face) Top of Cap Cap (front face) Abut 6 Backwall (front face) Top of Cap Cap (front face) Stem (front face) Bent 2 (Apply to columns of Two Columns Bent 3 (Apply to columns of Two Columns	21.67 ir (Formed) cture (up to 2.5" dia trete Bents and Pie Width / Height (ft) 4.083 2 3 6.20 3.33 3.5 21.667 coating 10' above growned 10 coating 10' above growned 10	49.96 m.) ers (Epoxy) Length / Diameter (ft) 31.2 33.3 33.3 49.96 49.96 49.96 49.96 49.96 49.96 2.5 2.5	162 241 Accurac 269 Accurac Area (ft <sup>2</sup> ) 127.4 66.6 99.9 309.9 166.4 174.8 1082.4 157.1	Sq. Ft. cy Lump Sum (LF for cost) Lin. Ft. cy Lump Sum (SF for cost)

Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22

FJS	Project: I-64 PEL Study Subject: No-Build Option (A37 Task: Cost Estimates Job #: 10333314		
MoDOT Job Number J6i3585 St. Louis County 7/13/2022	BRIDGE	NO. 1 - A3735	
Cleaning, Lubricating and Coating Existing Bearing		Accuracy Each	
Abut 1 Abut 6	4 4		
Total	8	Each	
Surface Preparation for Recoating Structural Steel		Accuracy 100 Sq.	
Per MoDOT Pay item spreadsheet for WF beams, estimat Fotal	te 125 sq. ft. per ton. 9300		
	9300	Sq. Ft.	
ield Application of Inorganic Zinc Primer		Accuracy 100 Sq.	
er MoDOT Pay item spreadsheet for WF beams, estimat otal	te 125 sq. ft. per ton. 9300		
	9300	Sq. Ft.	
ntermediate Field Coat (System G) er MoDOT Pay item spreadsheet for WF beams, estimat	te 125 sq. ft. per ton.	Accuracy 100 Sq.	
tal	9300	Sq. Ft.	
<b>nish Field Coat (System G)</b> er MoDOT Pay item spreadsheet for WF beams, estimat	te 125 sq. ft. per ton.	Accuracy 100 Sq.	
tal	9300	Sq. Ft.	
eset Rocker Bearing		Accuracy Each	
Abut 1 Abut 6	4 4		
otal	8	Each	
/ertical Drain at End Bents		Accuracy 1 Lin. F	
Wing lengt           Bent length (ft)         (both) (1           Abut 1         31.200         22	ft) (ft) 53.2		
Abut 6 49.96 7	56.96 110	Lin. Ft.	
Strip Seal Expansion Joint System		Accuracy 1 Lin. F	
otal (from 2009 Rehab)	62	Sq. Ft.	

Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22

# H

Bridge No.

Project: I-64 PEL Study Subject: No-Build Option (A3735) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date: 7/13/22 Checked by: MTW Date: 07/21/22

### **BRIDGE NO. 1 - A3735**

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name: EB I-64 On-Ramp from Papin over EB I-64 Ramp to Vandeventer Ave. A3735 Rehab/Replace Alternative: 50 Yr Fix 10/25/50 Yr Remark (original): (50 Yr) - Deck Replacement & Full Repaint

Scope/Recommendation: Replace deck (barrier, expansion joints, and conduit replaced) Replace approach slabs & add vertical drain at end bents Substructure Repair (formed/unformed) Concrete Protective Coating (Epoxy) Full repaint of girders Clean, coat, and reset rocker bearings

Assume full closure of A3735 but limited access to bridge (over I-64 ramp).

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	65	\$58.50	\$3,802.50
2162500	Removal of Existing Bridge Deck	Sq. Ft.	7364	\$11.05	\$81,368.63
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	1339	\$123.50	\$165,366.50
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	818	\$130.00	\$106,364.22
7034212	Slab on Steel	Sq. Yd.	818	\$487.50	\$398,865.82
7034219A	Type D Barrier	Lin. Ft.	550	\$149.50	\$82,202.58
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	241	\$169.00	\$40,799.58
7071000	Conduit System on Structure	Lump Sum	1	\$12,220.00	\$12,220.00
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$19,487.00	\$19,487.00
7123100	Cleaning and Coating Existing Bearings	Each	8	\$650.00	\$5,200.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	9300	\$26.00	\$241,800.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	9300	\$3.25	\$30,225.00
7125365A	Intermediate Field Coat (System G)	Sq. Ft.	9300	\$2.60	\$24,180.00
7125370A	Finish Field Coat (System G)	Sq. Ft.	9300	\$2.60	\$24,180.00
7129902	Reset Rocker Bearing	Each	8	\$650.00	\$5,200.00
7151001	Vertical Drain at End Bents	Lin. Ft.	110	\$58.50	\$6,444.17
7172001	Strip Seal Expansion Joint System	Lin. Ft.	62	\$585.00	\$36,270.00
	TOTAL BASE COST	=			\$1,280,173.5

Misc. Construction Costs (10%): \$128,017.35

> Sub-total: \$1,408,190.84

Mobilization (6%): \$84,491.45 \*Surveying (1%): \$10,878.06

Total Rehab Cost (2022): \$1,503,560.35

\*1% for surveying cost does not include base superstructure paint cost.

Cost/SF of Bridge: \$204.19



Project: I-64 PEL Study Subject: No-Build Option (A3735) Task: Cost Estimates Job #: 10333314

### **BRIDGE NO. 1 - A3735**

MoDOT Job Number J6I3585 St. Louis County 7/13/2022

Unit Costs:

### Add 30% to account for 2022 price increases

2169901	Class 1 Excavation		Cu. Yd.	65	\$58.50
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$45.00 -		
		Use:	\$58.50		
2162500	Removal of Existing Bridge Deck		Sq. Ft.	7364	\$11.05
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$8.50 -	(composite)	
		Use:	\$11.05		
2169904	Removal and Replacement of Approach Sla	ab	Sq. Ft.	1339	\$123.50
		Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$95.00 - \$123.50	(from partial ren	noval/replace)
		Use.	φ123.30		
5052000	Latex Modified Concrete Wearing Surface		Sq. Yd.	818	\$130.00
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$100.00		
		Use:	\$130.00		
7034212	Slab on Steel		Sq. Yd.	818	\$487.50
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$375.00 -	(< 1000 Sq. Yd.	)
		Use:	\$487.50		
7034219A Typ	Type D Barrier		Lin. Ft.	550	\$149.50
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$115.00 -	(< 600 LF)	
		Use:	\$149.50		
7040101/02	Substructure Repair (Formed/Unformed)		Sq. Ft.	241	\$169.00
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$130.00	(>100 Sq. Ft.)	
		Use:	\$169.00		
7071000	Conduit System on Structure		Lump Sum	1	\$12,220.00
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$35.00	Quantity	LF
		Use:	\$12,220.00		

<b>5C</b> -	Project: I-64 PEL Study Subject: No-Build Option (A3 Task: Cost Estimates Job #: 10333314	735)		Computed by: SFP Date Checked by: MTW Date:
MoDOT Job Number J6I3585 St. Louis County 7/13/2022	BRIDGE NO. 1 - A373	5		
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$19,487.00
	Reference Pay Items 202 Othe Use:	r -	<u>Quantity</u> 2499	SF 
7123100	Cleaning and Coating Existing Bearings	Each	8	\$650.00
	Reference Pay Items 202 <sup>°</sup> Othe	<u>Unit Cost</u> \$500.00	(with paint in jo	
	Use:			
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	9300	\$26.00
	Reference Pay Items 202 <sup>-</sup> Othe	\$20.00 r -	(paint in larger	contract >6000SF)
	Use:	\$26.00		
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	9300	\$3.25
	Reference Pay Items 202 <sup>-</sup> Othe Use:	r -	(paint in larger	contract >6000SF) —
74050454			0200	<b>*</b> 2 <b>C</b> 0
7125315A	Intermediate Field Coat (System G)  Reference Pay Items 202	\$2.00	9300 (paint in larger	\$2.60 contract >6000SF)
	Othe Use:			_
7125320A	Finish Field Coat (System G)	Sq. Ft.	9300	\$2.60
11233204	Reference Pay Items 202 <sup>-</sup>	<u>Unit Cost</u> \$2.00		contract >6000SF)
	Othe _OtheOtheOtheOthe			_
7129902	Reset Rocker Bearing	Each	8	\$650.00
	Reference Pay Items 202 <sup>-</sup>	<u>Unit Cost</u>		
	Othe Use:			_
7151001	Vertical Drain at End Bents	Lin. Ft.	110	\$58.50
7101001			1 110	φου.ου
	Reference Pay Items 202' Othe	\$45.00 r -		
	Use:	\$58.50		
7172001	Strip Seal Expansion Joint System	Lin. Ft.	62	\$585.00
	Reference Pay Items 202 <sup>-</sup> Othe	\$450.00	(<100 ft)	
	Use:			_

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Bridge Name:

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314

**BRIDGE NO. 2 - L0669** 

Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

#### Bridge No. L0669 Rehab/Replace Alternative: 10 Yr Fix OR 25 Yr Fix (10 Yr) - Crack Filler 10/25/50 Yr Remark (original): (25 Yr) - Replace Concrete Overlay & Repaint Bridge Description Original Construction: 1956 Superstructure Type: Simple Span Composite WF Beam Span Arrangement: 68' Roadway Width: 48'-0" Out-to-Out Width: 54'-10" (inspection report) AADT: 48,870 (2020); 61,088 (2040) **Condition** Deck: 7 Superstructure: 7 Substructure: 6 Sufficiency rating: 81.0% Vertical Clearance: 15'-5" (SIA), min. posting is 15'-0" @ bridge A6881 to the east Inspection Notes Railing and App Pavement Components and Ratings Light severity only. Does not meet current standard for bridge rail. Barrier

EB I-64 over Vandeventer WB I-64 On-Ramp

Approach pavement

### Drainage, Expansion devices, Bank/slope & Deck protective components

Good (1.75" latex modified). Light severity only. Wearing surface

**Deck Components** Deck

1% delam on bottom. 2% saturation at bottom. Few cracks and light efflorescence at overhang

Cracks and patches throughout. Moderate spalling on lanes 2/3 (under overlay).

### Superstructure Components: Girders

Minor pitting/rusting in bottom flange (painted over previously). Minor rusting on diaphragms.

	Project: I-64 PEL Study	Computed by: SFP Date:07/13/2022				
FJS	Subject: No-Build Option (L0669)	Checked by: MTW Date:07/29/2022				
	Task: Cost Estimates					
	Job #: 10333314					
MoDOT Job Number J6I3585 St. Louis County 8/1/2022	BRIDGE NO. 2 - L0669					
Substructure Components:						
Abut 1	Beam cap - Large delam throughout, large horizontal cracks on to Sealed					
	Bearing - minor rusting throughout and packrust at bottom of G1& G2. Sealed Backwall - moderate leaching throughout, spalls on top, many vertical cracks. Sealed					
	Beam cap - Medum delam throughout with many horizontal crack					
	Stem - Moderate delam random, moderate efflorescence through					
Abut 2	Expansion bearing - minor rusting throughout					
	Backwall - moderate efflorescence leaching, and vertical cracks t	throughout. Sealed				
Clearance Information:	Min vert. clearance measured: 15'-4"					
Structure Paint Information:	Good. 26 tons of steel. 0.1% of surface rusted					
Requested Items:	Stencil bridge number					
	Seal joints (hot pour) - approach slab/deck					
	Epoxy inject cracks at abutments					
	Repair guard rail					
	Future substructure repair (2020)					
	Future Seal deck with Silane (2024)					
Utility attachments:	2" conduit in both rails					
Additional Recommendations	Substructure repair (10 & 25 yr) (see below for assumptions)					
	Seal deck with Silane (10 yr only) Apply Concrete Protective Coating (Epoxy) @ abutments (10 & 2	5 vr)				
	Abutment bearing rehabilitation (25 yr)	5 yr)				
	Expansion jt seal replacement (10 & 25 yr)					
	Include approach slab in overlay (25 yr), include 5% half sole rep	air on approach slabs required				
Other Recommendations to Consider	Vertical Clearance (15'-0" posted); new bridge would require 16'-6	6"; other bridge controlling clearance				

Other Recommendations to Consider Vertica

Vertical Clearance (15'-0" posted); new bridge would require 16'-6"; other bridge controlling clearance 70+ years old. May consider replacement, but superstructure still in good condition



Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

BRIDGE NO. 2 - L0669

### Substructure Repair and Crack Filler Quantity (Google Earth)

<u>Abut 1</u> Beam Cap

Say 25% of cap face beneath girders need substructure repair (formed/unformed). (assume this covers repair needed)





Stem

Say 75% of stem height for crack lengths under every bay for epoxy injection. (assume backwall will be accounted for with this quantity)



c:\pwworking\central01\d3052554\L0669 - Conceptual Scope and Estimate.xlsx



Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

### BRIDGE NO. 2 - L0669

MoDOT Job Number J6l3585 BRII St. Louis County 8/1/2022 Substructure Repair and Crack Filler Quantity (Google Earth)(cont.) Abut 2

Similar









# FC

St. Louis County 8/1/2022

MoDOT Job Number J6l3585

Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

### BRIDGE NO. 2 - L0669

Bridge Name:	EB I-64 On-Ramp from Pa	pin	
Bridge No.	A3735		
Rehab/Replace Alternative:	10 Yr Fix OR 25 Yr Fix		
10/25/50 Yr Remark (original):	(10 Yr) - Crack Filler		
,	(25 Yr) - Replace Concrete	e Overlay & Repaint	
Scope/Recommendation:			
Crack filler (10 yr only)			
Seal deck with Silane (10 yr only)	1		
Remove and replace concrete ov	erlay w/ approach slab inclu	ded (25 yr only)	
Repaint girders (25 yr only)			
Abutment bearing rehab (25 yr or		of )	
Apply concrete protective coating	(epoxy) at abutments (10 &	25 yr)	
Substructure repair (10 & 25 yr) Expansion jt. seal replacement (1	0.8.25  yr		
	0 u 20 yr)		
Existing properties/dimensions			
Skew:	<u>.</u>		
Roadway width:	48 ft		
Deck Width:	54.5833	(Max, Varies)	
Deck length:	78.8125 ft	(Ave, Varies)	
Left Barrier length:	85.646 ft	(, tanoo)	
Right Barrier length:	69.74 ft		
Steel Weight:	26 tons		
	20 10.10		
Quantitian			
<u>Quantities</u> Removal of Concrete Wearing (	Surface	(25 vr)	Acouroov 1 Sa Et
Removal of Concrete Wearing		(25 yr)	Accuracy 1 Sq. Ft.
(inspection notes indicated overla	ay on approach slab)	A	
		Area (ft <sup>2</sup> )	
App Slab 1		2214	
Deck		3967	(from 2009 rehab)
App Slab 2		2124	
Total (from 2009 Rehab)		3967	Sq. Ft.
Removal of Existing Deck Repa	air	(25 yr)	Accuracy 1 Sq. Ft.
Total (2008 rehab)		1460	Sq. Ft.
Total (2008 reliab)		1460	Sq. Ft.
Removal of Existing Expansior	ı Joint Sealant	(10/25 yr)	Accuracy 1 Lin. Ft.
Tatal (from 2000 Dabab)		402	1:- 54
Total (from 2009 Rehab)		193	Lin. Ft.
Latex Modified Concrete Weari	ng Surface	(25 yr)	Accuracy 1 Sq. Yd.
		$\Delta rop (vd^2)$	
App Slab 1		Area (yd²) 246	
Deck		441	(2009 rehab)
App Slab 2		236	(2000 101100)
Total (from 2009 Rehab)		923	Sq. Yd.
		520	oq. 10.
Penetrating Concrete Sealer		(10 yr)	Accuracy 1 Sq. Yd.
			Sq. Yd.
Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

MoDOT Job Number J6l3585 St. Louis County 8/1/2022			BRIDGE NC	0. 2 - L0669
Substructure Repair (Formed/	Unformed)		(10/25 yr)	Accuracy 1 Sq. Ft.
		Cap Front		
	Cap Front Face height (ft)	Face Length (ft)	25% of Area (ft <sup>2</sup> )	
Abut 1	4.7	117.61	137.2	-
Abut 2	3.8	100.65	96.4	
Total			234	Sq. Ft.
Half-Sole Repair			(10/25 yr)	Accuracy 50 Sq. Ft.
Replace removed existing repair 10% from approach slab	rs (25 yr only)		1460 217	
Total (10 yr)			250	Sq. Ft.
Total (25 yr)			1700	Sq. Ft.
Epoxy Pressure Injecting			(10/25 yr)	Accuracy 1 Lin. Ft.
	75% Height of			
	Wall	# of Bays	Length (ft)	
Abut 1	17.0	6	102.2	
Abut 2	15.7	6	94.0	
Total			196	Lin. Ft.
Protective Coating - Concrete	Bents and Piers (	Ероху)	(10/25 yr)	Accuracy Lump Sum (SF for cost)
	Width / Height (ft)	Length(ft)	Area (ft²)	
Abut 1 (width/height from origina	. ,			
Backwall (front face)	3.917	117.61	460.6	
Top of Cap (original)	2.91667	117.61	343.0	
Cap (front face)	4.667	117.61	548.9	
Stem (front face)	22.72	117.61	2672.1	
Abut 2 (width/height from origina	al plans as "average	e", length from	<u>1977)</u>	
Backwall (front face)	3.917	100.65	394.2	
Top of Cap	2.5	100.65	251.6	
Cap (front face)	3.833	100.65	385.8	
Stem (front face)	20.89	100.65	2102.6	
Total			7159	Sq. Ft.
Surface Propagation for Paces				
	ting Structural St	eel	(25 yr)	Accuracy 100 Sq. ft.
Per previous rehab (2008)	ting Structural St	eel	(25 yr)	Accuracy 100 Sq. ft.

Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

MoDOT Job Number J6l3585 St. Louis County	BRIDGE NO	D. 2 - L0669
8/1/2022 Field Application of Inorganic Zinc Primer	(25 yr)	Accuracy 100 Sq. ft.
Total	4400	Sq. Ft.
Intermediate Field Coat (System G)	(25 yr)	Accuracy 0.1 ton
Total	4400	Sq. Ft.
Finish Field Coat (System G)	(25 yr)	Accuracy 0.1 ton
Total	4400	Sq. Ft.
Open Cell Foam Joint Seal (no armor)	(10/25 yr)	Accuracy 1 Lin. Ft.
Total (from 2009 Rehab)	193	Lin. Ft.

Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314

### BRIDGE NO. 2 - L0669

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 EB I-64 over Vandeventer WB I-64 On-Ramp

 Bridge No.
 L0669

 Rehab/Replace Alternative:
 10 Yr Fix

 10/25/50 Yr Remark (original):
 (10 Yr) - Crack Filler

Scope: Substructure repair & epoxy crack filler Seal deck with silane Apply concrete protective coating (epoxy) at abutments Expansion jt. seal replacement --Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2165000	Removal of Existing Expansion Joint Sealant	Lin. Ft.	193	\$71.50	\$13,799.50
7033013	Penetrating Concrete Sealer	Sq. Yd.	441	\$26.00	\$11,466.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	234	\$169.00	\$39,490.12
7040104	Half-Sole Repair	Sq. Ft.	250	\$104.00	\$26,000.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	196	\$117.00	\$22,960.67
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$55,835.00	\$55,835.00
7172054	Open Cell Foam Joint Seal (no armor)	Lin. Ft.	193	\$71.50	\$13,799.50
	TOTAL BASE COST =				\$183,350.78

Misc. Construction Costs (10%): \$18,335.08

Sub-total: \$201,685.86

\$49.70

Mobilization (6%): \$12,101.15

Total Rehab Cost (2022): \$213,787.01

Cost/SF of Bridge:

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Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/29/2022

#### MoDOT Job Number J6I3585 St. Louis County

### **BRIDGE NO. 2 - L0669**

 8/1/2022

 Bridge Name:
 EB I-64 over Vandeventer WB I-64 On-Ramp

 Bridge No.
 L0669

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Replace Concrete Overlay & Repaint

#### Scope:

Remove and replace concrete overlay Repaint girders Apply concrete protective coating (epoxy) at abutments Substructure repair & epoxy crack filler Expansion jt. seal replacement

Assume staging of rehabilitation work required. Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	3967	\$3.25	\$12,892.75
2161503	Removal of Existing Deck Repair	Sq. Ft.	1460	\$52.00	\$75,920.00
2165000	Removal of Existing Expansion Joint Sealant	Lin. Ft.	193	\$71.50	\$13,799.50
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	923	\$130.00	\$119,990.00
7040101	Substructure Repair (Formed)	Sq. Ft.	234	\$169.00	\$39,490.12
7040104	Half-Sole Repair	Sq. Ft.	1700	\$78.00	\$132,600.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	196	\$117.00	\$22,960.67
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$55,835.00	\$55,835.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	4400	\$58.50	\$257,400.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	4400	\$3.90	\$17,160.00
7125365A	Intermediate Field Coat (System G)	Sq. Ft.	4400	\$2.93	\$12,870.00
7125370A	Finish Field Coat (System G)	Sq. Ft.	4400	\$2.93	\$12,870.00
7172054	Open Cell Foam Joint Seal (no armor)	Lin. Ft.	193	\$71.50	\$13,799.50
	TOTAL BASE COST =				\$787,587.53

Misc. Construction Costs (10%): \$78,758.75

Sub-total: \$866,346.28

Mobilization (6%): \$51,980.78

Total Rehab Cost (2022): \$918,327.06

Cost/SF of Bridge: \$213.47

Project: I-64 PEL Study Subject: No-Build Option (L0669) Task: Cost Estimates Job #: 10333314

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

BRIDGE NO. 2 - L0669

Bridge Name:	EB I-64 over Vandeventer WB I-64 On-Ramp
Bridge No.	L0669
Rehab/Replace Alternative:	10 Yr Fix
10/25/50 Yr Remark (original):	(10 Yr) - Crack Filler

### Unit Costs:

Add 30% to account for 2022 price increases

Reference         Unit Cost \$\$5,00           Pay Items 2021         \$\$5,00           7033013         Penetrating Concrete Sealer         Sq. Yd.         441         \$\$26,00           Reference         Unit Cost Pay Items 2021         \$\$20,00         (<1000 Sq. Yd.)           Other - Use:         \$\$26,00           7040101/02         Substructure Repair (Formed/Unformed)         Sq. FL         \$\$24         \$\$169,00           7040101/02         Substructure Repair (Formed/Unformed)         Sq. FL         \$\$25,00           7040101/02         Substructure Repair (Formed/Unformed)         Sq. FL         \$\$24         \$\$169,00           7040104         Hait-Sole Repair         Sq. FL         \$\$100 octoon (r10 octoon \$\$78,00           7040104         Hait-Sole Repair         Sq. FL         \$\$100 octoon \$\$78,00           7040104         Hait-Sole Repair         Sq. FL         \$\$100 octoon \$\$78,00           7040104         Hait-Sole Repair         Sq. FL         \$\$100 octoon \$\$78,00           7040110         Epoxy Pressure Injecting         Lin. FL         196         \$\$117.00           7040110         Epoxy Pressure Injecting         Lin. FL         196         \$\$117.00		-			_		
Pay liems 2021         \$55.00 Other         \$55.00 -           7033013         Penetrating Concrete Sealer         \$3, Yd.         441         \$26.00           Reference Unit Cost Pay liems 2021         \$20.00         (<1000 Sq. Yd.) Other	2165000	Removal of Existing Expansion Joint Seala	nt	Lin. Ft.	193	\$71.50	
Pay liems 2021         \$55.00 Other         \$55.00 -           7033013         Penetrating Concrete Sealer         \$3, Yd.         441         \$26.00           Reference Unit Cost Pay liems 2021         \$20.00         (<1000 Sq. Yd.) Other			Reference	Unit Cost			
Other         S71.50           T033013         Penetrating Concrete Sealer         Sq. Yd.         441         \$26.00           Reference Unit Cost           Pay ltems 2021         \$20.00         (<1000 Sq. Yd.)           Other           Use:         \$26.00           T040101/02         Substructure Repair (Formed/Unformed)         Sq. Ft.         234         \$169.00           Reference         Unit Cost         \$27.00         (<100 Sq. Ft.)           Other           Use:         \$169.00           Reference         Unit Cost         \$10.00         (<100 Sq. Ft.)           Other         S0.00         (<100 Sq. Ft.)           Reference         Unit Cost         \$27.00         (2100 Sq. Ft.)           Pay Items 2021         \$80.00         (<100 Sq. Ft.)         (102           Pay Items 2021         \$80.00         (<100 Sq. Ft.)         (102           Pay Items 2021         \$80.00         (<100 Sq. Ft.)         (210 Sq. Ft.)           Other         Other           Other         Other <th col<="" td=""><td></td><td></td><td></td><td></td><td></td><td></td></th>	<td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
7033013         Penetrating Concrete Sealer         Sq. Yd.         441         \$26.00           Reference         Unit Cost           Pay Items 2021         \$20.00         (<1000 Sq. Yd.)						_	
Reference Pay items 2021         Unit Cost \$20.00         (<1000 Sq. Yd.) Use:           7040101/02         Substructure Repair (Formed/Unformed)         Sq. Ft.         234         \$169.00           Reference Pay items 2021         \$104.00         (<100 Sq. Ft.)			Use:	\$71.50		-	
Pay tems 2021         \$20.00         (<1000 Sq. Yd.) Other <td< td=""><td>7033013</td><td>Penetrating Concrete Sealer</td><td></td><td>Sq. Yd.</td><td>441</td><td>\$26.00</td></td<>	7033013	Penetrating Concrete Sealer		Sq. Yd.	441	\$26.00	
Pay tems 2021         \$20.00         (<1000 Sq. Yd.) Other <td< td=""><td></td><td></td><td>Peference</td><td>Unit Cost</td><td></td><td></td></td<>			Peference	Unit Cost			
Other         .           Use:         \$26.00           7040101/02         Substructure Repair (Formed/Unformed)         Sq. Ft.         234         \$169.00           Reference         Unit Cost           Pay Items 2021         \$169.00         <100 Sq. Ft.)					(<1000 Sc	h Yd )	
Use: \$26.00           7040101/02         Substructure Repair (Formed/Unformed)         Sq. Ft.         234         \$169.00           Reference         Unit Cost         \$130.00         (>100 Sq. Ft.)         (100 Sq. Ft.)           0         0         5130.00         (>100 Sq. Ft.)         (110 Sq. Ft.)         (110 Sq. Ft.)           Offer in the stand				-	(	1)	
Reference         Unit Cost (\$130.00         Ft.) (\$130.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [10] (\$278.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [22]           Pay Items 2021         \$80.00         (<1000 Sq. Ft.; 10 yr)				\$26.00		-	
Reference         Unit Cost (\$130.00         Ft.) (\$130.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [11] (\$78.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [11] (\$78.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [11] (\$78.00         [12]           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [21]           Pay Items 2021         \$80.00         (<1000 Sq. Ft.; 10 yr)	7040101/02	Substructure Repair (Formed/Unformed)		Sq. Ft.	234	\$169.00	
Pay items 2021         \$130.00         (>100 Sq. Ft.)           Other         -           Use:         \$160.00         (>100 Sq. Ft.)           Todu104         Half-Sole Repair         Sq. Ft.         250         \$110.00         (>100 Sq. Ft.; 10 yr)           Reference         Unit Cost         \$78.00         (>1000 Sq. Ft.; 25 yr)           7040110         Epoxy Pressure Injecting         Lin. Ft.         196         \$117.00           Reference         Unit Cost         Quantity           Pay Items 2021         \$80.00         (>1000 Sq. Ft.; 25 yr)           Tod0110         Epoxy Pressure Injecting         Lin. Ft.         196         \$117.00           Pay Items 2021         \$80.00         (>1000 Sq. Ft.; 25 yr)           Todo         \$117.00           Pay Items 2021         \$80.00         (>1000 St.           Todo         \$110           Todo							
Other         -           Use:         \$169.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         [10]           Reference         Unit Cost           Pay Items 2021         \$80.00         (<1000 Sq. Ft.; 10 yr)							
Use: \$169.00           7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         \$104.00         \$104.00         \$104.00         \$104.00         \$104.00         \$104.00         \$78.00         \$104.00         \$78.00         \$104.00         \$78.00         \$250         \$104.00         \$78.00         \$250         \$104.00         \$78.00         \$250         \$104.00         \$77.00 <th col<="" td=""><td></td><td></td><td></td><td>\$130.00</td><td>(&gt;100 Sq.</td><td>⊢t.)</td></th>	<td></td> <td></td> <td></td> <td>\$130.00</td> <td>(&gt;100 Sq.</td> <td>⊢t.)</td>				\$130.00	(>100 Sq.	⊢t.)
7040104         Half-Sole Repair         Sq. Ft.         250         \$104.00         (10 \$78.00           Reference Pay Items 2021         Unit Cost \$80.00         (<1000 Sq. Ft.; 10 yr)         (<1000 Sq. Ft.; 25 yr)           7040110         Epoxy Pressure Injecting         Lin. Ft.         196         \$117.00           Reference Pay Items 2021         Unit Cost \$90.00         S90.00         (<1000 Sq. Ft.; 25 yr)           7040110         Epoxy Pressure Injecting         Lin. Ft.         196         \$117.00           Reference Other         Unit Cost \$90.00         S90.00         Other         -           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7112054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           2161502         Removal of Concrete Wearing Surface         Sq. Ft.         3967 <t< td=""><td></td><td></td><td></td><td>-</td><td></td><td>-</td></t<>				-		-	
Reference         Unit Cost         \$78.00         (2:           Pay Items 2021         \$80.00         (<1000 Sq. Ft.; 10 yr)			036.	φ109.00			
Reference Pay Items 2021         Unit Cost \$80.00         (<1000 Sq. Ft.; 10 yr) >800.00           7040110         Epoxy Pressure Injecting         Lin. Ft.         196         \$117.00           Reference Pay Items 2021         Unit Cost \$90.00         Still Cost \$90.00         Still Cost \$90.00         Still Cost \$90.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference Pay Items 2021         \$55.00         (>100 ft)           Use:         \$71.50           Section           Pay Items 2021         \$25.00           Sectin Concrete Wearing Surface         \$9.71.50	7040104	Half-Sole Repair		Sq. Ft.	250	`	
Pay Items 2021       \$80.00       (<1000 Sq. Ft; 10 yr)			- <i>i</i>			\$78.00 (2	
Pay Items 2021       \$60.00       (>1000 Sq. Ft; 25 yr)         7040110       Epoxy Pressure Injecting       Lin. Ft.       196       \$117.00         Reference       Unit Cost       \$90.00       00       00       00         Pay Items 2021       \$90.00       00       00       \$90.00       00         0       Other       -       -       -       -         7110200       Protective Coating - Concrete Bents and Piers (Epoxy)       Lump Sum       1       \$55,835.00         7110200       Protective Coating - Concrete Bents and Piers (Epoxy)       Lump Sum       1       \$55,835.00         Pay Items 2021       \$60.00       7159       SF       Other       -         0       Other       -       -       -       -         1       \$55,835.00       Vitters 2021       \$55,835.00       SF         0       Other       -       -       -       -         1       \$55,835.00       Vitters 2021       \$55.00       (>100 ft)         0       Open Cell Foam Joint Seal (no armor)       Lin. Ft.       193       \$71.50         Pay Items 2021       \$55.00       (>100 ft)       -       -         Use:       \$71.50					( 1000 0.	- Et : 40 · ···)	
7040110         Epoxy Pressure Injecting         Lin. Ft.         196         \$117.00           Reference         Unit Cost         \$90.00           Other         - <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Reference Pay Items 2021         Unit Cost \$90.00 Other			T ay tients 202 T	ψ00.00	(21000 00	4. i t., 20 yi)	
Pay Items 2021       \$90.00         Other       -         Use:       \$117.00         Protective Coating - Concrete Bents and Piers (Epoxy)       Lump Sum       1       \$55,835.00         Reference       Unit Cost       Quantity       \$6.00       7159       \$F         Other       -       -       Use:       \$55,835.00       \$F         7172054       Open Cell Foam Joint Seal (no armor)       Lin. Ft.       193       \$71.50         Pay Items 2021       \$55,800       (>100 ft)       \$55.00       \$55.00       \$55.00       \$71.50         2161502       Removal of Concrete Wearing Surface       Sq. Ft.       3967       \$3.25         Reference       Unit Cost       \$2.50       \$2.50       \$2.50       \$55.00	7040110	Epoxy Pressure Injecting		Lin. Ft.	196	\$117.00	
Pay Items 2021       \$90.00         Other       -         Use:       \$117.00         Protective Coating - Concrete Bents and Piers (Epoxy)       Lump Sum       1       \$55,835.00         Reference       Unit Cost       Quantity       \$6.00       7159       \$F         Other       -       -       Use:       \$55,835.00       \$F         7172054       Open Cell Foam Joint Seal (no armor)       Lin. Ft.       193       \$71.50         Pay Items 2021       \$55,800       (>100 ft)       \$55.00       \$55.00       \$55.00       \$71.50         2161502       Removal of Concrete Wearing Surface       Sq. Ft.       3967       \$3.25         Reference       Unit Cost       \$2.50       \$2.50       \$2.50       \$55.00			Deference	Unit Coot			
Other         -           Use:         \$117.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           Reference Pay Items 2021         Unit Cost \$6.00         Quantity 7159         SF           Other         -           Use:         \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference Pay Items 2021         \$55.00         >100 ft)           Other         -         -         Unit Cost \$55.00         \$71.50           Zife1502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference Unit Cost \$2.50         \$2.50         (<10000 SF)							
Use: \$117.00           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1         \$55,835.00           Reference Other         Unit Cost \$6.00         Quantity 7159         SF           0         Other         -         -         Use:         \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference Use:         Unit Cost \$55.00         (>100 ft)           Other         -<							
Reference         Unit Cost         Quantity           Pay Items 2021         \$6.00         7159         SF           Other         -         -         Use:         \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference         Unit Cost           Pay Items 2021         \$55.00         (>100 ft)           Other         -         -         Use:         \$71.50           Zi61502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference         Unit Cost           Pay Items 2021         \$2.50         (<10000 SF)						-	
Reference         Unit Cost         Quantity           Pay Items 2021         \$6.00         7159         SF           Other         -         -         Use:         \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference         Unit Cost           Pay Items 2021         \$55.00         (>100 ft)           Other         -         -         Use:         \$71.50           Zi61502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference         Unit Cost           Pay Items 2021         \$2.50         (<10000 SF)	7110200	Protective Coating - Concrete Bents and Pi	ers (Epoxy)	Lump Sum	1	\$55.835.00	
Pay Items 2021       \$6.00       7159       SF         Other       -       -       -       Use:       \$55,835.00         7172054       Open Cell Foam Joint Seal (no armor)       Lin. Ft.       193       \$71.50         Reference       Unit Cost         Pay Items 2021       \$55.00       (>100 ft)         Other       -       -       -         Use:       \$71.50       \$71.50         2161502       Removal of Concrete Wearing Surface       Sq. Ft.       3967       \$3.25         Reference       Unit Cost       \$2.50       (<10000 SF)		I. Internet County Control Dents and T				<b>***</b> ,*****	
Other         -           Use:         \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference         Unit Cost         \$55.00         (>100 ft)         \$55.00							
Use: \$55,835.00           7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference Pay Items 2021         Unit Cost \$55.00         (>100 ft)           Other         - <td< td=""><td></td><td></td><td></td><td>\$6.00</td><td>7159</td><td>SF</td></td<>				\$6.00	7159	SF	
7172054         Open Cell Foam Joint Seal (no armor)         Lin. Ft.         193         \$71.50           Reference Pay Items 2021         Unit Cost \$55.00         (>100 ft)           Other         -				-		-	
Reference         Unit Cost           Pay Items 2021         \$55.00         (>100 ft)           Other         -         -           Use:         \$71.50         \$71.50           2161502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference           Unit Cost           Pay Items 2021         \$2.50         (<10000 SF)			Use:	\$ <b>33,633.0</b> 0			
Pay Items 2021         \$55.00         (>100 ft)           Other         -         -         -           Use:         \$71.50         \$71.50           2161502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference         Unit Cost         \$2.50         (<10000 SF)           Other         -         -         -	7172054	Open Cell Foam Joint Seal (no armor)		Lin. Ft.	193	\$71.50	
Pay Items 2021         \$55.00         (>100 ft)           Other         -         -         -           Use:         \$71.50         \$71.50           2161502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference         Unit Cost         \$2.50         (<10000 SF)           Other         -         -         -			Reference	Unit Cost			
Other         -           Use:         \$71.50           2161502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference         Unit Cost           Pay Items 2021         \$2.50         (<10000 SF)					(>100 ft)		
Use:         \$71.50           2161502         Removal of Concrete Wearing Surface         Sq. Ft.         3967         \$3.25           Reference         Unit Cost         Pay Items 2021         \$2.50         (<10000 SF)           Other         -         -         -         -         -				-	( 100 10)		
Reference         Unit Cost           Pay Items 2021         \$2.50         (<10000 SF)				\$71.50		-	
Pay Items 2021 \$2.50 (<10000 SF) Other -	2161502	Removal of Concrete Wearing Surface		Sq. Ft.	3967	\$3.25	
Pay Items 2021 \$2.50 (<10000 SF) Other -			Deference	Unit Cost			
Other					(~10000 6	25)	
				¢2.50 -	(~10000 8	<b>D</b> F)	
			Use:	\$3.25		-	

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FJS	Project: I-64 PEL Study Subject: No-Build Option (L06 Task: Cost Estimates Job #: 10333314	69)		•	ted by: SFP Date:07/13/2022 ed by: MTW Date:07/29/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	BRIDGE NO. 2 - L0669	)			
2161503	Removal of Existing Deck Repair	Sq. Ft.	1460	\$52.00	
	Reference Pay Items 2021 Other	\$40.00 -			
	Use:	\$52.00			
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	923	\$130.00	
	Reference Pay Items 2021 Other Use:				
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	4400	\$58.50	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$45.00 - \$58.50	(paint in la	rger contract	<6000SF)
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	4400	\$3.90	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$3.00 - \$3.90	(paint in la	rger contract	<6000SF)
7125315A	Intermediate Field Coat (System G)	Sq. Ft.	4400	\$2.93	
	Reference Pay Items 2021 Other Use:			rger contract	<6000SF)
7125320A	Finish Field Coat (System G)	Sq. Ft.	4400	\$2.93	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$2.25 - \$2.93	(paint in la	rger contract	<6000SF)

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MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (A3651) Task: Cost Estimates Job #: 10333314

## Bridge No. 3 - A3651

8/1/2022	
Bridge Name:	WB I-64 over Sarah
Bridge No.	A3651
Rehab/Replace Alternative:	25 Yr Fix
10/25/50 Yr Remark (original):	(25 Yr) - Hydro/Latex, etc.
Bridge Description	
Original Construction:	1981
Superstructure Type:	P/S I-Girder
Span Arrangement:	46'-60'-48'
Roadway Width:	51'-5"
Out-to-Out Width:	54'-10"
AADT:	50,026 (2020); 62,533 (2040)
Condition	
Deck:	6
Superstructure:	6
Substructure:	7
Sufficiency rating:	89.3%
Vertical Clearance:	
Inspection Notes	
Railing and App Pavement Compo	
Barrier	Low severity issues. Does not meet current bridge rail standards.
Approach pavement	Poor Condition - urethane lifted both approaches
	Large longitudinal cracks and patches throughout. 6SF repaired in right lane previously.
	Settlement throughout
	Light wear on driving surface
	k/slope & Deck protective components
Bank/Slope	Moderate undermining (large void on left side east end wing apron)
Deck Components	
Span 1	Driving surface: 10SF repaired previously. Heavy wheel lines. Moderate pitting. Moderate diagonal cracks at
	ends. Many transverse cracks, minor scaling, throughout.
	Bottom: Minor effl. At bottom/overhangs. Many transverse cracks on overhangs. 2% saturation on bottom. Minor
	spalls in bay 4 at construction joint.
Span 2	
	Driving surface: Moderate pitting. Heavy wheel lines. Minor scaling and many transverse cracks throughout. Bottom: Moderate effl. Throughout bottom and minor on overhangs. Medium transverse cracks on bottom and at overhang.
Span 3	Driving suface: Moderate pitting. Heavy wheel lines. Minor scaling and many transverse cracks throughout. Bottom: Minor effl on bottom and overhang. Few diagonal cracks. Rebar exposed and large spalls in bay 1 near abutment with transverse cracks. 1% saturation

abutment with transverse cracks. 1% saturation.

FJS	Project: I-64 PEL Study Subject: No-Build Option (A3651) Task: Cost Estimates Job #: 10333314	Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/21/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022 <u>Superstructure Components:</u> Span 1 Span 2 Span 3	<b>Bridge No. 3 - A3651</b> Minor severity only Minor severity only Moderate saturation on girder casing (G1, G2 & G4)	
Substructure Components: Substructure components	only minor damage throughout. OK	
Clearance Information:	15'-9"	
Structure Paint Information:	-	
Requested Items:	Stencil bridge number Seal joints (hot pour) - approach slab/deck; remove silicone and use pr Span 3 Bay 1 bottom deck repair (spall) Repair fence at north sides. Replace approach slabs and fix broken curb at SW quadrant (2025 Seal deck with in deck (2026)	reformed jt.
Utility attachments:	1" lighting conduit at bent 2	
Additional Recommendations	Provide open cell foam jt seal between abutment and slab Replace approach slabs & add vertical drain at end bents Assume 50 Sq. Ft. of half sole repair Full depth repair on deck (assume 50 SF) Superstructure repair (unformed) (assume 75SF)	

Other Recommendations to Consider

Project: I-64 PEL Study Subject: No-Build Option (A3651) Task: Cost Estimates Job #: 10333314

### Bridge No. 3 - A3651

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name:	WB I-64 over Sarah
Bridge No.	A3651
Rehab/Replace Alternative:	25 Yr Fix
10/25/50 Yr Remark (original):	(25 Yr) - Hydro/Latex, etc.

### Scope/Recommendation:

Scarification & hydro demolition of deck Replace approach slabs & add vertical drains at end bent Latex modified concrete wearing surface Superstructure repair (unformed) Misc. half-sole and full depth repair on deck Provide open cell foam jt. seal between abutment and slab

Roadway Width	51.42 ft		
Deck width:	54.75 ft	Total deck area	:
Deck length:	156.77 ft	8583.2	(ft <sup>2</sup> )
Left Barrier length:	169.02 ft		
Right Barrier length:	176.02 ft		

Quantities Class 1 Excavation Accuracy 5 Cu. Yd.

Assume 3' width excavated to botto	m of diaphrag	m		Accuracy 5 Cu. 10
Abut 1 Abut 4	Height (ft) 4.25 4.25	Length (ft) (abut & wings) 77.073 68.5	Volume (yd <sup>3</sup> ) 36.4 32.3	
Total	4.20	00.0	70.0	Cu. Yd.
Scarification of Bridge Deck				Accuracy 1 Sq. Yo
Deck	Width (ft) 51.42	Length(ft) 156.77	Area (yd <sup>2</sup> ) 895.6	
Deck Total	51.42	100.77	<u>895.0</u>	Sq. Yd.
			030	oq. 10.
Total Surface Hydro Demolition				Accuracy 1 Sq. Y
	Width (ft)	Length(ft)	Area (yd <sup>2</sup> )	
Deck	51.42	156.77	895.6	
Total			896	Sq. Yd.
Removal of Existing Deck Repair				Accuracy 1 Sq. F
Total			10	Sq. Ft.
Removal and Replacement of App	broach Slab			Accuracy 1 Sq. F
			Area (ft <sup>2</sup> )	
App 1			1760.0	(Google Earth)
			1500.0	(Google Earth)
App 2				
App 2			3260	Sq. Ft.
App 2 Total Latex Modified Concrete Wearing	Surface			

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MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Superstructure Repair (Unformed) Total Half-Sole Repair Total	Bridge No. 75.0 75	. <b>3 - A3651</b> Accuracy 1 Sq. Ft. <b>Sq. Ft.</b> Accuracy 50 Sq. Ft.
Total Half-Sole Repair		Sq. Ft.
Half-Sole Repair		
Half-Sole Repair		
		Accuracy 50 Sq. Ft.
Total		
	50	Sq. Ft.
Full Depth Repair		Accuracy 50 Sq. Ft.
Total	50	Sq. Ft.
Vertical Drain at End Bents		Accuracy 1 Lin. Ft.
Wing lengtl Bent length (ft) (both) (ft) Abut 1 62.073 15		
Abut 4 59.54 8.92	68.46 146	Lin. Ft.
Open Cell Foam Joint System (no armor) Abut 1	Length(ft) 62.1	Accuracy 1 Lin. Ft.
Abut 4 Total	59.5 122	Lin. Ft.

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/21/2022

Project: I-64 PEL Study Subject: No-Build Option (A3651) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/21/2022

### Bridge No. 3 - A3651

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name:WB I-64 over SarahBridge No.A3651Rehab/Replace Alternative:25 Yr Fix10/25/50 Yr Remark (original):(25 Yr) - Hydro/Latex, etc.

Scope:

Scarification & hydro demolition of deck Replace approach slabs & add vertical drains at end bent Latex modified concrete wearing surface Superstructure repair (unformed) Misc. half-sole and full depth repair on deck Provide open cell foam jt. seal between abutment and slab

Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	70	\$58.50	\$4,095.00
2161000	Scarification of Bridge Deck	Sq. Yd.	896	\$15.60	\$13,971.70
2161001	Total Surface Hydro Demolition	Sq. Yd.	896	\$65.00	\$58,215.42
2161503	Removal of Existing Deck Repair	Sq. Ft.	10	\$52.00	\$520.00
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	3260	\$123.50	\$402,610.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	896	\$130.00	\$116,430.83
7040103	Superstructure Repair (Unformed)	Sq. Ft.	75	\$169.00	\$12,675.00
7040104	Half-Sole Repair	Sq. Ft.	50	\$104.00	\$5,200.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7151001	Vertical Drain at End Bents	Lin. Ft.	146	\$58.50	\$8,513.58
7172053	Open Cell Foam Joint System (no armor)	Lin. Ft.	122	\$71.50	\$8,695.44
	TOTAL BASE COST =				\$638,076.97

Misc. Construction Costs (10%): \$63,807.70

Sub-total: \$701,884.67

Mobilization (6%): \$42,113.08

\$86.68

Total Rehab Cost (2022): \$743,997.75

Cost/SF of Bridge:

Project: I-64 PEL Study Subject: No-Build Option (A3651) Task: Cost Estimates Job #: 10333314

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 3 - A3651

Bridge Name:WB I-64 over SarahBridge No.A3651Rehab/Replace Alternative:25 Yr Fix10/25/50 Yr Remark (original):(25 Yr) - Hydro/Latex, etc.

### Unit Costs:

Add 30% to account for 2022 price increases

r	0160001	Class 1 Everystian		Ou Vd	70	¢50.50
	2169901	Class 1 Excavation		Cu. Yd.	70	\$58.50
			Reference	Unit Cost		
			Pay Items 2021	\$45.00		
			Other	-		
			Use:	\$58.50		
	2161000	Scarification of Bridge Deck		Sq. Yd.	896	\$15.60
			<u>Reference</u>			
			Pay Items 2021	\$12.00	(<2000 SY	<b>`</b> )
			Other	-		
			Use:	\$15.60		
	2161001	Total Surface Hydro Demolition		Sq. Yd.	896	\$65.00
			Reference	-		
			Pay Items 2021	\$50.00	(<1000 SY	)
			Other Use:	- \$65.00		
			036.	ψ00.00		
	2161503	Removal of Existing Deck Repair		Sq. Ft.	10	\$52.00
		· · · ·				
			Reference	-		
			Pay Items 2021	\$40.00		
			Other Use:	- \$52.00		
			Use.	φ <u></u> 32.00		
	2169904	Removal and Replacement of Approach Sla	b	Sq. Ft.	3260	\$123.50
			Reference			
			Pay Items 2021	\$95.00	(used part	ial removal/replace p
			Other Use:	- \$123.50		
			036.	ψ120.00		
	5052000	Latex Modified Concrete Wearing Surface		Sq. Yd.	896	\$130.00
			<u>Reference</u>			
			Pay Items 2021	\$100.00		
			Other Use:	- ¢120.00		
			Use:	\$130.00		
	7040103	Superstructure Repair (Unformed)		Sq. Ft.	75	\$169.00
				Unit Cost		
			Pay Items 2021	\$130.00		
			Other	-		
			Use:	\$169.00		

FJS	Project: I-64 PEL Study Subject: No-Build Option (A3651) Task: Cost Estimates Job #: 10333314				uted by: SFP Date:07/13/2022 ed by: MTW Date: 07/21/2022	
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge	No. 3 - A3651				
7040104	Half-Sole Repair		Sq. Ft.	50	\$104.00	
		Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$80.00 - \$104.00	(<1000 SF	)	
7040106	Full Depth Repair		Sq. Ft.	50	\$143.00	
		Reference Pay Items 2021 Other Use:		(<100 SF)		
7151001	Vertical Drain at End Bents		Lin. Ft.	146	\$58.50	
		Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$45.00 - \$58.50			
7172053	Open Cell Foam Joint System (no armor)		Lin. Ft.	122	\$71.50	
		Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$55.00 - \$71.50	(> 100 ft)		

## FC

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314

### Bridge No. 4 - A3893

0/1/2022	
Bridge Name:	EB I-64 over Sarah
Bridge No.	A3893
Rehab/Replace Alternative:	25 Yr Fix
10/25/50 Yr Remark (original):	(25 Yr) - Hydro/Latex, etc.
Deldes Deservision	
Bridge Description	1000
Original Construction:	1982 D/0 L Ointer
Superstructure Type:	P/S I-Girder
Span Arrangement:	44'-61'-42'
Roadway Width:	59'-5" col ou
Out-to-Out Width:	62'-9"
AADT:	48,870 (2020); 61,088 (2040)
Condition	
Deck:	6
Superstructure:	7
Substructure:	7
Sufficiency rating:	91.6%
Vertical Clearance:	
Inspection Notes	
Railing and App Pavement Compo	
Barrier	Minor severity issues with many vertical cracks throughout. Does not meet current standard for bridge rail.
Approach pavement	Fair condition. (75 SF Repaired by MoDOT in 2018)
	Med. Delam at west end abutment & Mod. at NE edge
	Mod. spalls at south shoulder and longitudinal jt
Drainage, Expansion devices, Ban	k/slope & Deck protective components
Bank/Slope	Moderate undermining (large void on left side east end wing apron)
Deck Components	
Span 1	Driving surface: Large diagonal cracks at ends. Minor pitting on driving surface. Longitudinal cracks at joints.
•	Transverse cracks, medium wear, moderate efflorescence (& at const. it), and many transverse cracks
	throughout
	Bottom: Large delam at bay 5& 6 near abut & bay 4 and 5. 2% saturation. Moderate spalls at bay 5 near abut and
	bay 4 at const. joint. Moderate rebar exposed. Transverse cracks, medium wear, moderate effl. (& at const. jt),
	and many transverse cracks throughout
Span 2	Driving surface: Medium wear and transverse cracks throughout. Longitudinal cracks at joints.
	Bottom: Diagonal cracks at bent 2 bay 4,5,&6 w/efflorescence. Moderate effl. on south side at bent 2. Light Effl.
	And transv. cracks at overhangs
Span 3	Driving suface: Medium wear and transverse cracks throughout. Longitudinal cracks at joints.
	Pottom: Moderate offlythroughout Transverse gracks at overhange and throughout

Driving suface: Medium wear and transverse cracks throughout. Longitudinal cracks at joints. Bottom: Moderate effl. throughout. Transverse cracks at overhangs and throughout.

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 <u>Superstructure Components:</u> Span 1 Span 2

Span 3

Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/28/2022

Bridge No. 4 - A3893

Moderate vertical cracks in diaphragms with efflorescence and leaching (minor) small spall on G1 & G2 from collision. Delamniation on girder encasement (bay 2, G2). Leaching at bottom of bay 4 const. jt. Transverse cracks in bott flange G3 near bent 3 Moderate vertical cracks in diaphragms with minor delam.

spall in G3



collision damage in G1



0	
Substructure Components: Substructure components	Minor issues only. OK
Clearance Information:	Min vert. clearance measured: 15'-5"
Structure Paint Information:	
<u>Requested Items:</u>	Stencil bridge number Seal joints (hot pour) - approach slab/deck; remove silicone and use preformed jt. Repair conduit at column 1 bent 2 (see below) Chip delams and seal @ span 1 bottom of deck Repair erosion in slope protection. Hydro demolition (include approach slabs) Seal deck with in deck (2026)
Utility attachments:	1" Conduit at Bent 2
Additional Recommendations	Expansion jt seal Half sole repair on approach slab (say 400 SF) Full depth repair on deck (say 50 SF) Replace conduit on Col 1 (assume 2") Superstructure repair (unformed) (assume 2% deck & 10 ft of slab edge repair) Substructure repair (formed/unformed) (assume 30 SF) Crack filler (assume 50 LF) Clean and epoxy coat girders with collision damage (assume 50SF)

### Other Recommendations to Consider

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## FC

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Conduit at Bent 2 Column 1

Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314

Checked by: MTW Date:07/28/2022

Computed by: SFP Date:07/13/2022





### Approach Slabs







## FC

St. Louis County 8/1/2022

MoDOT Job Number J6l3585

Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314

## Bridge No. 4 - A3893

Bridge Name:	EB I-64 over Sa	irah			
Bridge No.	A3893				
Rehab/Replace Alternative:	25 Yr Fix				
10/25/50 Yr Remark (original):	(25 Yr) - Hydro/	Latex, etc.			
Scope/Recommendation:					
Total hydro demolition and scarifi					
Remove and replace existing dec		ed			
Latex modified concrete wearing Superstructure repair (unformed)		nair for overha	nas		
Misc. half-sole and full depth repair	•	•	ligo		
Clean and epoxy coat girders with					
Replace conduit on Column 1	5				
Provide expansion joint seal at de	eck/approach slal	os			
Existing properties/dimensions	6				
Roadway Width	59.42	ft			
Deck width:	62.75	ft	Total deck area	a:	
Deck length:	149.79		9399.3	(ft <sup>2</sup> )	
Left Barrier length:	166.93				
Right Barrier length:	176.07				
Quantities				A	<b>V</b> 4
Scarification of Bridge Deck				Accuracy 1 Sq.	Yā.
	Width (ft)	Length (ft)	Area (yd²)		
App Slab 1			254	(Google earth)	
Deck	59.42	149.79	988.9		
App Slab 2			220	(Google earth)	_
Total			1463	Sq. Yd.	
Total Surface Hydro Demolitior	ı			Accuracy 1 Sq.	Yd.
	Width (ft)	Length(ft)	Area (yd <sup>2</sup> )		
App Slab 1 Deck	50.42	140 70	254 988.9	(Google earth)	
App Slab 2	59.42	149.79	220	(Google earth)	
Total			1463	Sq. Yd.	-
Removal of Existing Deck Repa	air			Accuracy 1 Sq.	Ft.
Total			250	Sq. Ft.	-
Latex Modified Concrete Weari	ng Surface			Accuracy 1 Sq.	Yd.
Total			1463	Sq. Yd.	-
Substructure Repair (Formed/L	Informed)			Accuracy 1 Sq.	Ft.
Total			30	Sq. Ft.	-
Superstructure Repair (Unform	ed)			Accuracy 1 Sq.	Ft.
2% from deck area			188.0		
Total			188	Sq. Ft.	-
			100	- 4	

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FJS	Subject: No-Buil Task: Cos	i4 PEL Study d Option (A3893) t Estimates 0333314
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No	. 4 - A3893
Half-Sole Repair		Accuracy 50 Sq. Ft.
Total	400	Sq. Ft.
Full Depth Repair		Accuracy 50 Sq. Ft.
Total	50	Sq. Ft.
Slab Edge Repair (Bridges		Accuracy 1 Lin. Ft.
Assume 10' Total	10	Lin. Ft.
Epoxy Pressure Injecting		Accuracy 1 Lin. Ft.
Total	50	Lin. Ft.
Cleaning and Epoxy Coating		Accuracy 1 Sq. Ft.
Total	20	Sq. Ft.
Conduit System on Structure		Accuracy Lump Sum (LF for cost)
Along column 1 Along cap	Length(ft) 13.667 17	
Total	31	Lin. Ft.
Preformed Silicone Expansion Joint Seal (no armor)		Accuracy 1 Lin. Ft.
Abut 1	Length(ft) 68.3	
Abut 4	65.8	
Total	135	Lin. Ft.

Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/28/2022

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date:07/28/2022

### Bridge No. 4 - A3893

Bridge Name:EB I-64 over SarahBridge No.A3893Rehab/Replace Alternative:25 Yr Fix10/25/50 Yr Remark (original):(25 Yr) - Hydro/Latex, etc.

#### Scope:

Total hydro demolition and scarification of bridge deck Remove and replace existing deck repair as needed Latex modified concrete wearing surface Superstructure repair (unformed) and slab edge repair for overhangs Misc. half-sole and full depth repairs on deck and approach slab Clean and epoxy coat girders with collision damage Replace conduit on Column 1 Provide expansion joint seal at deck/approach slabs

Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	1463	\$15.60	\$22,822.80
2161001	Total Surface Hydro Demolition	Sq. Yd.	1463	\$52.00	\$76,076.00
2161503	Removal of Existing Deck Repair	Sq. Ft.	250	\$52.00	\$13,000.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	1463	\$130.00	\$190,190.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	30	\$201.50	\$6,045.00
7040103	Superstructure Repair (Unformed)	Sq. Ft.	188	\$169.00	\$31,772.00
7040104	Half-Sole Repair	Sq. Ft.	400	\$78.00	\$31,200.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	10	\$260.00	\$2,600.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	50	\$117.00	\$5,850.00
7040113	Cleaning and Epoxy Coating	Sq. Ft.	20	\$117.00	\$2,340.00
7071000	Conduit System on Structure	Lump Sum	1	\$1,391.00	\$1,391.00
7174001	Preformed Silicone Expansion Joint Seal (no armor)	Lin. Ft.	135	\$104.00	\$14,040.00
	TOTAL BASE COST =				\$404,476.80

Misc. Construction Costs (10%): \$40,447.68

Sub-total:	\$444,924.48
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Mobilization (6%): \$26,695.47

Total Rehab Cost (2022): \$471,619.95

Cost/SF of Bridge: \$50.18

Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 4 - A3893

Bridge Name:	EB I-64 over Sarah
Bridge No.	A3893
Rehab/Replace Alternative:	25 Yr Fix
10/25/50 Yr Remark (original):	(25 Yr) - Hydro/Latex, etc.

Unit Costs:

Add 30% to account for 2022 price increases

<b>*</b> 4 <b>F</b> 00
\$15.60
\$52.00
\$52.00
\$130.00
<u>****</u>
\$201.50
\$169.00
\$78.00
\$143.00
-
-

FC	Project: I-64 PEL Study Subject: No-Build Option (A3893) Task: Cost Estimates Job #: 10333314	-	by: SFP Date:07/13/2022 by: MTW Date:07/28/2022		
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 4 - A3893				
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	10	\$260.00	
		Unit Cost			
	Pay Items 2021				
	Other Use:	\$260.00		-	
	036.	φ200.00			
7040110	Epoxy Pressure Injecting	Lin. Ft.	50	\$117.00	
•					
	Reference				
	Pay Items 2021				
	Other			-	
	Use:	\$117.00			
7040113	Cleaning and Epoxy Coating	Sq. Ft.	20	\$117.00	
				· · · · · · · · · · · · · · · · · · ·	
	Reference				
	Pay Items 2021		(<100 SF)	)	
	Other			-	
	Use:	\$117.00			
7071000	Conduit System on Structure	Lump Sum	1	\$1,391.00	
•					
		Unit Cost			
	Pay Items 2021		31	LF	
	Other			-	
	Use:	\$1,391.00			
7174002	Preformed Silicone Expansion Joint Seal (no armor)	Lin. Ft.	135	\$104.00	
		Unit Cost			
	Pay Items 2021				
	Other	<u>-</u> \$104.00		-	
	Use:	φ104.0U			

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

### Bridge No. 5 - L0667

Bridge Name: EB I-64 Bridge No. L0667 Rehab/Replace Alternative: 50 Yr Fix or Replacement 10/25/50 Yr Remark (original): (50 Yr) - Superstructure Replacement and Substructure Repair, etc. Bridge Description 1956 **Original Construction:** Superstructure Type: Continuous Steel Plate Girder Span Arrangement: 87'-67'-128'-67'-113'-113'-68'-114'-114'-65'-111'-123'-123.5'-101' Roadway Width: 56'-0" 63'-0" Out-to-Out Width: 48,870 (2020); 61,088 (2040) AADT: Condition 4 Deck: Superstructure: 6 Substructure: 6 Sufficiency rating: 75.9% Vertical Clearance: Varies Inspection Notes Railing and App Pavement Components and Ratings Superstructure replacement. Does not meet current standard for Barrier bridge rail. Approach pavement "Fair": Large delam on driving sruface w/moderate rebar exposed, spalls, and long. cracks Drainage, Expansion devices, Bank/slope & Deck protective components Wearing surface Superstructure replacement; "poor" Expansion Devices Strip seal (abut 1) Finger plates (bent 5,7,11) Strip Seal (abut 15) Deck Components All spans Superstructure replacement; Heavy rusting/deterioration throughout. Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 <u>Superstructure Components:</u> All spans Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

### Bridge No. 5 - L0667

Superstructure replacement; deterioration throughout.

Cracking at connection plates replaced previously Substructure Components: Abut 1 Backwall: Few diagonal cracks Beam Cap: Few horizontal cracks; sealed Rocker expansion bearings: light rusting throughout Bent 2 Beam cap: sealed. Column: Few patches throughout Fixed Pedastal (rotating) bearings: -Beam cap: Few horizontal cracks and patches throughout; sealed. Bent 3 Column: Few patches throughout (col 2,3,4) Rocker expansion bearings: -Beam cap: seal peeling Column: seal near bent cap peeling. Few patches throughout Bent 4 Rocker expansion bearings: -Beam cap: few horiz. cracks on cap face and few patches Bent 5 throughout. Sealed. Column: -Rocker expansion bearings: -Hanger pins/strap: light rusting throughout Beam cap: Many patches throughout. sealed. Bent 6 Column: Few patches throughout Fixed Pedastal (rotating) bearings: -Bent 7 Beam cap: few patches throughout. Sealed. Column: few patches throughout Rocker expansion bearings: -Hanger pins/strap: minor section loss at top and bottom of strap. (G3, 4th diap. e/o bent 6, north side of span 6. Bent 8 Beam cap: few patches throughout. seal peeling Column: few patches throughout Rocker expansion bearings: -Bent 9 Beam cap: few patches throughout. seal peeling Column: few patches throughout Rocker expansion bearings: -Beam cap: small delam on south end. sealed Bent 10 Column: few horizontal cracks, vertical cracks, and patches throughout. Rocker expansion bearings: -Beam cap: few horiz. cracks and patches throughout. Sealed. Bent 11 Column: -Fixed Pedastal (rotating) bearings: -Hanger pins/strap: light rusting throughout. Moderate section loss behind hanger plate @ G1 Bent 12 Beam cap: few horiz. cracks, vertical cracks and patches throughout. Sealed. Column: few spalls and vertical cracks throughout. Rocker expansion bearings: -Beam cap: many patches throughout. sealed Bent 13 Column: few patches throughout Rocker expansion bearings: -Beam cap: few patches throughout. sealed. Bent 14 Column: -Fixed Pedastal (rotating) bearings: -Abut 15 Backwall: med. delam. throughout. Mod. vert. cracks throughout. Sealed Beam Cap: Med. delam, mod. effl., mod. spalls, and many vertical/horizontal cracks throughout. Moderate spalls at G8 bearing seat. Sealed. Rocker expansion bearings: moderate tipping throughout.

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

## Bridge No. 5 - L0667

8/1/2022	
Clearance Information:	Varies
Structure Paint Information:	B System Basic Lead Chromium Green (1983); S System Cal Sulph/Lead Paint (2006)
<u>Requested Items:</u>	Stencil Bent #s west to east Seal asphalt wearing surface joint seam Seal joints with hot pour Clean/flush drains Flush strip seals Redeck/replace superstructure (2027)
Utility attachments:	2" conduit (broken at Abut 1&15, G8)
Additional Recommendations	Crack filler at each bent (Assume 10' per bent/abut) Substructure repair (formed/unformed) (assume 1% of each bent face, except abut 15; assume 3%.) Substructure protective coating at all bents Replace Approach Slabs

Other Recommendations to Consider

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MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

### Bridge No. 5 - L0667

Bridge Name: EB I-64 Bridge No. Rehab/Replace Alternative: L0667 50 Yr Fix or Replacement 10/25/50 Yr Remark (original): (50 Yr) - Superstructure Replacement and Substructure Repair, etc.

#### Scope/Recommendation:

Superstructure replacement (assume pedestals required for new bearings) Approach Slab replacement Crack filler and substructure repair throughout Substructure protective coating

#### Existing properties/dimensions

Roadway Width	56.00 ft	
Deck width:	59.3333 ft	Total deck area:
Deck length:	1391.00 ft	82532.6 (ft <sup>2</sup> )
App Slab 1 Length	20.00 ft	(est. from google earth)
App Slab 2 Length	20.00 ft	(est. from google earth)
Left Barrier length:	1416.00 ft	
Right Barrier length:	1404.00 ft	
Steel Weight	1983 tons	(Existing; inspection report)
From NSBA Charts		
3+ Spans with 8'-6" spacing	25 lb/ft <sup>2</sup>	(max span 128')
Estimated weight	2,063,316 lb	
+15% for misc. steel	309,497 lb	
Total weight for replacement		
superstructure	2 372 813 lb	

superstructure

2,372,813 lb



## FC

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

MoDOT Job Number J6I3585 St. Louis County			Bri	idge No. 5 - L0667
8/1/2022				
Quantities				
Class 1 Excavation				Accuracy 5 Cu. Yd.
Assume 3' width excavated to b	ottom of diaphragm			
	Height (ft)	Length (ft)	Volume (yd <sup>3</sup> )	
Abut 1	6.125	87.75	59.7	
Abut 15	5.91	63.3	41.5	
Total			100.0	Cu. Yd.
Removal of Existing Superstr	ucture (steel supers	tructure)		Accuracy Lump Sum (SF for cost
Quantity for unit cost		•		
			Area (ft <sup>2</sup> )	
Deck			82532.6	
Total			82533	Sq. Ft.
Removal and Replacement of	Approach Slab			Accuracy 1 Sq. Ft.
	, approach clas		Area (ft <sup>2</sup> )	, local aby 1 oq. 1 a
App Slab 1			1186.7	
App Slab 2			1186.7	
Total			2373	Sq. Ft.
Class B-1 Concrete (Substruc				Accuracy 0.1 Cu. Yd.
Assume 2'-0"x2'-0"x1'-0" pedes Assume 3'-3"x3'-3"x1'-0" pedes			1	
	Area (ft <sup>2</sup> )	Height (ft)	Volume (yd <sup>3</sup> )	
Abut Pedestal (x16)	4	1	1.2	
Int. Bent Pedestal (x104)	10.6	1	40.7	
Total			50.0	Cu. Yd.
				Accuracy 1 Sq. Yd.
Slab on Steel				
Slab on Steel			Area (yd <sup>2</sup> )	
			Area (yd <sup>2</sup> ) 9170.3	
Deck			,	Sq. Yd.
Deck Total			9170.3	Sq. Yd.
Deck Total			9170.3	
Deck Total Type D Barrier			9170.3 9170	Sq. Yd.
Slab on Steel Deck Total Type D Barrier Left Right			9170.3 9170 Length (ft)	Sq. Yd.

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

MoDOT Job Number J6l3585 St. Louis County 8/1/2022			Bri	dge No. 5 - L0667
Substructure Repair (Formed/L	Informed)			Accuracy 1 Sq. Ft.
See Protective Coating Quantities		is used		
5				
	Cap/Col. Face			
	Area (ft <sup>2</sup> )	% Repair	Repair Area (ft <sup>2</sup> )	
Abut 1	893	1%	8.9	
Bent 2, 6, 11, 14	7285	1%	72.9	
Bent 3	4534	1%	45.3	
Bent 4	4004	1%	40.0	
Bent 5, 7, 12, 13	6966	1%	69.7	
Bent 8	3962	1%	39.6	
Bent 9	3713	1%	37.1	
Bent 10	3828	1%	38.3	
Abut 15	1197	3%	35.9	
Total			388	Sq. Ft.
Epoxy Pressure Injecting	Length (ft) 10	Bents 15	Total Length (ft) 150	Accuracy 1 Lin. Ft.
Total			150	Lin. Ft.
Reinforcing Steel (Epoxy)				Accuracy 10 Lb.
		Concrete Vol.		
	Density (lb/CY)	(CY)	Weight (lb)	
	120	50.0	6000.0	
Total			6000	Lb.
Conduit System on Structure Along right side of bridge (replace Total	e existing, assume 2	conduits)	Length(ft) 2921.10 <b>2921</b>	Accuracy Lump Sum (LF for cost) (add 5% to length of bridge for misc. lengths) Lin. Ft.

### Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

### Bridge No. 5 - L0667

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Protective Coating - Concrete Bents and Piers (Epoxy)

Accuracy Lump Sum (SF for cost)

Abut 1	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Backwall Front Face	6.125	63.25	387.4	
Top of Cap	2	63.25	126.5	
Cap Front Face	6	63.25	379.5	
Total Area			893	Sq. Ft.
Bent 2,6,11,14	Height/Width (ft)	Length/Height (ft)	Area (ft <sup>2</sup> )	
Top of Cap (x 4)	3.25	65	845.0	
Side Face (x 16)	3.25	9.0	468.0	
Bent Face (x 8)	-	-	3224.0	
Col. Side Face (x 16)	3.25	20.0	1040.0	
Bent 2 Col. face (x 2)	-	-	528.0	
Bent 6 Col. face (x 2)	-	-	476.0	
Bent 11 Col. face (x 2)	-	-	504.0	
Bent 14 Col. face (x 2)	-	-	200.0	
<b>Total Area for Protective Coating</b>			4537	Sq. Ft.
Total Area for Sacrificial Grafitti F	Protection		2748	Sq. Ft.



### Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

MoDOT Job Number J6l3585 St. Louis County 8/1/2022			Br	idge No. 5 - L0667
Bent 3	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Top of Cap	3.25	129	419.3	
Side Face (x 8)	3.25	9.5	247.0	
Bent Face (see below * 2)	-	-	1690.0	
Col. Side Face (x 8)	3.25	30.6	795.6	
Col. face (x 2)	-	-	1382.0	
Total Area for Protective Coatin	g		2356	Sq. Ft.
Total Area for Sacrificial Grafitti	Protection		2178	Sq. Ft.



Bent 4	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Top of Cap	3.25	129	419.3	
Side Face (x 8)	3.25	9.5	247.0	
Bent Face (see below * 2)	-	-	1690.0	
Col. Side Face (x 8)	3.25	22.3	579.8	
Col. face (x 2)	-	-	1068.0	
Total Area for Protective Coat	ting		2356	Sq. Ft.
Total Area for Sacrificial Grafi	tti Protection		1648	Sq. Ft.



#### MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

### Bridge No. 5 - L0667

Bent 5, 7, 12, 13	Height/Width			
Denii 5, 7, 12, 15	(ft)	Length (ft)	Area (ft <sup>2</sup> )	
Top of Cap (x 4)	3.25	65	211.3	
Side Face (x 16)	3.25	9.0	468.0	(used middle height)
Bent Face (x 8)	-	-	3232.0	
Col. Side Face (x 16)	3.25	20.9	1086.8	
Bent 5 face (x 2)	-	-	502.0	
Bent 7 face (x 2)	-	-	504.0	
Bent 12 face (x 2)	-	-	560.0	
Bent 13 face (x 2)	-	-	402.0	
Total Area for Protective Coating	3		3911	Sq. Ft.
Total Area for Sacrificial Grafitti	Protection		3055	Sq. Ft.



Bent 8	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Top of Cap	3.25	134	435.5	
Side Face (x 8)	3.25	9.6	249.2	
Bent Face (see below * 2)	-	-	1762.0	
Col. Side Face (x 8)	3.25	20.6	535.6	
Col. face (x 2)	-	-	980.0	
Total Area for Protective Coat	ing		2447	Sq. Ft.
Total Area for Sacrificial Grafi	tti Protection		1516	Sq. Ft.



Bent 9	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Top of Cap	3.25	134	435.5	
Side Face (x 8)	3.25	9.6	249.6	(used middle height)
Bent Face (see below * 2)	-	-	1762.0	
Col. Side Face (x 8)	3.25	17.9	465.4	
Col. face (x 2)	-	-	800.0	
Total Area for Protective Coatin	g		2447	Sq. Ft.
Total Area for Sacrificial Grafitti	Protection		1265	Sq. Ft.

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### Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Bridge No. 5 - L0667



Bent 10	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Top of Cap	3.25	134	435.5	
Side Face (x 8)	3.25	9.6	249.6	
Bent Face (see below * 2)	-	-	1762.0	
Col. Side Face (x 8)	3.25	19.4	504.4	
Col. face (x 2)	-	-	876.0	
Total Area for Protective Coating			2447	Sq. Ft.
Total Area for Sacrificial Grafitti	Protection		1380	Sq. Ft.



Abut 15	Height/Width (ft)	Length (ft)	Area (ft <sup>2</sup> )				
Backwall Front Face	5.91	61	360.5				
Top of Cap	2	61	122.0				
Ca/Stem Front Face	11.3333	63	714.0				
Total Area			1197	Sq. Ft.			
Total Estimated Area of Protectiv	e Coating		22592	Sq. Ft.			
Say			23000	Sq. Ft.			
Total Estimated Area of Sacrificia	Total Estimated Area of Sacrificial Grafitti Protection Sys. 13790 Sq. Ft.						
Say			14000	Sq. Ft.			

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

### Bridge No. 5 - L0667

Expansion Device (Finger Plate)		Accuracy 1 Lin. Ft.
	Length (ft)	
Bent 5	59.333	
Bent 7	59.333	
Bent 11	59.333	
Total	178	Lin. Ft.
Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W	,	Accuracy 10 Lb.

Total	46	Each
Additional 4	4	
42 existing	42	
	Each	
Slab Drain with Grate		Accuracy Each
Total	2372813	Lb.
Assume steel weight replaced as-is	2,372,813	
	Weight (lb)	

Drainage System on Structure

Lump Sum (Lin. Ft. for estimate)

Accuracy 100 Sq. Ft.

	Bridge Length		
Total	1391.0	Lin. Ft.	

Intermediate Field Coat System (System G) Per MoDOT Pay item spreadsheet for plate girders, estimate 135 sq. ft. per ton.

		Bridge Length	Weight (tons) ->		
		(ft)	SF		
		1391.00	160200		-
Total			160200	Sq. Ft.	
Finish Field Coat System (Syster	n G)			Accuracy 100 S	iq. Ft.
Assume 10' from each joint in both	directions (bents	1, 5, 7, 11, 15; 8 t	otal lengths of 10)		
	Bridae Lenath	Weight (tons) ->	Equivalent Sq. Ft.		
	(ft)	SF	for 10' of length		
10' at joints (8 girders)	1391.00	160165	1151.4		(use all 8 to be conservative)
fascia girder (~1 girder+5%)		20021	21022		
Total (x 8)			22200	Sq. Ft.	-
Vertical Drain at End Bents			(50 yr)	Accuracy 1 Lin.	Ft.
		Wing lengths			
	Bent length (ft)	(both) (ft)	Total Length (ft)		
Abut 1	63.25	24.5	87.75		
Abut 15	63.25	-	63.25		
			151	Lin. Ft.	-
Laminated Neoprene Bearing Pa	d Assembly			Accuracy Each	
3 pin/hanger spans * 8 girders			# of Bearings 24		
8 per bent; 15 bents			24 120		
Total			120	Each	-
1 otal			144	Lach	
Strip Seal Expansion Joint Syste	m			Accuracy 1 Lin.	Ft.
· · ·				-	
			Length (ft)		
Abut 1			59.3333		

## MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Bridge Replacement

	Area (ft <sup>2</sup> )	
Total Bridge area removed and		
replaced:	82532.6	
	82533	Sq. Ft.
MSE Wall at Abut 15	Area (ft²)	
(see below)	8108.0	
	8108	Sq. Ft.

Side Walls



Front Face



## **H**

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

Bridge No. 5 - L0667

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name: EB I-64 Bridge No. L0667 Rehab/Replace Alternative: 50 Yr Fix 10/25/50 Yr Remark (original): (50 Yr) - Superstructure Replacement and Substructure Repair, etc.

#### Scope:

Superstructure replacement (girders, bearings, drains, barriers, expansion joints) (assume pedestals required for new bearings)

Approach slab replacement and vertical drains at end bents added

Crack filler and substructure repair throughout

Substructure protective coating

Drainage system on structure replaced

Protective coating on bent caps and sacrificial graffiti protection on columns

Assume staging of rehabilitation work required and increase cost for seismic retrofit.

Say 15% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	100	\$58.50	\$5,850.00
2169901	Removal of Existing Superstructure (steel superstructure)	Lump Sum	1	\$1,072,929.00	\$1,072,929.00
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	2373	\$123.50	\$293,106.50
7034001	Class B-1 Concrete (Substructure)	Cu. Yd.	50.0	\$2,730.00	\$136,500.00
7034212	Slab on Steel	Sq. Yd.	9170	\$377.00	\$3,457,199.76
7034219A	Type D Barrier	Lin. Ft.	2820	\$110.50	\$311,610.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	388	\$169.00	\$65,528.29
7040110	Epoxy Pressure Injecting	Lin. Ft.	150	\$117.00	\$17,550.00
7071000	Conduit System on Structure	Lump Sum	1	\$132,912.00	\$132,912.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	6000	\$3.77	\$22,620.00
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$179,400.00	\$179,400.00
7110400	Sacrificial Graffiti Protection System	Lump Sum	1	\$18,200.00	\$18,200.00
7120900	Expansion Device (Finger Plate)	Lin. Ft.	178	\$2,600.00	\$462,799.74
7121122	Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W	Lb.	2372813	\$4.23	\$10,025,134.93
7123611	Slab Drain with Grate	Each	46	\$5,460.00	\$251,160.00
7123620	Drainage System (On Structure)	Lump Sum	1	\$542,490.00	\$542,490.00
7125365A	Intermediate Field Coat System (System G)	Sq. Ft.	160200	\$2.60	\$416,520.00
7125370A	Finish Field Coat System (System G)	Sq. Ft.	22200	\$2.60	\$57,720.00
7151001	Vertical Drain at End Bents	Lin. Ft.	151	\$58.50	\$8,833.50
7162000	Laminated Neoprene Bearing Pad Assembly	Each	144	\$2,730.00	\$393,120.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	119	\$546.00	\$64,974.00
	TOTAL BASE COST =				\$17,936,157.72

Misc. Construction Costs (15%): \$2,690,423.66

> Sub-total: \$20,626,581.38

Mobilization (6%):

\$1,237,594.88

\*Surveying (1%): \$101,272.06

#### Total Rehab Cost (2022): \$21,965,448.33

Cost/SF of Bridge: \$266.14

\*1% for surveying cost does not include base fabricated structural steel or superstructure paint cost.

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MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name:EB I-64Bridge No.L0667Rehab/Replace Alternative:Replacement10/25/50 Yr Remark (original):-

Scope: Replace with 14-Span Continuous Composite Steel Plate Girder Bridge

Other Considerations (recommended individual % increase per EPG): Staged Construction (10%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Over railroad and multiple roads Interstate bridge

Increase bridge cost by 15% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	82533	\$26.00	\$2,145,858.00
-	14-Span Continuous Composite Steel Plate Girder Bridge	Sq. Ft.	82533	\$396.50	\$32,724,334.50
-	MSE walls	Sq. Ft.	8108	\$119.60	\$969,716.80
	TOTAL BASE COST =				\$35,839,909.30

Misc. Bridge Costs (15%): **Misc. Roadway Costs (1%):	\$4,908,650.18 \$358,399.09
Sub-total:	\$41,106,958.57
Mobilization (6%): Surveying (1%):	\$2,466,417.51 \$411,069.59
Total Cost of Removal and Replacement (2022):	\$43,984,445.67

Cost/SF of Bridge:

\*\*Additional percentage of base cost included to cover misc. roadway costs such as concrete approach pavement, striping and guardrail.

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

Bridge No. 5 - L0667

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/2022

\$532.93

## FC

Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314

Bridge No. 5 - L0667

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

### Unit Costs:

### Add 30% to account for 2022 price increases

2460004	Class 1 Execution		Cu V4	100	¢59.50
2169901	Class 1 Excavation		Cu. Yd.	100	\$58.50
		Reference	Unit Cost		
		Pay Items 2021	\$45.00		
		Other	-		
		Use:	\$58.50		
0100001					<b>#4 070 000 00</b>
2169901	Removal of Existing Superstructure (steel superstructure)		Lump Sum	1	\$1,072,929.00
		Reference	Unit Cost	Quantity	
		Pay Items 2021	\$10.00	82533	Sq. Ft.
		Other	-		
		Use:	\$1,072,929.00	1	
2169904	Removal and Replacement of Approach Slab		Sq. Ft.	2373	\$123.50
		Deferrers	Unit Cast		
		Reference Pay Items 2021	Unit Cost \$95.00	(use partial	remove/
		Other	495.00 -	replace cos	
		Use:	\$123.50		
7034001	Class B-1 Concrete (Substructure)		Cu. Yd.	50.0	\$2,730.00
7004001		I	00.10.	00.0	φ2,7 00.00
		Reference	Unit Cost		
		Pay Items 2021	\$2,100.00	(<100 Cu. `	Yd.)
		Other	- ¢2 720 00		-
		Use:	\$2,730.00		
7034212	Slab on Steel		Sq. Yd.	9170	\$377.00
		Reference	Unit Cost		
		Pay Items 2021	\$290.00	(>1000 Sq.	Yd.)
		Other	-	(	,
		Use:	\$377.00		-
7034219A	Type D Barrier		Lin. Ft.	2820	\$110.50
		Reference	Unit Cost		
		Pay Items 2021	\$85.00	(>600 ft.)	
		Other	-	( 000 1)	
		Use:	\$110.50		
7040101/02	Substructure Repair (Formed/Unformed)		Sq. Ft.	388	\$169.00
		Reference	Unit Cost	(> 400 C= 1	-4 \
		Pay Items 2021 Other	\$130.00	(>100 Sq. I	)
		Use:	\$169.00		-
7040110	Epoxy Pressure Injecting		Lin. Ft.	150	\$117.00
		Reference	Unit Cost		
		Pay Items 2021	\$90.00		
		Other	-		-
		Use:	\$117.00		
DD1 Job Number J613585 Louis County 2021         Bridge No. 5 - L0667           7071000         Conduit System on Structure         Lump Sum         1           Pay Items 2021 Use:         Sist.00 535.00         Quant 2921 Sist.00         Quit Cost Sist.00 2921 Other         Quit Cost Sist.00         Quit Cost Sis	Lin. Ft.				
---	--------------------------------------				
7071000         Conduit System on Structure         Lump Sum         1           Pay Items 2021 Other         Duit Cost S35.00         Quant 2921 2921           7101000         Reinforcing Steel (Epoxy Coated)         Lb.         6000           92 Items 2021         \$2.29         (<<1000)           0ther         -         -         920           92 Items 2021         \$2.29         (<<1000)           0ther         -         -         921           92 Items 2021         \$2.30         (<<1000)           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1           1         Reference         Unit Coat         Quant           921 Items 2021         \$179,400.00         2300           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           1400         Sacrificial Graffiti Protection System         Lump Sum         1           7120500         Expansion Device (Finger Plat	Lin. Ft. \$3.77 ) \$179,400				
Pay Items 2021 Other         SS5.00 -         2921 Other           7101000         Reinforcing Steel (Epoxy Coated)         Lb.         6000           Reference         Unit Coat S2.90         (<<1000)           Pay Items 2021         S2.30         (<<1000)           Pay Items 2021         S2.30         (<<1000)           Pay Items 2021         S2.30         (<<1000)           Pay Items 2021         S2.37         1           Reference         Unit Coat Pay Items 2021         S6.00           Other         -           -         Use:         \$179,400.00         2000           Other         0           Use:         \$179,400.00           Other         0           Other         0 <td< th=""><th>Lin. Ft.</th></td<>	Lin. Ft.				
7101000         Reinforcing Steel (Epoxy Coated)         Lb.         6000           Reference         Unit Cost         52.90         (<1000)           Pay Items 2021         S2.90         (<1000)	) -   \$179,400				
Reference         Unit Cost 52.90         (<1000 Use:           0/ther         -         -         Use:         \$3.77           7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1           Reference         Unit Cost         Quant           Pay Items 2021         \$5.00         2300           Other         -         -         Use:         \$179.400.00           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           Use:         \$179.400.00           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           Use:         \$179.400.00           Other         -           Use:         \$179.400.00           Other         -         -	) -   \$179,400				
Pay Items 2021         \$2.90         (<10000           Other         -	\$179,400				
7110200         Protective Coating - Concrete Bents and Piers (Epoxy)         Lump Sum         1           Reference         Quanti           Pay Items 2021         \$6.00         2300           Other         -         -         Use:         \$179,400.00           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           Reference         Unit Cost         Quanti           Pay Items 2021         \$1.00         1400           Other         -           -         -         Use:         \$18,200.00         1400           Other         -           Use:         \$18,200.00           7120900         Expansion Device (Finger Plate)         Lin. Ft.         178           Reference         Unit Cost         \$2,000.00           Other         -           -         Use:         \$2,000.00         0ther         -         -         0tex:         \$2,000.00         0ther         -         -         0tex:         \$2,000.00         0ther         -         -         0tex:         \$2,000.00         0ther         -         -         -         - <td< td=""><td></td></td<>					
Reference         Unit Cost         Quanti           Pay Items 2021         \$6.00         2300           Other         -         -         2300           0         Use:         \$179,400.00         2300           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           Reference         Unit Cost         Quanti           Pay Items 2021         \$100.00         Quanti         1400           Other         -         Use:         \$18,200.00         1400           Other         -         Use:         \$18,200.00         1400           7120900         Expansion Device (Finger Plate)         Lin. Ft.         178           Pay Items 2021         \$1.0.00           712122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           7121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           7123611         Slab Drain with Grate         Each         46           Reference         Unit Cost           Pay Items 2021         -         -         -           1-435 MO River Bridge Bidtabs (2021 cost)         4200.0 <td< td=""><td></td></td<>					
Pay Items 2021         \$6.00         23000 Other           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           Reference         Unit Cost         Quanti           Pay Items 2021         \$6.00         2000           Other         -         1           Pay Items 2021         \$1.00         Other         -           Pay Items 2021         \$1.00         Quanti         1400           Other         -         -         1400           Other         -         -         -           Visit Cost         \$1.00         0         1400           Other         -         -         -           Visit Cost         \$2.00.00         0         1720900           Expansion Device (Finger Plate)         Lin. Ft.         178           Visit Cost         \$2.000.00         0         -           Use:         \$2.000.00         0         1           Visit Cost         \$2.000.00         1         23728           7121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           7123611         Slab Drain with Grate         Each         46					
Use: \$179,400.00           7110400         Sacrificial Graffiti Protection System         Lump Sum         1           Reference         Unit Cost         Quanti           Pay Items 2021         \$1.00         1400           Other         -         -         -           Use:         \$18,200.00         -         -           T120900         Expansion Device (Finger Plate)         Lin. Ft.         178           Reference         Unit Cost         \$2,000.00         -         -           T12122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           Pay Items 2021         -         -         -         -           Use:         \$4.23         -         -         -           T12122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           T123611					
Reference Pay Items 2021         Unit Cost \$1.00         Quanti Pay Items 2021           7120900         Expansion Device (Finger Plate)         Lin. Ft.         178           Reference Pay Items 2021         \$2,000.00           Other - Use:         \$2,600.00           T121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           Pay Items 2021         \$3.25           Other -         -         Unit Cost         \$3.25           Other -         -         Use:         \$4.23           T123611         Slab Drain with Grate         Each         46           -         -         -           -         -         -<					
Pay Items 2021         \$1.00         14000           Other         -         -         14000           0         Expansion Device (Finger Plate)         Lin. Ft.         178           Reference         Unit Cost           Pay Items 2021         \$2,000.00         0           Other         -         -         -           Pay Items 2021         \$2,000.00         0         0           Other         -         -         -           Use:         \$2,600.00         0         0           7121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           Pay Items 2021         \$3.25         0         0           Other         -         -         -           Use:         \$4.23         -         -           7123611         Slab Drain with Grate         Each         46           Reference         Unit Cost         -         -           Pay Items 2021         -         -         -           -         -         -         -         -           Use:         \$5,460.00         -         -         -           7123620	\$18,200				
Use:         \$18,200.00           7120900         Expansion Device (Finger Plate)         Lin. Ft.         178           Reference Pay Items 2021         Unit Cost \$2,000.00         Unit Cost \$2,000.00           7121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           7121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           Reference Pay Items 2021         Unit Cost \$3.25           Other         -         -           Use:         \$4.23         -           7123611         Slab Drain with Grate         Each         46           Reference Pay Items 2021         Unit Cost -         -         -           1-435 MO River Bridge Bidtabs (2021 cost)         4200.0         4200.0           Value         \$5,460.00         -         1           7123620         Drainage System (On Structure)         Lump Sum         1           Reference Pay Items 2021         Unit Cost -         -         -	Sq. Ft.				
Reference       Unit Cost         Pay Items 2021       \$2,000.00         Other       -         Use:       \$2,600.00         7121122       Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W       Lb.       23728         Reference       Unit Cost         Pay Items 2021       \$3.25         Other       -       -         Use:       \$4.23         7123611       Slab Drain with Grate       Each       46         Reference       Unit Cost       -         Use:       \$4.23       -         7123611       Slab Drain with Grate       Each       46         1-435 MO River Bridge Bidtabs (2021 cost)       4200.0       -         Use:       \$5,460.00       -       -         7123620       Drainage System (On Structure)       Lurnp Sum       1         Reference       Unit Cost       -       -         Pay Items 2021       -       -       -         1       -       -       -       -         1       -       -       -       -         1       -       -       -       -         1       -       -					
Pay Items 2021         \$2,000.00 Other           7121122         Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W         Lb.         23728           Reference Pay Items 2021         Unit Cost \$3.25         S3.25         Other         -           0         Uher         -         -         44.23         -           7123611         Slab Drain with Grate         Each         46           Reference Pay Items 2021         Unit Cost \$4.23         -	\$2,600.00				
Use:       \$2,600.00         7121122       Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50W       Lb.       23728         Reference Pay Items 2021       Unit Cost \$3.25       S3.25       Other       -         0ther       -       -       Use:       \$4.23         7123611       Slab Drain with Grate       Each       46         Reference Pay Items 2021       Unit Cost \$4.23         7123611       Slab Drain with Grate       Each       46         I-435 MO River Bridge Bidtabs (2021 cost)       4200.0         Use:       \$5,460.00         7123620       Drainage System (On Structure)       Lump Sum       1         Reference Pay Items 2021       Unit Cost 4200.0         Value System (On Structure)					
Reference       Unit Cost         Pay Items 2021       \$3.25         Other       -         Use:       \$4.23         7123611       Slab Drain with Grate       Each       46         Reference       Unit Cost         Pay Items 2021       -       -         I-435 MO River Bridge Bidtabs (2021 cost)       4200.0       4200.0         Use:       \$5,460.00       Use:       \$5,460.00         7123620       Drainage System (On Structure)       Lump Sum       1         Reference       Unit Cost       Quanti         Pay Items 2021       -       -	-				
Reference Pay Items 2021       Unit Cost \$3.25         Other       -         Use:       \$4.23         7123611       Slab Drain with Grate       Each       46         Reference Pay Items 2021       -	\$4.23				
Use:         \$4.23           7123611         Slab Drain with Grate         Each         46           Reference         Unit Cost         -           Pay Items 2021         -         -           1-435 MO River Bridge Bidtabs (2021 cost)         4200.0         -           Use:         \$5,460.00         -         -           7123620         Drainage System (On Structure)         Lump Sum         1           Reference         Unit Cost         Quanti           Pay Items 2021         -         -					
Reference       Unit Cost         Pay Items 2021       -         I-435 MO River Bridge Bidtabs (2021 cost)       4200.0         Use:       \$5,460.00         7123620       Drainage System (On Structure)       Lump Sum       1         Reference       Unit Cost       Quanti         Pay Items 2021       -       -	-				
Pay Items 2021         -           I-435 MO River Bridge Bidtabs (2021 cost)         4200.0           Use:         \$5,460.00           7123620         Drainage System (On Structure)         Lump Sum         1           Reference Pay Items 2021         -         Quant	\$5,460.00				
Use:       \$5,460.00         7123620       Drainage System (On Structure)       Lump Sum       1         Reference       Unit Cost       Quanti         Pay Items 2021       -					
Reference Unit Cost Quant Pay Items 2021 -	_				
Reference Unit Cost Quant Pay Items 2021 -	\$542,490.00				
	-				
I-435 MO River Bridge Bidtabs (2021 cost) \$300.00 1391 Use: \$542,490.00					
7125365A Intermediate Field Coat System (System G) Sq. Ft. 16020	Lin. Ft.				
Reference Unit Cost Pay Items 2021 \$2.00 (>6000 Other -	Lin. Ft.				
Use: \$2.60	Lin. Ft.				

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FJS	Project: I-64 PEL Study Subject: No-Build Option (L0667) Task: Cost Estimates Job #: 10333314				Date:07/13/2022 Date: 07/28/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 5 - L0667				
7125370A	Finish Field Coat System (System G)	Sq. Ft.	22200	\$2.60	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$2.00 - \$2.60	(>6000 SF	)	
7151001				<b>1</b>	
7151001	Vertical Drain at End Bents  Reference Pay Items 2021 Other	Lin. Ft. <u>Unit Cost</u> \$45.00 -	151	\$58.50	
	Use:	\$58.50			
7162000	Laminated Neoprene Bearing Pad Assembly	Each	144	\$2,730.00	
	Reference Pay Items 2021 Other	<u>Unit Cost</u> \$2,100.00			
	Use:	\$2,730.00		_	
7172001	Strip Seal Expansion Joint System	Lin. Ft.	119	\$546.00	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$420.00 - \$546.00	(>100 ft)	-	
Replacement Costs:		0.5		400.00	
-	Remove Bridge Reference	Sq. Ft.	82533	\$26.00	
	I-29 Viaduct (steel bridge staged over RR and streets) : Conway (void slab on interstate):	\$20.0 \$20.0		(HDR Est. 2021) (HDR Est 2021)	
	Say:	\$26.0	0 /SF		
-	14-Span Continuous Composite Steel Plate Girder Bridge	Sq. Ft.	82533	\$396.50	
	Reference I-29 Viaduct (steel bridge staged over RR and streets) :	\$305.0		(HDR Est. 2021)	
	Say:	\$396.5			
-	MSE Walls  Reference Conway Wall+stain	Sq. Ft. \$92.0	8108 0 /SF	\$119.60	
	Assume any temp walls added into cost/sf, Say:	\$119.6	0 /SF		

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## $\mathbf{F}$

AADT:

Deck:

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

### Bridge No. 6 - A3594

Bridge Name: WB I-64 Bridge No. A3594 Rehab/Replace Alternative: 25 Yr Fix 10/25/50 Yr Remark (original): (25 Yr) - Hydro-latex, full repaint, expansion joint replacement, rehab, (50 Yr) - Deck Replacement & Full Repaint Bridge Description 1982 **Original Construction:** Continuous Steel Plate Girder Superstructure Type: Span Arrangement: 56 Span Bridge Roadway Width: 51'-5" Out-to-Out Width: 54'-10" 38,765 (2020); 48,456 (2040) Condition 7 Superstructure: 7 Substructure: 6 Sufficiency rating: 91.1% Vertical Clearance: Inspection Notes (NOTE: Many individual comments in insp. report are over 10 years old) Railing and App Pavement Components and Ratings Light effl. and many vertical cracks throughout. Does not meet Barrier

current standards for bridge rail.

Approach pavement

Large long, cracks on west end. Small patches at east end lane 3 and 25SF of patches on west approach. Small fracture at approach joint on west end lane 3.

## Drainage, Expansion devices, Bank/slope & Deck protective components Wearing surface 2in low slump concrete throughout (1982) - Good condition

Expansion Devices Abut 1- Elastomeric Comp. Seal Bent 4-Elastomeric Strip Seal Bent 8-Elastomeric Strip Seal Bent 12-Finger Plate Bent 16-Finger Plate Bent 20-Finger Plate Bent 24-Finger Plate Bent 28-Finger Plate Bent 31-Finger Plate Bent 36-Finger Plate Bent 38-Elastomeric Strip Seal Bent 42-Finger Plate Bent 46-Elastomeric Strip Seal Bent 50-Elastomeric Strip Seal Bent 53-Elastomeric Strip Seal Abut 57-Elastomeric Comp. Seal

**Deck Components** 

All spans

All overhangs: light effl. and few transv. Cracks

# **FC**

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Superstructure Components: Α

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

## Bridge No. 6 - A3594

Superstructure Components:	
All spans	Light to medium rusting at many locations
Substructure Components:	
All Bents	Light rusting at several bearings throughout bridge
Bent 2	Open horizontal cracks on SW corner
Bent 14	Light vertical and horizontal cracks at random and on columns
Bent 20	Slender right column
Bent 24	Large delam at right column groundline
Bent 25	Large spalls at groundline (cannot see in google earth)
Bent 28	Minor scrapes from collision on right column
	Missing keeper at G5 bearing
Bent 29	Large spalls at groundline (cannot see in google earth)
Bent 30	Mod. Vertical cracks throughout column
Bent 31	Few delam at groundline
Bent 34	Few delam at groundline
Bent 35	Few vertical cracks on top of right column
Bent 38	Minor spalls throughout column
Bent 40	Few horizontal and vertical cracks throughout column
Bent 44	Few vertical cracks throughout column
Bent 45	Minor vertical cracks at top of column
Bent 46	Moderate vertical cracks at north end of beam cap, moderate vertical cracks on exterior column
Bent 50	Minor delam at groundline of column 2
Bent 51	Minor vertical cracks at beam cap exterior column
Bent 52	Few horizontal and vertical cracks throughout beam cap
Bent 53	Few spalls throughout bottom of beam cap
Bent 54	Map cracked throughout bottom of column (patches), minor vertical
	cracks on beam cap at exterior column
Bent 56	Minor vertical cracks on beam cap at exterior column
Abut 57	Few spalls and large vertical cracks throughout backwall

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 08/01/22

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

## Bridge No. 6 - A3594

Clearance Information:	Varies
Structure Paint Information:	C System Inorganic Zinc/Vinyl Green (original 1983); 1 System Cal- Alum Sulph/Sys C Gray (2006)
<u>Requested Items:</u>	Seal Joints Flush deck and finger joints of debris Fill spalls at joint areas with asphalt throughout bridge Many columns throughout bridge with large spalls, rebar exposed, and delam. Expansion device replacements, hydro/latex, full repaint (2025)
Utility attachments:	-

Additional Recommendations

Crack filler (Assume 10' per for 1/3 of the columns) Substructure repair (formed/unformed) (Assume 30 Sq Ft for 1/4 of the columns) Protective coating on concrete caps beneath expansion joints and 10' of column for bents 20-41 (alongside EB I-64)

#### <u>Other</u>

#### Examples of deterioration at columns:

### Bent 24 (~ 4'x7')



## FC

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Bent 34 (~2'x4') Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 08/01/22

## Bridge No. 6 - A3594



## **H**

MoDOT Job Number J6l3585 St. Louis County

8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

### Bridge No. 6 - A3594

Bridge Name: WB I-64 Bridge No. A3594 Rehab/Replace Alternative: 10/25/50 Yr Remark (original):

25 Yr Fix (25 Yr) - Hydro-latex, full repaint, expansion joint replacement, rehab, etc. (50 Yr) - Deck Replacement & Full Repaint

### Scope/Recommendation:

Total hydro demolition (25 Yr) l otal hydro demonuon (25 Yr) Remove and replace existing half-sole repairs (25 Yr) Latex modified concrete overlay (25 Yr) Remove and replace expansion joints (25 Yr) Substructure repairs (formed/unformed) and epoxy crack filler (25/50 Yr) Protective coating on concrete bents (epoxy) (25/50 Yr) Full repaint (25/50 Yr) Deck replacement (barriers, expansion joints, drains) (50 Yr) Replace drainage system on structure (50 Yr) Remove and replace approach slab and add vertical drains at end bents (50 Yr)

#### Existing properties/dimensions

Existing properties/dimensions				
Roadway Width	51.42 ft (insp. rpt)			
Main Deck width:	54.833 ft (insp. rpt)	Main deck area	1:	
Main Deck length:	5403.00 ft (insp. rpt)	296262.7	(ft <sup>2</sup> )	Total
A3740 Extension Roadway Width	24.83 ft			316134.7 (ft <sup>2</sup> )
A3740 Extension Width	28.17 ft	Approximate 37	40 Extension	Area:
A3740 Extension Length	214.00 ft	12404.0	(ft <sup>2</sup> )	(est. from google earth)
A3741 Extension Roadway Width	24.83 ft	Approximate 37	41 Extension	Area:
A3741 Extension Width	28.17 ft	7468.0	(ft <sup>2</sup> )	(est. from google earth)
A3741 Extension Length	198.00 ft			
App Slab 1 Length	20.00 ft	(est. from googl	le earth)	
App Slab 2 Length	20.00 ft	(est. from googl	le earth)	
Left Barrier length:	5815.00 ft (say main brid	lge+both 3740 and 3741)		
Right Barrier length:	5617.00 ft (say main brid	lge+3740)		
Steel Weight	4838 tons	(Existing)		
Total Surface Hydro Demolition		(25 yr)	Accuracy 1	Sq. Yd.

	Total Deck area w/App Slabs (ft <sup>2</sup> ) 318191.37	Approx. deck area under barrier (ft <sup>2</sup> ) 19053.3	Area (yd <sup>2</sup> ) 33238	
Total			33238	Sq. Yd.
Removal of Concrete Wearing S	Surface		(25 yr)	Accuracy 1 Sq. Ft.
Total			299142	Sq. Ft.
Removal of Existing Deck Repa	ir			Accuracy 1 Sq. Ft.
Total (inspection report)			25	Sq. Ft.

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

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MoDOT Job Number J6l3585 St. Louis County 8/1/2022			Bridge No. (	5 - A3594
Removal of Existing Expansion Join	nt & Adjacent	Concrete	(25 yr)	Accuracy 1 Lin. Ft.
			Length (ft)	
Abut 1 Comp Seal System			54.8	
Abut 57 Comp Seal System			54.8	
6 Strip Seals			329.00	
8 Finger Plates			438.66	
Additional Finger Plate length at Bent	31 (A3740 exte	ension)	27.00	
Additional Taper length at Bent 38			2.00	
Additional Taper length at Bent 42			2.00	
Total			909.00	Lin. Ft.
Remove and Replace Barrier Curb Assume 3' for each barrier (left and ric	ht) removed a	nd replaced	(25 yr)	Accuracy 1 Lin. Ft.
	int) romovou u	la lopidood		
14 expansions joints replaced			Length (ft) 84.0	
Total			84	Lin. Ft.
Latex Modified Concrete Wearing S	urface		(25 yr)	Accuracy 1 Sq. Yd.
Total			33238	Sq. Yd.
Class B-2 Concrete Assume 18"x18" removed and replace	e on each side	of expansion joint	Length (ft)	Accuracy 0.1 Cu. Yar
	Length (ft) 909.00	Area (ft <sup>2</sup> ) 5	Volume (yd <sup>3</sup> ) 151.5	
Total	303.00		151.5	Cu. Yd.
Superstructure Repair (Unformed)			(25/50 yr)	Accuracy 1 Sq. Ft.
30 Sq Ft for 1/4 of all columns	Area (ft²) 30	Total # of columns 110	Total Area (ft <sup>2</sup> ) 825	
Total			825	Sq. Ft.
Epoxy Pressure Injecting				Accuracy 1 Lin. Ft.
	Length (ft)	Total # of columns	Total Length (ft)	
10' for 1/3 of all columns Total	10	110	366.67 367.0	Lin. Ft.
lotai			367.0	LIN. FL
Reinforcing Steel (Epoxy Coated) Reinforcing for deck at expansion joint	t replacement		(25 yr)	Accuracy 10 Lb.
Assume 270 lb/CV		Concrete volume (CY)	Weight (lb)	

		···o.g	
Assume 270 lb/CY	151.5	40905	
Total		40910	Lb.



St. Louis County

MoDOT Job Number J6l3585

### Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

### Bridge No. 6 - A3594

8/1/2022 Protective Coating - Concrete Bents and Piers (Epoxy)

Accuracy Lump Sum (SF for cost)

Coat 10' of columns at bents 20-41 (columns along I-64 EB); use 5'-6" as diameter (see pg 185 for ref, Dia A)

	Diameter (ft)	Area per column (ft²)	Total Area (ft <sup>2</sup> )	
42 columns	5.5	172.8	7257.1	
			7257	Sq. Ft.

Bents beneath expansion joints with concrete caps (1.4,8,12,46,50,53,57). Pg numbers for PDF of plans noted for reference.

Abut 1 (pg 151)			
Cap/Backwall Length	54.5	ft	
Cap Width	2.625	ft	
Backwall Height	4.9167	ft	
Cap Height	5.000	ft	
Cap Face Area:	683.52	ft <sup>2</sup>	

Bent 4 (pg 155)			
Cap Length	52	ft	
Cap Width	3.1667	ft	
Cap Height	4.250	ft	
Cap Face Area:	457.36	ft <sup>2</sup>	
Bent 8 (pg 157)	_		
Cap Length	52	ft	
Cap Width	3.1667	ft	
Cap Height	3.750	ft	

52

3.1667

3.750

403.56

ft

ft

ft

ft<sup>2</sup>



w	
+	
	w

Dent +0 (pg 220)	-		
Cap Length	52	ft	
Cap Width	3.1667	ft	
Cap Height	3.750	ft	
Cap Face Area:	403.56	ft²	
Bent 50 (pg 223)			

	_		
Cap Length	52	ft	
Cap Width	3.1667	ft	
Cap Height	3.583	ft	
Cap Face Area:	385.62	ft <sup>2</sup>	

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	L L	

## Bent 53 (pg 226)

Bent 12 (pg 158)

Cap Length

Cap Width

Cap Height

Cap Face Area:

Bent 46 (pg 220)

Cap Length	52	ft	
Cap Width	3.1667	ft	
Cap Height	3.833	ft	
Cap Face Area:	412.52	ft <sup>2</sup>	

### Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

#### MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Bridge No. 6 - A3594

Abut 57 (pg 229)	_			
Cap/Backwall Length	54.5	ft		
Cap Width	3.21	ft		
Backwall Height	4.9167	ft ft		
Cap Height Cap Face Area:	<u>5.000</u> 715.41			
Total Area of Protective Coating			11122	Sq. Ft.
-				
Expansion Device (Finger Plate)			(25/50 yr)	Accuracy 1 Lin. Ft.
8 Finger Plates Additional Finger Plate length at Ber Additional Taper length at Bent 42	nt 31 (A3740 ex	tension)	Length (ft) 438.664 27.000 2.000	
			<u>466</u>	Lin. Ft.
lotar			400	L
Surface Preparation for Recoating	g Structural St	eel	(25/50 yr)	Accuracy 100 Sq. ft.
Per MoDOT Pay item spreadsheet f	or plate girders	, estimate 135 sq. ft. per ton.		
Total		· · ·	653100	Sq. Ft.
Field Application of Inorganic Zin	c Primer		(25/50 yr)	Accuracy 100 Sq. ft.
		17 1 105 D		
Per MoDOT Pay item spreadsheet f	or plate girders	, estimate 135 sq. ft. per ton.		0 - 5
Per MoDOT Pay item spreadsheet f Total	or plate girders	, estimate 135 sq. ft. per ton.	653100	Sq. Ft.
	3)		<b>653100</b> (25/50 yr)	Sq. Ft. Accuracy 100 Sq. ft.
Total Intermediate Field Coat (System 0	3)		<b>653100</b> (25/50 yr)	
Total Intermediate Field Coat (System O Per MoDOT Pay item spreadsheet f	G) for plate girders	, estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr)	Accuracy 100 Sq. ft.
Total Intermediate Field Coat (System 0 Per MoDOT Pay item spreadsheet 1 Total Finish Field Coat (System G)	G) for plate girders	, estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr)	Accuracy 100 Sq. ft.
Total Intermediate Field Coat (System O Per MoDOT Pay item spreadsheet f Total Finish Field Coat (System G) Per MoDOT Pay item spreadsheet f	G) for plate girders	, estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr)	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft.
Total Intermediate Field Coat (System O Per MoDOT Pay item spreadsheet f Total Finish Field Coat (System G) Per MoDOT Pay item spreadsheet f	G) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr)	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft.
Total Intermediate Field Coat (System C Per MoDOT Pay item spreadsheet f Total Finish Field Coat (System G) Per MoDOT Pay item spreadsheet f Total	G) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft.
Total         Intermediate Field Coat (System O         Per MoDOT Pay item spreadsheet f         Total         Finish Field Coat (System G)         Per MoDOT Pay item spreadsheet f         Total         Preformed Compression Seal Exp         Abut 1	G) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100 (25/50 yr) Length (ft) 54.83	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft.
Total         Intermediate Field Coat (System Oper MoDOT Pay item spreadsheet f         Total         Finish Field Coat (System G)         Per MoDOT Pay item spreadsheet f         Total         Preformed Compression Seal Exp         Abut 1         Abut 57	G) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100 (25/50 yr) Length (ft) 54.83 54.83	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft. Accuracy 1 Lin. Ft.
Total         Intermediate Field Coat (System Oper MoDOT Pay item spreadsheet f         Total         Finish Field Coat (System G)         Per MoDOT Pay item spreadsheet f         Total         Preformed Compression Seal Exp         Abut 1         Abut 57	3) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100 (25/50 yr) Length (ft) 54.83 54.83	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft. Accuracy 1 Lin. Ft.
Total         Intermediate Field Coat (System O         Per MoDOT Pay item spreadsheet f         Total         Finish Field Coat (System G)         Per MoDOT Pay item spreadsheet f         Total         Preformed Compression Seal Exp         Abut 1         Abut 57         Total         Strip Seal Expansion Joint System	3) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100 (25/50 yr) Length (ft) 54.83 54.83 110 (25/50 yr) Length (ft)	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft. Accuracy 1 Lin. Ft. Sq. Ft.
Total         Intermediate Field Coat (System O         Per MoDOT Pay item spreadsheet f         Total         Finish Field Coat (System G)         Per MoDOT Pay item spreadsheet f         Total         Preformed Compression Seal Exp         Abut 1         Abut 57         Total         Strip Seal Expansion Joint System         6 Strip Seals	3) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100 (25/50 yr) Length (ft) 54.83 54.83 110 (25/50 yr) Length (ft) 329.00	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft. Accuracy 1 Lin. Ft. Sq. Ft.
Total         Intermediate Field Coat (System O         Per MoDOT Pay item spreadsheet f         Total         Finish Field Coat (System G)         Per MoDOT Pay item spreadsheet f         Total         Preformed Compression Seal Exp         Abut 1         Abut 57         Total         Strip Seal Expansion Joint System	3) for plate girders	, estimate 135 sq. ft. per ton. , estimate 135 sq. ft. per ton.	653100 (25/50 yr) 653100 (25/50 yr) 653100 (25/50 yr) Length (ft) 54.83 54.83 110 (25/50 yr) Length (ft)	Accuracy 100 Sq. ft. Sq. Ft. Accuracy 100 Sq. ft. Sq. Ft. Accuracy 1 Lin. Ft. Sq. Ft.

### Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

MoDOT Job Number J6l3585 St. Louis County			Bridge No.	6 - A3594
8/1/2022				
Class 1 Excavation			(50 yr)	Accuracy 5 Cu. Yd.
Assume 3' width excavated to both	tom of diaphragm		( )-)	
	Height (ft)	Length (ft)	Volume (yd <sup>3</sup> )	
Abut 1	4.9167	89.5	48.9	
Abut 15	4.9167	86.5	47.3	
Total		00.0	95.0	Cu. Yd.
Removal of Existing Bridge Dec	k		(50 yr)	Accuracy 1 Sq. Ft.
			Area (ft <sup>2</sup> )	
Total			316135 316135	Sq. Ft.
Removal and Replacement of Ap	oproach Slab		(50 yr)	Accuracy 1 Sq. Ft.
			Area (ft <sup>2</sup> )	
App Slab 1			1028.3	
App Slab 2			1028.3	
Total			2057	Sq. Ft.
Slab on Steel			(50 yr)	Accuracy 1 Sq. Yd.
(Assume 4" taken in on each side	for Type D barrier)		(00 )!)	, local aby 1 oq. 1 a.
	Total Removed			
	Area (ft <sup>2</sup> )	8" Barrier Area (ft2)	Area (yd <sup>2</sup> )	
	316135	7621.3	34279	
Total	310133	7021.5	34279	Sq. Yd.
Type D Barrier			(50 yr) Length (ft)	Accuracy 1 Lin. Ft.
Left Barrier			5815.0	
Right Barrier			5617.0	
Total				Lin. Ft.
Total			11432	Lin. Fl.
Slab Drain with Grate			(50 yr)	Accuracy Each
45 drains between bents 1 and 42	. Assume 1.5 drains	s per span	( ).)	······································
		# of spans 56	# of drains 84	
			84	Each
<b>Drainage System (On Structure)</b> Assume a cost per Lin. Ft. of brid <u>c</u>			(50 yr)	Accuracy Lump Sum (use lin. ft. to est.
	-		Length (ft)	
			5403.00	
			5403	Lin. Ft.
Vertical Drain at End Bents			(50 yr)	Accuracy 1 Lin. Ft.
Abut 4 (no. 151)		Wing lengths (both) (ft		1
Abut 1 (pg 151)	54.5	35	89.5	
Abut 57 (pg 229)	54.5	32	86.50	

Abut 57 (pg 229) 54.5 32 86.50 176 Lin. Ft.

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

Bridge No. 6 - A3594

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 WB I-64

 Bridge No.
 A3594

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro-latex, full repaint, expansion joint replacement, rehab, etc.

Scope:

Total hydro demolition Remove and replace existing half-sole repairs Latex modified concrete overlay Remove and replace expansion joints Substructure repairs (formed/unformed) and epoxy crack filler Protective coating on concrete bents (epoxy) Full repaint

Assume staging of rehabilitation work required. Say 15% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161001	Total Surface Hydro Demolition	Sq. Yd.	33238	\$52.00	\$1,728,376.00
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	299142	\$2.80	\$836,101.89
2161503	Removal of Existing Deck Repair	Sq. Ft.	25	\$52.00	\$1,300.00
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	909.0	\$455.00	\$413,595.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	84	\$910.00	\$76,440.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	33238	\$130.00	\$4,320,940.00
7034214	Class B-2 Concrete	Cu. Yd.	151.5	\$2,860.00	\$433,290.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	825	\$169.00	\$139,425.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	367	\$117.00	\$42,939.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	40910	\$2.86	\$117,002.60
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$86,749.00	\$86,749.00
7120900	Expansion Device (Finger Plate)	Lin. Ft.	466	\$2,600.00	\$1,211,600.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	653100	\$32.50	\$21,225,750.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	653100	\$3.25	\$2,122,575.00
7125365A	Intermediate Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7125370A	Finish Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7171001	Preformed Compression Seal Expansion Joint System	Lin. Ft.	110	\$409.50	\$45,045.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	331	\$546.00	\$180,724.91
	TOTAL BASE COST =				\$36,377,973.40

Misc. Construction Costs (15%): \$5,456,696.0

Sub-total:	\$41,834,669.41

Mobilization (6%): \$2,510,080.2

Total Rehab Cost (2022): \$44,344,749.57

Cost/SF of Bridge: \$140.27

c:\pwworking\central01\d3052554\A3594 - Conceptual Scope and Estimate.xlsx

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 08/01/22

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 6 - A3594

WB I-64 Bridge Name: Bridge No. A3594 Rehab/Replace Alternative: 50 Yr Fix 10/25/50 Yr Remark (original): (50 Yr) - Deck Replacement & Full Repaint

#### Scope:

Deck replacement (barriers, expansion joints, drains) Replace drainage system on structure Remove and replace approach slab and add vertical drains at end bents Substructure repairs (formed/unformed) and epoxy crack filler Protective coating on concrete bents (epoxy) Full repaint

Assume staging of rehabilitation work required and increase cost for seismic retrofit. Say 15% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	95	\$58.50	\$5,557.50
2162500	Removal of Existing Bridge Deck	Sq. Ft.	316135	\$11.05	\$3,493,291.75
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	2057	\$123.50	\$253,998.35
7034212	Slab on Steel	Sq. Yd.	34279	\$377.00	\$12,923,294.70
7034219A	Type D Barrier	Lin. Ft.	11432	\$110.50	\$1,263,236.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	825	\$169.00	\$139,425.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	367	\$117.00	\$42,939.00
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$86,749.00	\$86,749.00
7120900	Expansion Device (Finger Plate)	Lin. Ft.	466	\$2,600.00	\$1,211,600.00
7123611	Slab Drain with Grate	Each	84	\$5,460.00	\$458,640.00
7123620	Drainage System (On Structure)	Lump Sum	1	\$2,107,170.00	\$2,107,170.00
7125200	Surface Preparation for Recoating Structural Steel	Sq. Ft.	653100	\$32.50	\$21,225,750.00
7125210	Field Application of Inorganic Zinc Primer	Sq. Ft.	653100	\$3.25	\$2,122,575.00
7125365A	Intermediate Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7125370A	Finish Field Coat System (System G)	Sq. Ft.	653100	\$2.60	\$1,698,060.00
7151001	Vertical Drain at End Bents	Lin. Ft.	176	\$58.50	\$10,296.00
7171001	Preformed Compression Seal Expansion Joint System	Lin. Ft.	110	\$409.50	\$45,045.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	331	\$546.00	\$180,724.91
	TOTAL BASE COST =				\$48,966,412.21

Misc. Construction Costs (15%): \$7,344,961.8

Sub-total:	\$56,311,374.04
Mobilization (6%): *Surveying (1%):	\$3,378,682.4 \$295,669.3
Total Rehab Cost (2022):	\$59,985,725.78
Cost/SF of Bridge:	\$189.75

 $^{\star}1\%$  for surveying cost does not include base superstructure paint cost.

## FC

Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314

Bridge No. 6 - A3594

MoDOT Job Number J6l3585 St. Louis County 11/8/2022

#### Unit Costs:

#### Add 30% to account for 2022 price increases

	2169901	Class 1 Excavation		Cu. Yd.	95	\$58.50
			Reference	Unit Cost		
			Pay Items 2021	<u>Unit Cost</u> \$45.00		
			Other	\$ <del>4</del> 5.00 -		
			Use:	\$58.50		
						<b>470</b> 00
	2161001	Total Surface Hydro Demolition		Sq. Yd.	33238	\$52.00
			Reference	Unit Cost		
			Pay Items 2021	\$40.00	(>1000 SY)	
			Other	-	· · ·	
			Use:	\$52.00		
	2161502	Removal of Concrete Wearing Surface		Sq. Ft.	299142	\$2.80
	2101002	Removal of Conference Wearing Carlace		0q. 1 ti	200112	Q2.00
			<b>Reference</b>	Unit Cost		
			Pay Items 2021	\$2.15	(>10000 SF)	
			Other	-		
			Use:	\$2.80		
	2161503	Removal of Existing Deck Repair		Sq. Ft.	25	\$52.00
		,	I	I		• • • • •
			<b>Reference</b>	Unit Cost		
			Pay Items 2021	\$40.00		
			Other	-		
			Use:	\$52.00		
	2164500	Removal of Existing Expansion Joint & Adjacent Concrete		Lin. Ft.	909.0	\$455.00
			Reference	Unit Cost		
			Pay Items 2021	\$350.00		
			Other Use:	\$455.00		
			036.	φ <del>4</del> 33.00		
	2169903	Remove and Replace Barrier Curb		Lin. Ft.	84	\$910.00
			Reference	Unit Cost		
			Pay Items 2021 Other	\$700.00		
			Use:	\$910.00		
	5052000	Latex Modified Concrete Wearing Surface		Sq. Yd.	33238	\$130.00
			Reference	Unit Cost		
			Pay Items 2021	\$100.00		
			Other	-		
			Use:	\$130.00		
	7004044			0	454.5	<b>*</b> 0.000.00
	7034214	Class B-2 Concrete		Cu. Yd.	151.5	\$2,860.00
			Reference	Unit Cost		
			Pay Items 2021	\$2,200.00	(>100 CY bi	ut exp jt only. Use mid-
			Other	-	(	15 5 -
			Use:	\$2,860.00		
	7040101/02	Substructure Panair (Formed/Unformed)		Sa Et	025	\$160.00
L	7040101/02	Substructure Repair (Formed/Unformed)		Sq. Ft.	825	\$169.00
			Reference	Unit Cost		
			Pay Items 2021	\$130.00	(>100 SF)	
			Other	-	,	
			Use:	\$169.00		
	7040110	Epoxy Pressure Injecting		Lin. Ft.	367	\$117.00
L	10-0110			Enr. 1 L.	1 307	ψ117.00
			Reference	Unit Cost		
			Pay Items 2021	\$90.00		
			0.1			
			Other Use:	- \$117.00		

c:\pwworking\central01\d3052554\A3594 - Conceptual Scope and Estimate.xlsx

FJS	Project: I-64 Subject: No-Build Task: Cost Job #: 10	Estimates			mputed by: SF Checked by: M	
MoDOT Job Number J6l3585 St. Louis County 11/8/2022	Bridge No.	6 - A3594				
7101000	Reinforcing Steel (Epoxy Coated)		Lb.	40910	\$2.86	]
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$2.20	(>10000 lb.	say OK for exp jt	only)
		Use:	\$2.86			-
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)		Lump Sum	1	\$86,749.00	1
		Reference Pay Items 2021	<u>Unit Cost</u> \$6.00	<u>Quantity</u> 11122	Sq. Ft.	-
		Other Use:	- \$86,749.00			-
7400000				100	<b>*</b> 0.000.00	7
7120900	Expansion Device (Finger Plate)		Lin. Ft.	466	\$2,600.00	L
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$2,000.00			
		Use:	\$2,600.00			-
7125200	Surface Preparation for Recoating Structural Steel		Sq. Ft.	653100	\$32.50	]
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$20.00	(>6000 sf ar	nd larger contract)	)
		Use:	\$32.50			-
7125210	Field Application of Inorganic Zinc Primer		Sq. Ft.	653100	\$3.25	1
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$2.50 -		nd larger contract)	)
		Use:	\$3.25			_
7125365A	Intermediate Field Coat System (System G)		Sq. Ft.	653100	\$2.60	
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$2.00 -	(>6000 sf ar	nd larger contract)	ı 
		Use:	\$2.60			_
7125370A	Finish Field Coat System (System G)		Sq. Ft.	653100	\$2.60	]
		<u>Reference</u> Pay Items 2021 Other	<u>Unit Cost</u> \$2.00	(>6000 sf ar	nd larger contract)	)
		Use:	\$2.60			-
7171001	Preformed Compression Seal Expansion Joint System		Lin. Ft.	110	\$409.50	]
		Reference Pay Items 2021	<u>Unit Cost</u> \$315.00			
		Other Use:	\$409.50			-
7172001	Strip Seal Expansion Joint System	I	Lin. Ft.	331	\$546.00	1
		Reference Pay Items 2021	Unit Cost			-
		Other	\$420.00	(>100 ft)		_
		Use:	\$546.00			
2162500	Removal of Existing Bridge Deck		Sq. Ft.	316135	\$11.05	]
		Reference Pay Items 2021 Other	<u>Unit Cost</u> \$8.50	(>100 ft)		
		Use:	\$11.05			-

Computed by: SFP Date:07/13/2022 8/01/22

FJS	Project: I-64 PEL Study Subject: No-Build Option (A3594) Task: Cost Estimates Job #: 10333314		Computed by: SFP Date:07/13/2 Checked by: MTW Date: 08/0:		
MoDOT Job Number J6l3585 St. Louis County 11/8/2022	Bridge No. 6 - A3594				
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	2057	\$123.50	]
	Reference Pay Items 2021 Other	<u>Unit Cost</u> \$95.00	(use partia _cost)	l remove/ replace	
	Use:	\$123.50			
7034212	Slab on Steel	Sq. Yd.	34279	\$377.00	]
	Reference Pay Items 2021 Other	<u>Unit Cost</u> \$290.00 -	(>1000 SY	)	_
	Use:	\$377.00			
7034219A	Type D Barrier	Lin. Ft.	11432	\$110.50	1
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$85.00 - \$110.50	(>600 LF)		-
7123611	Slab Drain with Grate	Each	84	\$5,460.00	]
	Reference Pay Items 2021 I-435 River Bridge Bidtabs (2021 cost) Use:	<u>Unit Cost</u> - \$4,200.00 \$5,460.00		-	-
7400000			1 4		1
7123620	Drainage System (On Structure) Estimate cost per foot of bridge for replacement of drainage structures	Lump Sum	1	\$2,107,170.00	
	Reference Pay Items 2021	<u>Unit Cost</u> -	Quantity		
	I-435 River Bridge Rehab Bidtabs Use:	\$300.00 \$2,107,170.00	5403	ft	-
7151001	Vertical Drain at End Bents	Lin. Ft.	176	\$58.50	]
	Reference Pay Items 2021 Other	<u>Unit Cost</u> \$45.00 -			
	Use:	\$58.50			-

## **H**

Bridge Name:

Bridge No.

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314

### Bridge No. 7 - A3740

WB I-64 On-Ramp from Grand over Fill A3740 Rehab/Replace Alternative: 10/25 Yr Fix 10/25/50 Yr Remark (original): (10 Yr) - Expansion joint replacement & EP Overlay, etc. (25 Yr) - Expansion joint replacement & Hydro/Latex, etc.

Bridge Description	
Original Construction:	1981
Superstructure Type:	P/S I-Girder
Span Arrangement:	61'-61'-61'-60'
Roadway Width:	24'-10"
Out-to-Out Width:	28'-2"
AADT:	5,946 (2020); 7,433 (2040)
Condition	
Deck:	7
Superstructure:	7
Substructure:	6
Sufficiency rating:	97.8%
Vertical Clearance:	-

#### Inspection Notes

Railing and App Pavement Components	and Ratings
Barrier	Minor severity only. Does not meet current standard for bridge
	rail.
Approach pavement	Minor severity only. OK
Drainage, Expansion devices, Bank/slop	be & Deck protective components
Drainage	Drain at Bent 3, attached to Col 1
Expansion Jt.	
•	Moderate deterioration with debonding throughout, missing 5.5'
Deck Components	
All spans	Moderate delamination/pitting/cracks/scaling throughout. Ligh
	wear on driving surface.
	Cracks on overhangs: Span 2 south side (few) Span 3 north

Cracks on overhangs: Span 2 south side (few), Span 3 north and south side (minor), Span 4 south side (few)

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

# FC

MoDOT Job Number J6I3585

Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 7 - A3740

St. Louis County	Bhuge NO. 7 - A3740
8/1/2022	
Superstructure Components:	
All spans	Minor issues only. OK
Substructure Components:	
Bent 1	Medium horizontal cracks on bearing seat.
	Few horizontal and vertical cracksand small spalls on cap face
	Small delam on top of cap on north end
Bent 2	Small delam @ top of column 1
Beint 2	Rust stains and scrapes on Col 1
	Scaling throughout
Bent 3	Minor issues only
Bent 4	Minor issues only
D / Z	
Bent 5	epoxy seal throughout (grafitti guard)
Abut 6	Minor issues only
Clearance Information:	
Structure Paint Information:	-
Requested Items:	Stencil bridge number
	Clean and Seal Bent 1 cap under joint
	Clean out debris at east abutment
	Cut and brush trees on slope
	Repair guardrail SE quadrant
	Clean Drain @ bent 3 on left side
	Seal deck with Silane (2024)
	EPO Deck and app slab; replace expansion joint at bent 1
	(2025)
Utility attachments:	-
Additional Decommon detions	Substructure renaire (asy 5% formed/unformed of best 1 can
Additional Recommendations	Substructure repairs (say 5% formed/unformed of bent 1 cap face and 100 ft of epoxy injection to cover all minor issues
	throughout bent) (10/25 yr)
	Protective coating at bent 1 (10/25 yr)
	Superstructure repair on overhang (assume 1% of deck area
	and 15' of slab edge repair from damage noted at multiple
	spans) (10/25 yr)

Other Recommendations to Consider

Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 7 - A3740

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 WB I-64 On-Ramp from Grand over Fill

 Bridge No.
 A3740

 Rehab/Replace Alternative:
 10/25 Yr Fix

 10/25/50 Yr Remark (original):
 (10 Yr) - Expansion joint replacement & EP Overlay, etc.

 (25 Yr) - Expansion joint replacement & Hydro/Latex, etc.

Scope/Recommendation:

Epoxy Polymer Overlay (10 yr) Scarification of Bridge Deck (10/25 yr) Total Hydro Demolition (25 yr) Latex Modified Concrete overlay (25 yr) Expansion Joint replacement (10/25 yr) Epoxy Pressure Injecting/Substructure repairs (formed/unformed) (10/25 yr) Protective Coating Concrete (Epoxy) at Bent 1 (10/25 yr) Superstructure repair (unformed) & slab edge repair (10/25 yr)

Existing properties/dimensions		
Roadway Width	24.83 ft	
Deck width:	28.167 ft	Total deck area:
Deck length:	305.46 ft	8603.9 (ft <sup>2</sup> )
Left Barrier length:	313.46 ft	
Right Barrier length:	313.46 ft	
Approach Length:	18.00 ft (insp. report)	
Expansion Joint Replacement:		
Expansion length from 3740	305.46 ft (concrete)	
Expansion length from 3594	101.46 ft (steel)	(1/2 length from Slab plan, pg 358 of As-built plans
Total Expansion from temp:	3.826 in	
Use Strip Seal to replace existing expa	insion joint	

#### **Quantities**

Scarification of Bridge Deck			(10/25 yr)	Accuracy 1 Sq. Yd.
Bridge + Approach Slab	Width (ft) 24.83	Length (ft) 323.46	Area (yd <sup>2</sup> ) 892	
Total			892	Sq. Yd.
Total Surface Hydro Demolition			(25 yr)	Accuracy 1 Sq. Yd.
	Width (ft) 24.83	Length (ft) 323.46	Area (yd²) 892	
Total			892	Sq. Yd.
Removal of Existing Expansion	Joint & Adjacer	nt Concrete	(10/25 yr)	Accuracy 1 Lin. Ft.
			Length (ft)	
Total			29	Lin. Ft.
Remove and Replace Barrier Cu Assume 3' for each barrier (left and		l and replaced	(10/25 yr)	Accuracy 1 Lin. Ft.
			Length (ft) 12.0	
Total			12	Lin. Ft.
Latex Modified Concrete Wearin	g Surface		(25 yr)	Accuracy 1 Sq. Yd.
	Width (ft)	Length (ft)	Area (yd <sup>2</sup> )	
	( )			
Bridge + Approach Slab Total	24.83	323.46	892 892	Sg. Yd.

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FJS		Su	Project: I-64 bject: No-Build Task: Cost Job #: 10	l Option (A3740) Estimates	Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County			Bridge No.	7 - A3740	
8/1/2022 Epoxy Polymer Wearing Surface			(10 yr)	Accuracy 1 Sq. Yd.	
Bridge + Approach Slab	Width (ft) 24.83	Length (ft) 323.46	Area (yd²) 892		
Total			892	Sq. Yd.	
Class B-2 Concrete Assume 18"x18" removed and repla	ace on each sid	e of expansion j	(10/25 yr) oint	Accuracy 0.1 Cu. Yard	
	Length (ft) 28.167	Area (ft²) 5	Volume (yd <sup>3</sup> ) 4.7		
Total			4.7	Cu. Yd.	
Substructure Repair (Formed/Unf	ormed)		(10/25 yr)	Accuracy 1 Sq. Ft.	
Bent 1 Cap Length Cap Width Cap Height	3.667 5.115	ft ft	w		
Cap Face Area:	295.04	ft <sup>2</sup> ◄—	L		
5% from face of cap			Area (ft <sup>2</sup> ) 14.8		
Total			14.8 15	Sq. Ft.	
Superstructure Repair (Unformed	)		(10/25 yr)	Accuracy 1 Sq. Ft.	
10/ from deals area			Area (ft <sup>2</sup> )		
1% from deck area Total			86.0 86	Sq. Ft.	
Slab Edge Repair (Bridges)			(10/25 yr)	Accuracy 1 Lin. Ft.	
Assume 15'			15.0		
Total			15	Lin. Ft.	
Epoxy Pressure Injecting			(10/25 yr)	Accuracy 1 Lin. Ft.	
Total			Length (ft) 100	Lin. Ft.	
Reinforcing Steel (Epoxy Coated) Reinforcing for deck at exansion join			(10/25 yr)	Accuracy 10 Lb.	
Assume 270 lb/CV		Concrete volume (CY)	Weight (lb)		
Assume 270 lb/CY Total		4.7	1269 1269	Lb.	

FJS	Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314				
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No	. 7 - A3740			
Protective Coating - Concrete Bents and Piers (Epoxy)	(10/25 yr)	Accuracy Lump Sum (SF for cost)			
See Bent 1 dimensions above	Area (ft <sup>2</sup> )				
Top of cap	95.21				
Cap faces	295.04				
Total	390	Sq. Ft.			
Strip Seal Expansion Joint System	(10/25 yr)	Accuracy 1 Lin. Ft.			
	Length (ft)				
Total	29	Lin. Ft.			

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

# F)

St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314

Bridge No. 7 - A3740

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

## MoDOT Job Number J6I3585

Bridge Name: WB I-64 On-Ramp from Grand over Fill Bridge No. A3740 Rehab/Replace Alternative: 10 Yr Fix 10/25/50 Yr Remark (original): (10 Yr) - Expansion joint replacement & EP Overlay, etc.

Scope: Scarification of bridge deck Epoxy polymer overlay Substructure repairs (formed/unformed) and misc. crack repair Protective coating concrete (epoxy) at Bent 1 Superstructure repair (unformed) & slab edge repair Expansion joint replacement

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	892	\$15.60	\$13,922.97
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	29	\$455.00	\$13,195.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	12	\$910.00	\$10,920.00
6233000	Epoxy Polymer Wearing Surface	Sq. Yd.	892	\$52.00	\$46,409.90
7034214	Class B-2 Concrete	Cu. Yd.	4.7	\$4,290.00	\$20,163.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	15	\$201.50	\$3,022.50
7040103	Superstructure Repair (Unformed)	Sq. Ft.	86	\$169.00	\$14,534.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	15	\$260.00	\$3,900.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	\$11,700.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	\$4,784.13
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$3,042.00	\$3,042.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	\$16,965.00
	TOTAL BASE COST	=			\$162,558.50

Misc. Construction Costs (5%): \$8,127.92

> Sub-total: \$170,686.42

Mobilization (6%): \$10,241.19

Total Rehab Cost (2022): \$180,927.61

> Cost/SF of Bridge: \$21.03

MoDOT Job Number J6I3585

Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 7 - A3740

 St. Louis County
 Dridge INO. / - AS

 8/1/2022
 8/1/2022

 Bridge Name:
 WB I-64 On-Ramp from Grand over Fill

 Bridge No.
 A3740

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Expansion joint replacement & Hydro/Latex, etc.

Scope:

Total hydro demolition & scarification of bridge deck Latex modified concrete overlay Substructure repairs (formed/unformed) and misc. crack repair Protective coating concrete (epoxy) at Bent 1 Superstructure repair (unformed) & slab edge repair Expansion joint replacement

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	892	\$15.60	\$13,922.97
2161001	Total Surface Hydro Demolition	Sq. Yd.	892	\$65.00	\$58,012.37
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	29	\$455.00	\$13,195.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	12	\$910.00	\$10,920.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	892	\$130.00	\$116,024.74
7034214	Class B-2 Concrete	Cu. Yd.	4.7	\$4,290.00	\$20,163.00
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	15	\$201.50	\$3,022.50
7040103	Superstructure Repair (Unformed)	Sq. Ft.	86	\$169.00	\$14,534.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	15	\$260.00	\$3,900.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	\$11,700.00
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	\$4,784.13
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum	1	\$3,042.00	\$3,042.00
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	\$16,965.00
	TOTAL BASE COST	=			\$290,185.71

Misc. Construction Costs (5%): \$14,509.29

Sub-total: \$304,695.00

Mobilization (6%): \$18,281.70

Total Rehab Cost (2022): \$322,976.70

Cost/SF of Bridge: \$37.54



Project: I-64 PEL Study Subject: No-Build Option (A3740) Task: Cost Estimates Job #: 10333314

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge No. 7 - A3740

Unit Costs:

### Add 30% to account for 2022 price increases

2161000	Scarification of Bridge Deck		Sq. Yd.	892	\$15.60
2101000			04. 10.	002	φ10.00
		<b>Reference</b>	Unit Cost		
		Pay Items 2021	\$12.00	(<2000 SY)	
		Other	- \$15.60		
			φ13.00		
2164500	Removal of Existing Expansion Joint & Adjacent	Concrete	Lin. Ft.	29	\$455.00
		Reference	Unit Cost		
		Pay Items 2021 Other	\$350.00		
		Use:	\$455.00		
			•		
2169903	Remove and Replace Barrier Curb		Lin. Ft.	12	\$910.00
		Reference	Unit Cost		
		Pay Items 2021	\$700.00		
		Other	-		
		Use:	\$910.00		
			0 1/1		<b>*</b> 50.00
6233000	Epoxy Polymer Wearing Surface		Sq. Yd.	892	\$52.00
		Reference	Unit Cost		
		Pay Items 2021	\$40.00	(<1000 SY)	)
		Other	-		
		Use:	\$52.00		
7034214	Class B-2 Concrete		Cu. Yd.	4.7	\$4,290.00
		Reference Pay Items 2021		(< 25CY for	covp it )
		Other	φ3,300.00 -	(~ 2301 10	exp. ji.)
		Use:	\$4,290.00		
7040404/00			0 5	15	\$201.50
7040101/02	Substructure Repair (Formed/Unformed)		Sq. Ft.		3ZU1.3U
				10	+
		Reference	Unit Cost	10	
		Reference Pay Items 2021	<u>Unit Cost</u> \$155.00	(<100 SF)	
		Pay Items 2021 Other	\$155.00 -		
		Pay Items 2021			
7040103	Superstructure Repair (Unformed)	Pay Items 2021 Other	\$155.00 -		\$169.00
7040103		Pay Items 2021 Other <b>Use:</b>	\$155.00 - \$201.50 Sq. Ft.	(<100 SF)	
7040103	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: <u>Reference</u>	\$155.00 - \$201.50 Sq. Ft. <u>Unit Cost</u>	(<100 SF)	
7040103	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: Reference Pay Items 2021	\$155.00 - \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00	(<100 SF)	
7040103	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: <u>Reference</u>	\$155.00 - \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00 -	(<100 SF)	
7040103	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: Reference Pay Items 2021 Other	\$155.00 - \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00	(<100 SF)	
7040103	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: Reference Pay Items 2021 Other	\$155.00 - \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00 -	(<100 SF)	
	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: Reference Pay Items 2021 Other Use:	\$155.00 \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00 - \$169.00 Lin. Ft.	(<100 SF)	\$169.00
	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: Pay Items 2021 Other Use: <u>Reference</u>	\$155.00 - \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00 - \$169.00 Lin. Ft. <u>Unit Cost</u>	(<100 SF)	\$169.00
	Superstructure Repair (Unformed)	Pay Items 2021 Other Use: Reference Pay Items 2021 Other Use:	\$155.00 \$201.50 Sq. Ft. <u>Unit Cost</u> \$130.00 - \$169.00 Lin. Ft.	(<100 SF)	\$169.00

FJS	Project: I-64 PEL Study Subject: No-Build Option (A3740 Task: Cost Estimates Job #: 10333314		Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 7 - A3740		
7040110	Epoxy Pressure Injecting	Lin. Ft. 100	\$117.00
	Reference Pay Items 2021 Other Use:	\$90.00	
7101000	Reinforcing Steel (Epoxy Coated)	Lb. 1269	\$3.77
	Reference Pay Items 2021 Othe Use:	<u>Unit Cost</u> \$2.90 (exp. jt.)	
7110200	Protective Coating - Concrete Bents and Piers (Epoxy)	Lump Sum 390	\$3,042.00
	Reference Pay Items 2021 Othe Use:	\$6.00 390 S	F
7172001	Strip Seal Expansion Joint System	Lin. Ft. 29	\$585.00
	Reference Pay Items 2021 Othe Use:	\$450.00 (<100 LF)	
2161001	Total Surface Hydro Demolition	Sq. Yd. 892	\$65.00
	Reference Pay Items 2021 Other Use:	\$50.00 (< 1000 SY)	)
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd. 892	\$130.00
	Reference Pay Items 2021 Othe Use:	\$100.00	

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Bridge Name:

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Bridge No. Rehab/Replace Alternative:

10/25/50 Yr Remark (original):

Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

## Bridge No. 8 - L0638

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/22

Bridge Description		
Original Construction:	1954	
Superstructure Type:	Haunched 8-Cell Box Girder	
Span Arrangement:	88'	
Roadway Width:	66'-0" with 5'-10" sidewalks on each side	
Out-to-Out Width:	80'-0"	
AADT:	20,597 (2020); 28,836 (2040)	
Condition		
Deck:	6	
Superstructure:	6	
Substructure:	6	
Sufficiency rating:	91.0%	
Vertical Clearance:	ce: P Pavement Components and Ratings P Pavement Components and Ratings Heavy delam on backside/top @ right Rebar exposed throughout (heavy @ right side) Moderate scaling throughout Many spalls throughout Broken bracket for railing on north left side and at south end	
Inspection Notes		
Railing and App Pavement Components		
Barrier	, , , , , , , , , , , , , , , , , , , ,	
	, , , , , , , , , , , , , , , , , , , ,	
	right side	
	Does not meet current standard for bridge rail.	
Sidewalks	Moderate delam, long. cracks, satur. and scaling throughout.	
	Few rebar exposed and many spalls throughout.	
Approach pavement	Poor condition:	
	Patches and many spalls on both ends with heavy rutting on north end	
	lioitii elia	
Drainage, Expansion devices, Bank/slop	e & Deck protective components	
Wearing Surface	2" concrete WS (fair):	
	Med long. cracks, transv. cracks, and wear throughout.	
	Map cracks at south end, and minor pitting throughout	
Drainage		
Expansion Jt.		
Deck Components		
Deck	Med. wear on driving surface	
	Overhangs:	
	Mod. delam, effl., rust stains and saturation (7% of deck area).	
	Minor rebar exposed and light cracks at random.	
	Heavy scaling on north side and moderate scaling on west	
	overhang.	

Grand over I-64

25 Yr Fix or Replacement

(25 Yr) - Hydro/Latex & Substructure Repair, etc.

L0638

## 

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Superstructure Components: Deck girder

Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

### Bridge No. 8 - L0638

Many small delams with minor efflr. On bottom. 8% (large) patches of shotcrete repair. Moderate saturation on edge. All 4 corners have 10' longitudinal cracks at superstructure/sidewalk seam Moderate saturation on sides of boxes near abut. Substructure Components: Beam Cap: Minor diagonal and vert. cracks Abut 1 Stem: few patches Turned back wings: Few diagonal cracks, moderate honey combs, rebar exposed, and spalls Abut 2 Beam Cap: moderate delam, with minor cracks, and medium spalling on front face Stem: large delam at bottom, moderate patches with minor rebar exposed and cracks throughout Turned back wings: large delam throughout, moderate rebar exposed (NE corner), and large spalls at random 15'-2" per SIA; 16'-7' per Insp. Report (below bridge) **Clearance Information:** Structure Paint Information: Repair abutment stem/backwall (north) **Requested Items:** Repair approach roadway. Fill bridge/approach joint spalls w/asphalt Repair overhead hazard on back of east barrier and bottom of overhang Repair sidewalk surface and parapets Seal cracks in roadway surface with pavon Repair handrail (east) Replacement (2026) Utility attachments: Additional Recommendations Superstructure repair (unformed) on deck girder (assume 2% of underside area). Substructure repair (formed/unformed)(7% of front face beam cap and stem/wings at each abut) Assume 20' of crack filler at each bent Recommend replacing overhang and barrier Assume entire deck repaired with existing repairs removed (halfsole) Replace conduit on barrier in kind

Other: Stem deterioration (google earth) Abut 2 front face



## FC

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

Bridge No. 8 - L0638

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/22



Abut 2 SE wall



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MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

### Bridge No. 8 - L0638

Bridge Name: Bridge No. Rehab/Replace Alternative: 10/25/50 Yr Remark (original):

L0638 25 Yr Fix or Replacement (25 Yr) - Hydro/Latex & Substructure Repair, etc.

### Scope/Recommendation:

Total Hydro Demolition Remove and replace existing half-sole repairs Latex Modified Concrete overlay Remove and replace overhang Substructure repairs (formed/unformed) Crack filler on substructure Superstructure repair (unformed)

66.00 ft	
80 ft Tot	tal deck area:
102 ft	8160.0 (ft <sup>2</sup> )
99.83 ft	
99.83 ft	
	80 ft To 102 ft 99.83 ft

Grand over I-64

#### **Quantities**

Total Surface Hydro Demolition				Accuracy 1 Sq. Yd.
	Width (ft) 66.00	Length (ft) 102	Area (yd²) 748	
Total			748	Sq. Yd.
Removal of Concrete Wearing Surface				Accuracy 1 Sq. Ft.
Total			6732	Sq. Ft.
Removal of Existing Deck Repair				Accuracy 1 Sq. Ft.
Total (1977 rehab)			6600	Sq. Ft.
Remove and Replace Existing Overhar	ıg			Accuracy Lump Sum
Misc Quantities to price removal and repla	acement of ove	rhang:		
Partial removal of existing bridge deck (S	<u>F)</u>			
	Width (ft)	Length (ft)	Area (ft <sup>2</sup> )	
Left	7	99.83	699	
Right	7.00	99.83	699	
Total			1398	Sq. Ft.
Assume 7'x10"x99'-10" for each overhand	a with Type D F	Barriers along		
	Area (ft <sup>2</sup> )	Length (ft)	Volume (yd <sup>3</sup> )	

5.83

199.67

lb/CY

270

43

Weight (lb)

11647

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Class B-2 Concrete (CY)

Reinforcing Steel (Epoxy Coated)(lb)

# **F**CH

### Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

MoDOT Job Number J6l3585 St. Louis County 8/1/2022		В	ridge No. 8	- L0638
Latex Modified Concrete Wearing Sur	face			Accuracy 1 Sq. Yd.
	Width (ft) 66.00	Length (ft) 102	Area (yd <sup>2</sup> ) 748	
Total			748	Sq. Ft.
Type D Barrier				Accuracy 1 Lin. Ft.
Left Barrier			Length (ft) 99.8	
Right Barrier Total			99.8 <b>200</b>	Lin. Ft.
Substructure Repair (Unformed)				Accuracy 1 Sq. Ft.
Abut 1 Front face				
Front face Length Cap + Stem Height	70 16.229	ft ft		
Cap + Stem Front Face Area:	1136.04	ft <sup>2</sup>		
Side face Side face width	7.00	ft		
Cap+Stem height Cap + Stem Side Face Area:	23.15 162.02	ft ft <sup>2</sup>	. (fro	nt face height + 6'-11")
Wall under overhang (parallel to I-64)				
Width	5.00	ft		
Cap+Stem height	23.15 115.73	ft ft <sup>2</sup>		
Assume Abut 2 similar area and MSE ar	ea covers any	repairs needed on	parallel walls.	
Total area (total Abut 1 * 2)	2827.58	ft <sup>2</sup>		
5% of area at both abutments			197.9	
Total			198	Sq. Ft.
Superstructure Repair (Formed/Unfor	med)			Accuracy 1 Sq. Ft.
2% of underside of deck girders	Width (ft) 70	Length (ft) 85.333	Area (ft <sup>2</sup> ) 119.5	
Total		00.000	119	Sq. Ft.
Half-Sole Repair				Accuracy 50 Sq. Ft.
Total			8200	Sq. Ft.
Epoxy Pressure Injecting				Accuracy 1 Lin. Ft.
Abut 1			Length (ft) 20.0	
Abut 2 Total			20.0 <b>40</b>	Lin. Ft.
Iutai			40	сл. г.

# FCS

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Conduit System on Structure Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/22

## Bridge No. 8 - L0638

Accuracy Lump Sum (LF for cost)

Right barrier Total

Length(ft) 99.83 100 Lin. Ft.

Bridge Replacement

Total Bridge area removed and replaced.	8200 Sg. Ft.	
Total Bridge area removed and replaced	8160.0	
otal Bridge area removed and replaced:	Area (ft <sup>2</sup> )	

### MSE Wall Area required

Assume similar at each abut: Front Face (see below) Side Walls (see below)



MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Estimated replacement walls



Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/22

Bridge No. 8 - L0638



Total (2 front face, 4 side face) = 4500 SF

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

### Bridge No. 8 - L0638

 Bridge Name:
 Grand over I-64

 Bridge No.
 L0638

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro/Latex & Substructure Repair, etc.

#### Scope:

Total hydro demolition Remove and replace existing half-sole repairs Latex modified concrete overlay Remove and replace overhang Substructure repairs (formed/unformed) Crack filler on substructure Superstructure repair (unformed)

Assume staging of rehabilitation work required.

\*Lump Sum cost for Remove and Replace Existing Overhang shall

include partial removal of existing bridge deck, Class B-2 Concrete, Reinforcing Steel (Epoxy Coated), Resin Anchor system and any

ancillary materials or labor required to replace the existing

overhangs.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Total Surface Hydro Demolition	Sq. Yd.	748	\$65.00	\$48,620.00
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	6732	\$3.25	\$21,879.00
2161503	Removal of Existing Deck Repair	Sq. Ft.	6600	\$52.00	\$343,200.00
2169901	Remove and Replace Existing Overhang*	Lump Sum	1	\$785,960.00	\$785,960.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	748	\$130.00	\$97,240.00
7034219A	Type D Barrier	Lin. Ft.	200	\$149.50	\$29,850.07
7040101/02	Substructure Repair (Formed/Unformed)	Sq. Ft.	198	\$169.00	\$33,462.00
7040103	Superstructure Repair (Unformed)	Sq. Ft.	119	\$169.00	\$20,111.00
7040104	Half-Sole Repair	Sq. Ft.	8200	\$58.50	\$479,700.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	40	\$117.00	\$4,680.00
7071000	Conduit System on Structure	Lump Sum	1	\$4,537.00	\$4,537.00
	TOTAL BASE COST =				\$1,869,239.07

Misc. Construction Costs (10%): \$186,923.91

Sub-total: \$2,056,162.97

Mobilization (6%): \$123,369.78

Total Rehab Cost (2022): \$2,179,532.75

Cost/SF:

\$267.10

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Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/28/22

### Bridge No. 8 - L0638

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Bridge Name: Bridge No. Rehab/Replace Alternative: 10/25/50 Yr Remark (original):

Grand over I-64 L0638 Replacement

Scope:

Replace with Simple Span Prestressed Concrete NU-Girder Bridge with MSE walls at abutments

Other Considerations (recommended individual % increase per EPG): Staged Construction (10%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Over and under interestate

Increase by bridge cost by 20% for misc. construction cost and increase by MSE wall replacement by 10%.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	8200	\$52.00	\$426,400.00
-	Simple Span NU-Girder Bridge	Sq. Ft.	8200	\$169.00	\$1,385,800.00
-	MSE walls	Sq. Ft.	4500	\$119.60	\$538,200.00
	TOTAL BASE COST =				\$2,350,400.00
			Misc. Brida	e Costs (20%):	\$277.160.00

Cost/SF of Bridge: \$772.60

\*\*To meet vertical clearance standard of 16'-6" over I-64, a proposed grade raise of 18" was assumed for roadway costs (assuming similar structure depth). Lump sum cost for road work is based off of recent projects and estimated for approximate area of impact based on the proposed grade raise.

## FCS

Project: I-64 PEL Study Subject: No-Build Option (L0638) Task: Cost Estimates Job #: 10333314

Bridge No. 8 - L0638

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Unit Costs:

#### Add 30% to account for 2022 price increases

2161000			740	<b>*0500</b>
2101000	Total Surface Hydro Demolition	Sq. Yd.	748	\$65.00
	Reference	Unit Cost		
	Pay Items 2021	\$50.00	(<1000 SY)	)
	Other		· · ·	_
	Use:	\$65.00		
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	6732	\$3.25
	Reference		( .40000 05	-,
	Pay Items 2021 Other		(<10000 SF	-)
	Use:	\$3.25		-
	1			
2161503	Removal of Existing Deck Repair	Sq. Ft.	6600	\$52.00
	Reference	Unit Cost		
	Pay Items 2021			
	Other	· -		_
	Use:	\$52.00		
2169901	Remove and Replace Existing Overhang	Lump Sum	1	\$785,960.00
	Partial Removal of Existing Bridge Deck	•		,
	Reference		Quantity	
	Pay Items 2021		1398	SF
	Other Use:			-
	Use.	\$72,070.42		
	Class B-2 Concrete			
	Reference	Unit Cost	Quantity	
	Pay Items 2021		43	CY
	Other			-
	Use:	\$123,373.87		
	Reinforcing Steel (Epoxy Coated)			
	Reference		<u>Quantity</u>	
	Pay Items 2021		11647	lb
	Other			-
	Other Use:			-
				-
	Use: <u>Misc Resin Anchor System</u> <u>Reference</u>	\$43,909.88 <u>Unit Cost</u>		-
	Use: <u>Misc Resin Anchor System</u> <u>Reference</u> Pay Items 2021	\$43,909.88 Unit Cost		-
	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021:	\$43,909.88 Unit Cost - \$420,000.00		-
	Use: <u>Misc Resin Anchor System</u> <u>Reference</u> Pay Items 2021	\$43,909.88 <u>Unit Cost</u> - \$420,000.00		-
	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use:	\$43,909.88 Unit Cost - \$420,000.00		-
5052000	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u>	\$43,909.88 Unit Cost \$420,000.00 \$546,000.00 \$785,960.00	748	- - \$130.00
5052000	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface	\$43,909.88 <u>Unit Cost</u> \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd.	748	- \$130.00
5052000	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u>	\$43,909.88 <u>Unit Cost</u> \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd. <u>Unit Cost</u>	748	- \$130.00
5052000	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u> Pay Items 2021	\$43,909.88 Unit Cost \$420,000.00 \$546,000.00 \$785,960.00 \$785,960.00 \$q. Yd. Unit Cost \$100.00	748	\$130.00
5052000	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u> Pay Items 2021 Other	\$43,909.88 Unit Cost \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd. Unit Cost \$100.00	748	- \$130.00
	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface Pay Items 2021 <u>Concrete Wearing Surface</u> Pay Items 2021 <u>Other</u> Use:	\$43,909.88 <u>Unit Cost</u> \$420,000.00 \$546,000.00 \$785,960.00 <u>Sq. Yd.</u> <u>Unit Cost</u> \$100.00 - \$130.00		-
5052000 7034219A	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u> Pay Items 2021 Other	\$43,909.88 Unit Cost \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd. Unit Cost \$100.00	748	- \$130.00 - \$149.50
	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u> Pay Items 2021 Other Use: Type D Barrier	\$43,909.88 <u>Unit Cost</u> \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd. <u>Unit Cost</u> \$100.00 \$130.00 Lin. Ft.		-
	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u> Pay Items 2021 Other Use: Type D Barrier <u>Reference</u>	\$43,909.88 Unit Cost \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd. Unit Cost \$100.00 Lin. Ft. Unit Cost	200	-
	Use: <u>Misc Resin Anchor System</u> Pay Items 2021 2007 rehab cost escalated for 2021: Use: <u>Total:</u> Latex Modified Concrete Wearing Surface <u>Reference</u> Pay Items 2021 Other Use: Type D Barrier	\$43,909.88 Unit Cost \$420,000.00 \$546,000.00 \$785,960.00 Sq. Yd. Unit Cost \$100.00 Lin. Ft. Unit Cost \$115.00		-

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FJS	Project: I-64 PEL Stud Subject: No-Build Option (L Task: Cost Estimates Job #: 10333314		8)		•	by: SFP Date:07/13/2022 by: MTW Date: 07/28/22
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 8 - L063	8				
7040101/02	Substructure Repair (Formed/Unformed)	Т	Sq. Ft.	198	\$169.00	]
	Referen Pay Items 20 Ottl Us	21 ner	<u>Unit Cost</u> \$130.00 - \$169.00	(>100 SF)	-	
7040103	Superstructure Repair (Unformed)		Sq. Ft.	119	\$169.00	1
	Referen Pay Items 20 Otl Us	21 ner	<u>Unit Cost</u> \$130.00 - \$169.00		-	-
7040104	Half-Sole Repair		Sq. Ft.	8200	\$58.50	1
	Referen Pay Items 20 Oti Us	21 ner	<u>Unit Cost</u> \$45.00 - \$58.50	(>5000SF)	-	
7040110	Epoxy Pressure Injecting		Lin. Ft.	40	\$117.00	1
	Referen Pay Items 20 Ott Us	21 ner	<u>Unit Cost</u> \$90.00 - \$117.00	· ···	-	
7071000	Conduit System on Structure		Lump Sum	1	\$4,537.00	]
	Referen Pay Items 20 Ott Us	21 ner	<u>Unit Cost</u> \$35.00 - \$4,537.00	Quantity 100	LF	-

## Replacement Costs:

- Remove Bridge	Sq. Ft.	8200	\$52.00
Reference			
NW Bundle Slab Bridge (steel superstructure over creek):	\$16.80	/SF	(HDR est. 2022
Central District Bundle (concrete tee beam over creek):	\$12.60	/SF	(BidTabs 2021)
Conway (void slab on interstate):	\$20.00	/SF	(HDR Est 2021)
Route 100 (arched bridge over creek):	\$17.00	/SF	(BidTabs 2021)
Say:	\$52.00	/SF	
- Simple Span NU-Girder Bridge	Sq. Ft.	8200	\$169.00
Reference			
Route 100 (simple span NU43 over creek, part of larger project):	\$109.36	/SF	(BidTabs 2021)
Conway A9009 (simple span NU35 over roadway):	\$167.58	/SF	(HDR Est 2022)
Estimate for NU43 over interstate, Say:	\$169.00	/SF	
- MSE Walls	Sq. Ft.	4500	\$119.60
Reference			
Wall+stain	\$92.00	/SF	
Temporary wall	\$25.00	/SF	
Assume any temp walls added into cost/sf, Say:	\$119.60	/SF	

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MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (A0549) Task: Cost Estimates Job #: 10333314

Bridge No. 9 - A0549

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

# Bridge Name:EB I-64 Off-Loop Ramp to Grand over Federal Sign Company EntranceBridge No.A0549Rehab/Replace Alternative:Replacement10/25/50 Yr Remark (original):-

Bridge Description	
Original Construction:	1960
Superstructure Type:	Continuous Slab (void & solid)
Span Arrangement:	17'-28'-17' (along baseline)
Roadway Width:	28'-0"
Out-to-Out Width:	32'-9"
AADT:	4,935 (2020); 6,169 (2040)
Condition	
Deck:	4
Superstructure:	4
Substructure:	5
Sufficiency rating:	32.3%
Vertical Clearance:	Posted at 14'-9"

#### Inspection Notes

Railing and App Pavement Components and Ratings				
Barrier	Doesn't meet current standard for bridge rail			
Sidewalks	-			
Approach pavement	New asphalt overlay and approach roadway (2018)			
Drainage, Expansion devices, Bank/slope	e & Deck protective components			
Wearing Surface	3/4" Type C UBAWS overlay (2018)			

Banks/Slope

Moderate eroding at both ends with breaking up and heaving at east end

Deck Components Deck

Up to 60% patched in each span

MoDOT Job Number J6l3585 St. Louis County 8/1/2022 <u>Superstructure Components:</u> Slab Project: I-64 PEL Study Subject: No-Build Option (A0549) Task: Cost Estimates Job #: 10333314

### Bridge No. 9 - A0549

 Subperstructure Components:
 Moderate to heavy saturation (33%) and cracks

 Substructure Components:
 2' of undermining in NE quadrant

 Abut 1
 2' of undermining in NE quadrant

 Abut 2
 3'x5' void in NW quadrant

 Clearance Information:
 Posted at 14'-9"

 Structure Paint Information:

 Requested Items:
 Repair slope protection

 Fill voids underneath substructure
 Replacement (2026)

 Utility attachments:
 2" dia. lighting conduit on south parapet

 Additional Recommendations

Other:

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

Bridge Name:

Bridge No.

Project: I-64 PEL Study Subject: No-Build Option (A0549) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 9 - A0549

 $(ft^2)$ 

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

EB I-64 Off-Loop Ramp to Grand over Federal Sign Company Entrance A0549 Rehab/Replace Alternative: Replacement 10/25/50 Yr Remark (original):

#### Scope/Recommendation:

Replace with 3-span 16" concrete slab bridge with 2 column bents and similar span arrangement

#### Existing properties/dimensions

Roadway Width	28.00 ft	
Deck width:	32.75 ft	Total deck area:
Deck length (fill face to fill face):	71 ft	2325.3 (
Left Barrier length:	78.92 ft	
Right Barrier length:	62.50 ft	

#### Bridge Replacement

	Area (ft <sup>2</sup> )	
Total Bridge area removed:	2325.3	
	2350	Sq. Ft.
	Area (ft <sup>2</sup> )	
Total New Bridge Area:	2177.3	
	2180	Sq. Ft.

#### Other Considerations:

Horizontally Curved Seismic Performance Category B **Tight Site/Limited Access** Nearby retaining walls (for off ramp and adjacent existing bridge)

#### Aerial View of Existing Bridge:



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MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Looking NW Project: I-64 PEL Study Subject: No-Build Option (A0549) Task: Cost Estimates Job #: 10333314

Bridge No. 9 - A0549

VATI 9IN.V

Looking NE



Bridge Name:

Bridge No.

Project: I-64 PEL Study Subject: No-Build Option (A0549) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 9 - A0549

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Rehab/Replace Alternative:

10/25/50 Yr Remark (original):

EB I-64 Off-Loop Ramp to Grand over Federal Sign Company Entrance A0549 Replacement

Scope:

Replace with 3-span 16" concrete slab bridge with 2 column bents and similar span arrangement

#### Other Considerations (recommended individual % increase per EPG):

Horizontally Curved (5%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%)

- Nearby retaining walls (for off ramp and adjacent existing bridge)

Increase bridge cost by 15% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	2350	\$18.20	\$42,770.00
-	3-Span Concrete Slab Bridge (16")	Sq. Ft.	2180	\$214.50	\$467,610.00
	TOTAL BASE COST =				\$510,380.00

Misc. Bridge Costs (15%): \$70,141.50 \*\*Misc. Roadway Costs (10%): \$51,038.00

Sub-total: \$631,559.50

 Mobilization (6%):
 \$37,893.57

 Surveying (1%):
 \$6,315.60

 Total Cost of Removal and Replacement (2022):
 \$675,768.67

Cost/SF of Bridge: \$309.99

\*\*Additional percentage of base cost included to cover misc. roadway costs such as concrete approach pavement, striping and guardrail.

Project: I-64 PEL Study Subject: No-Build Option (A0549) Task: Cost Estimates Job #: 10333314

Bridge No. 9 - A0549

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

### Replacement Costs:

#### Add 30% to account for 2022 price increases

- Remove Bridge	Sq. Ft.	2350	\$18.20
Reference			
NW Bundle Slab Bridge (steel superstructure over creek) :	\$10.14	/SF	(HDR est. 2022)
Central District Bundle (concrete tee beam over creek):	\$12.60	/SF	(BidTabs 2021)
Conway (void slab on interstate):		/SF	(HDR Est 2021)
Say:	\$18.20	/SF	
- Concrete Slab Bridge (Assume 16" replaced in kind)	Sq. Ft.	2180	\$214.50
Reference			
NWB Slab Bridge (22" Slab w/pile bents over creek):	\$209.00	/SF	(HDR est. 2022)
CDBB Slab Bridge (21" slab w/DS over creek):	\$194.00	/SF	(BidTabs 2021)

Equivalent 16" Slab Cost for NWB Bridge, Say: \$214.50 (80%)

\$214.50 (80% of NWB Slab, due to DS+30%)

### H)

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A3741) Task: Cost Estimates Job #: 10333314

### Bridge No. 10 - A3741

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

Bridge Name:	WB I-64 On-Ramp from Market over Fill		
Bridge No.	A3741		
Rehab/Replace Alternative:	25 Yr Fix		
10/25/50 Yr Remark (original):	(25 Yr) - Hydro-latex, expansion jt replacement, rehab, etc.		
Bridge Description			
Original Construction:	1981		
Superstructure Type:	Continuous Solid Slab		
Span Arrangement:	45'-45'		
Roadway Width:	24'-10"		
Out-to-Out Width:	28'-2"		
AADT:	3,923 (2020); 4,915 (2040)		
Condition			
Deck:	5		
Superstructure:	5		

uperstructure: 5 7 Substructure: Sufficiency rating: 86.3% Vertical Clearance: Inspection Notes

Railing and App Pavement Components and Ratings Moderate effl. At random, minor scaling and few cracks Barrier throughout. Does not meet current standard for bridge rail. Approach pavement "Fair": Medium map cracks at random, minor rutting in driving surface, moderate scaling throughout (east end) Drainage, Expansion devices, Bank/slope & Deck protective components Expansion Jt. "Poor": Elastomeric strip seal (leaking)

<u>Deck Components</u> Span 1	Driving surface: Moderate delam at joint and transverse cracks Throughout/at random: medium map cracks, moderate saturation, spalls, and wear (at patches)
Span 2	Driving surface: minor map cracks in gutter area, moderate transverse cracks Throughout/at random: Moderate saturation, minor scaling and wear

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### **FC**

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Superstructure Components: Sp

Project: I-64 PEL Study Subject: No-Build Option (A3741) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 10 - A3741

Span 1	Bottom: Moderate delam, leaching, spalls. Minor rebar exposed at edge and many transverse cracks. Many long. cracks at drop panel. 15% of span has saturation Other: Many vert. cracks at edge and map cracks throughout
Span 2	Bottom: Minor leaching. 7% of span has saturation Other: Moderate effir. and few delam. at edge with map cracks throughout
<u>Substructure Components:</u> All bents	Minor issues only. OK
Clearance Information:	-
Structure Paint Information:	-
<u>Requested Items:</u>	Stencil bridge number Repair expansion device Repair spall on bottom of slab (NW quad) Cut tree in NE quad Place chevron sticker at crashworthy end Hydro demo and replace expansion device (2021) Seal deck with silane (2024)
Utility attachments:	-
Additional Recommendations	Slab edge repair (assume 10' each side) Superstructure repair (unformed), assume 5% of deck Half Sole Repair (150 SF) Full Depth Repair (50 SF)

-

Other Recommendations to Consider

Project: I-64 PEL Study Subject: No-Build Option (A3741) Task: Cost Estimates Job #: 10333314

### Bridge No. 10 - A3741

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 WB I-64 On-Ramp from Market over Fill

 Bridge No.
 A3741

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro-latex, expansion jt replacement, rehab, etc.

#### Scope/Recommendation:

Expansion Joint replacement Total Hydro Demolition Latex Modified Concrete overlay Superstructure repair (unformed) & slab edge repair

#### Existing properties/dimensions

Roadway Width	24.83 ft		
Deck width:	28.167 ft	Total deck are	a:
Deck length:	92.55 ft	2606.9	(ft <sup>2</sup> )
Left Barrier length:	97.00 ft		
Right Barrier length:	99.09 ft		
Approach Slab length:	20 ft (insp. repo	ort)	

#### **Quantities**

Scarification of Bridge Deck				Accuracy 1 Sq. Yd.
	Width (ft)	Length(ft)	Area (yd <sup>2</sup> )	
Bridge and Approach Slab	24.83	112.55	310.6	
Total			311	Sq. Yd.

### Total Surface Hydro Demolition

Accuracy 1 Sq. Yd.

Bridge and Approach Slab Total	Width (ft) 24.83	Length (ft) 112.55	Area (yd <sup>2</sup> ) <u>311</u> <b>311</b>	Sq. Yd.
Removal of Existing Expansion	Joint & Adjacer	nt Concrete		Accuracy 1 Lin. Ft.
Total			Length (ft) 29	Lin. Ft.
Remove and Replace Barrier Cu Assume 3' for each barrier (left and		and replaced		Accuracy 1 Lin. Ft.

			Length (ft) 12.0	
Total			12	Lin. Ft.
Latex Modified Concrete Wea	ring Surface			Accuracy 1 Sq. Yd.
	Width (ft) 24 83	Length (ft)	Area (yd²) 311	

	24.83	112.55	311	
Total			311	Sq. Yd.

FDS		Subject: No-Buil Task: Cost	4 PEL Study d Option (A3741) t Estimates 0333314
MoDOT Job Number J6l3585 St. Louis County		Bridge No.	10 - A3741
8/1/2022 Class B-2 Concrete Assume 18"x18" removed and replace on each side	e of expansion	joint	Accuracy 0.1 Cu. Yard
Length (ft) 28.167	Area (ft <sup>2</sup> ) 5	Volume (yd <sup>3</sup> ) 4.7	
Total		4.7	Cu. Yd.
Superstructure Repair (Unformed)			Accuracy 1 Sq. Ft.
<b>5</b> 9/ <b>f</b> - <b>u</b> - <b>j</b> - <b>j</b> - <b>u</b> - <b>u</b> - <b>u</b>		Area (ft <sup>2</sup> )	
5% from deck area Total		130.3 <b>130</b>	Sq. Ft.
Half-Sole Repair			Accuracy 50 Sq. Ft.
Total		150	Sq. Ft.
Full Depth Repair			Accuracy 50 Sq. Ft.
Total		50	Sq. Ft.
Slab Edge Repair (Bridges)			Accuracy 1 Lin. Ft.
Assume 20'		20.0	
Total		20	Lin. Ft.
Reinforcing Steel (Epoxy Coated) Reinforcing for deck at exansion joint replacement			Accuracy 10 Lb.
Assume 270 lb/CY	Concrete volume (CY) 4.7	Weight (lb) 1269	
Total	•••	1269	Lb.
Strip Seal Expansion Joint System			Accuracy 1 Lin. Ft.
Total		Length (ft) 29	Lin. Ft.
Bridge Replacement			
		Area (ft <sup>2</sup> )	
Total Bridge area removed and replaced:		2606.9	

Project: I-64 PEL Study Subject: No-Build Option (A3741) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 10 - A3741

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 WB I-64 On-Ramp from Market over Fill

 Bridge No.
 A3741

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro-latex, expansion jt replacement, rehab, etc.

Scope:

Total hydro demolition & scarification of bridge deck Latex modified concrete overlay Superstructure repair (unformed) & slab edge repair Misc. half-sole and full depth repairs Expansion joint replacement

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	311	\$15.60	\$4,844.5
2161001	Total Surface Hydro Demolition	Sq. Yd.	311	\$65.00	\$20,185.78
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	29	\$455.00	\$13,195.00
2169903	Remove and Replace Barrier Curb	Lin. Ft.	12	\$910.00	\$10,920.0
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	311	\$130.00	\$40,371.5
7034214	Class B-2 Concrete	Cu. Yd.	4.7	\$4,290.00	\$20,163.0
7040103	Superstructure Repair (Unformed)	Sq. Ft.	130	\$169.00	\$21,970.0
7040104	Half-Sole Repair	Sq. Ft.	150	\$104.00	\$15,600.0
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.0
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	20	\$260.00	\$5,200.0
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	\$4,784.1
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	\$16,965.0
	TOTAL BASE COST =				\$181,349.00

Misc. Construction Costs (5%): \$9,067.45

#### Sub-total: \$190,416.51

Mobilization (6%): \$11,424.99

Total Rehab Cost (2022): \$201,841.50

Cost/SF of Bridge: \$77.43

## **H**

Project: I-64 PEL Study Subject: No-Build Option (A3741) Task: Cost Estimates Job #: 10333314

Computed by: SFP Date:07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 10 - A3741

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Bridge Name: Bridge No. Rehab/Replace Alternative: 10/25/50 Yr Remark (original):

WB I-64 On-Ramp from Market A3741 Replacement

Scope:

Replace with 2-Span 17" Concrete Slab Bridge

Other Considerations (recommended individual % increase per EPG): Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Interstate ramp

Increase bridge cost by 10% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	2650	\$18.20	\$48,230.00
-	2-Span Concrete Slab Bridge	Sq. Ft.	2650	\$221.00	\$585,650.00
	TOTAL BASE COST =				\$633,880.00

Misc. Bridge Costs (10%): \$58,565.00 Misc. Roadway Costs (10%):

\$63,388.00

#### Sub-total: \$755,833.00

Mobilization (6%): \$45,349.98 \$7,558.33 Surveying (1%):

Total Cost of Removal and Replacement (2022): \$808,741.31

> Cost/SF of Bridge: \$305.19

 $^{\star\star}\mbox{Additional percentage of base cost included to cover misc. roadway costs such as concrete$ approach pavement, striping and guardrail.

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Project: I-64 PEL Study Subject: No-Build Option (A3741) Task: Cost Estimates Job #: 10333314

Bridge No. 10 - A3741

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Unit Costs:

#### Add 30% to account for 2022 price increases

r	2161000	Scarification of Bridge Deck		Sq. Yd.	311	\$15.60
	2101000	ocamication of bridge beek		09.14.		Q10.00
			<b>Reference</b>	Unit Cost		
			Pay Items 2021	\$12.00	(<2000 SY)	
			Other Use:	- \$15.60		
			Use.	\$15.00		
	2161001	Total Surface Hydro Demolition		Sq. Yd.	311	\$65.00
			Deferrer	U		
			Reference Pay Items 2021	Unit Cost \$50.00	(<1000 SY)	
			Other	φ30.00 -	(<1000.31)	
			Use:	\$65.00		
			-			
	2164500	Removal of Existing Expansion Joint & Adjacent	Concrete	Lin. Ft.	29	\$455.00
			Reference	Unit Cost		
			Pay Items 2021	\$350.00		
			Other	-		
			Use:	\$455.00		
	2169903	Remove and Replace Barrier Curb		Lin. Ft.	12	\$910.00
	2.00000	remore and replace Barrer Garb		2		<i><b>Q</b></i> <b>10.00</b>
			<b>Reference</b>	Unit Cost		
			Pay Items 2021	\$700.00		
			Other Use:	- \$910.00	<u> </u>	
			Use.	φ910.00		
	5052000	Latex Modified Concrete Wearing Surface		Sq. Yd.	311	\$130.00
			D. fam.	U		
			Reference Pay Items 2021	Unit Cost \$100.00		
			Other	\$100.00 -		
			Use:	\$130.00		
	7034214	Class B-2 Concrete		Cu. Yd.	4.7	\$4,290.00
			Reference	Unit Cost		
			Pay Items 2021	\$3,300.00	(exp. jt.)	
			Other	-		
			Use:	\$4,290.00		
	7040103	Superstructure Repair (Unformed)		Sq. Ft.	130	\$169.00
			Reference	Unit Cost		
			Pay Items 2021	\$130.00		
			Other Use:	- \$169.00		
				÷		
	7040104	Half-Sole Repair		Sq. Ft.	150	\$104.00
			Poforonco	Unit Cost		
			Reference Pay Items 2021	Unit Cost \$80.00	(<1000 SF)	
			Other	φ00.00 -	( -1000 OF)	
			Use:	\$104.00		

FJS	Project: I-64 PEL Study Subject: No-Build Option (A374 Task: Cost Estimates Job #: 10333314	1)			P Date:07/13/2022 V Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 10 - A3741				
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$110.00 - \$143.00	(<100 SF)		
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	20	\$260.00	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$200.00 - \$260.00			
7101000	Reinforcing Steel (Epoxy Coated)	Lb.	1269	\$3.77	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$2.90 - \$3.77	(exp. jt.)		
		<b>Q</b>			
7172001	Strip Seal Expansion Joint System	Lin. Ft.	29	\$585.00	
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$450.00 - \$585.00	(<100 LF)		
Replacement Costs:					1
-	Remove Bridge Reference	Sq. Ft.	2650	\$18.20	
	NW Bundle Slab Bridge (steel superstructure over creek) : Central District Bundle (concrete tee beam over creek): Conway (void slab on interstate): No major roadway beneath, staging accounted for separately. Say:	\$16.80 \$12.60 \$20.00 \$18.20	) /SF ) /SF	(HDR est. 2022) (BidTabs 2021) (HDR Est 2021)	
			0050	<b>\$004.00</b>	1
-	Concrete Slab Bridge (Assume 17" replaced in kind) Reference	Sq. Ft.	2650	\$221.00	
	NWB Slab Bridge (22" Slab w/pile bents over creek): CDBB Slab Bridge (21" slab w/DS over creek):	<u>\$209.00</u> \$194.00		(HDR est. 2022) (BidTabs 2021)	

CDBB Slab Bridge (21" slab w/DS over creek): \$194.00 /SF (BidTabs 2021)

Equivalent 16" Slab Cost for NWB Bridge, Say: \$221.00 (82% of NWB Slab, due to DS+30%)

FJS	Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314	Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 11 - A0832	
Bridge Name:	EB I-64 over Market	
Bridge No.	A0832	
Rehab/Replace Alternative:	25 Yr Fix or Replacement	
	(25 Yr) - Remove & Replace Ex Concrete overlay w/ new	
10/25/50 Yr Remark (original):	hydro/latex & eliminate L-joint, etc.	
Bridge Description		
Original Construction:	1963	
Superstructure Type:	4-Cell Box Girder (3 Cells added in 1982 widening)	
Span Arrangement:	64'-80'-64'	
Roadway Width:	30' (original), 52' (after widening 22')	
Out-to-Out Width:	34'-9" (original), 58'-5" (after widening 23'-8")	
AADT:	45,667 (2020); 57,084 (2040)	
<u>Condition</u>		
Deck:	6	
Superstructure:	6	
Substructure:	7	
Sufficiency rating:	90.7%	
Vertical Clearance:	14'-11" actual	
Inspection Notes		
Railing and App Pavement Compo	nents and Ratings	

Left barrier:

Barrier

Left: Light effl. throughout, moderate honeycombs on roadway face, rebar exposed at curb, moderate scaling throughout and large spalls at bent 3 curb. Right: light effl. and few vert. cracks throughout.

Approach pavement

"Poor" condition; approaches lifted in 2020 Mod. longitudinal cracks at ends. Large patches throughout (174SF east , 13 SF west; 2013 repair). From google earth: deterioration and missing pavement at joints

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Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022

MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 11 - A0832
Drainage, Expansion devices, Bank/slop	a 8 Daak protoctivo componente
Expansion Jt.	"Poor"; 2.25" concrete ws (applied in 1982) large patches, minor scaling, and many transverse cracks throughout. Medium wear throughout Strip seal "very poor". 252' longitudinal joint Longitudinal joint patched every year.
	Long. joint: Moderate anchorage spalls throughout. Deterioation throughout. Many areas of missing seal and poor bond, heavy leaking throughout.
Deck Components	
Span 1	Overhangs: Mod. Efflr and rust stains, fine map cracks, transverse cracks.
	Other: Mod. longitudinal cracks throughout, many patches thoughout (many at long. joint)
Span 2	Overhangs: Mod. effl., many transverse cracks
	Other: many long. Cracks throughout, few patches at joints (at long. jt), 1% saturation at overhangs, few spalls at joints
Span 3	Overhangs: Mod. effl., mod. saturation, few transverse cracks Other: Mod. long. cracks throughout, few patches and spalls at joints (long. jt.).
Superstructure Components:	
Span 1 - CIP Multi-Cell Box Girder	Bottom: Minor delam at edges
	Other: Mod. diagonal cracks at abut added section. Minor
	saturation at edge
Span 2 - CIP Multi-Cell Box Girder	Bottom: Mod. Effl. , many patches at random, minor collision damage and leaching, minor saturation (4%), and few transverse cracks
	Other: medium shear cracks near abut, heavy efflr. At edge.
Span 3 - CIP Multi-Cell Box Girder	Bottom: Mod. efflr. and leaching. Many patches, and few rust and fire stains. Other: heavy efflr.
Substructure Components: All bents	little to no issues throughout. OK.
	-
Clearance Information:	14'-11" measured at north edge
Structure Paint Information:	

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FJS	Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314	Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6I3585 St. Louis County 8/1/2022	Bridge No. 11 - A0832	
<u>Requested Items:</u>	Repair gland (slicoflex (or emseal) at abutment expansion device. Span 3 patch as well. Clean abut caps Cut brush/trees on slope protection Chip/patch delam on span 1 edge Repair spall on left curb (see above) Seal deck with silane (2024) Remove/replace low slump ws and L-joint (2023) OR replace bridge in 2030	
Utility attachments:	Sewer manhole near int. bent col. 3	
Additional Recommendations	Repair barrier (20' of curb shown above) Repair approach slab and include in hydro/latex (assume 10% approach slab area for half-sole repair) Repair slab edge (1% area +10' per side) Full-depth repair (assume 50SF) Replace existing deck repair beneath overlay where required (1982 plans show 851 SF of repair beneath, say 10% will need replacement) Assume 5 CY of supplementary wearing surface required	

Other:

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name: Bridge No. Rehab/Replace Alternative:

#### 10/25/50 Yr Remark (original):

#### Scope/Recommendation:

Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314

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### Bridge No. 11 - A0832

EB I-64 over Market A0832 25 Yr Fix or Replacement (25 Yr) - Remove & Replace Ex Concrete overlay w/ new hydro/latex & eliminate Ljoint, etc.

Total Hydro Demolition (include approach slab)/Scarification on deck without wearing surface Remove Existing Wearing Surface (original deck) Remove and replace existing deck repair where needed (beneath wearing surface) Latex Modified Concrete overlay (include approach slab) Remove L-joint between bridges and at approach slabs Repair barrier Repair approach slab Misc. Half-Sole and Full Depth Repairs

#### Existing properties/dimensions

....

Existing properties/dimensions		
Roadway Width (original):	30.00 ft	
Deck width (original):	32.375 ft	Total deck area:
Deck length (original) (fill face to fill face)::	211 ft	11860.4 (ft <sup>2</sup> )
Roadway Width (widened portion):	22 ft	
Deck width (widened portion):	23.667 ft	
Deck length (widened portion) (fill face to fill face)::	212.5 ft	Total roadway area:
Length of L-joint (including app. slab):	251.5 ft	11005.0 (ft <sup>2</sup> )
Left Barrier length:	240.17 ft	
Right Barrier length:	238.83 ft	

#### **Quantities**

Scarification of Bridge Deck				Accuracy 1 Sq. Yd.
	Width (ft)	Length(ft)	Area (yd²)	
Deck	23.67	212.5	558.8	
Total			559	Sq. Yd.
Total Surface Hydro Demolition				Accuracy 1 Sq. Yd.
			Area (yd²)	
Roadway Area			1223	
Approach Slabs			633	
Subtract out area of slab replaced around exp. jt.		(-)	112	(deck and app slab)
Total			1744	Sq. Yd.
Removal of Concrete Wearing Surface				Accuracy 1 Sq. Ft.
Only on original bridge			6330	
Subtract out area of slab replaced around exp. jt.		(-)	422	
Total			5908	Sq. Ft.
Removal of Existing Deck Repair				Accuracy 1 Sq. Ft.
Say 10% of 851 SF (assume the rest will be covered by L-Joint	removal)		85.1	
Total			85	Sq. Ft.

FJS	Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314			Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 11 -	A0832		
Removal of Existing Expansion Joint & Adjacent Con	ncrete			Accuracy 1 Lin. Ft.
			Length (ft)	
Total			252.0	Lin. Ft.
Partial Removal and Replacement of Approach Slab				Accuracy 1 Sq. Ft.
Area along expansion joints	Width (ft) 2	Length (ft) 79.125	Area (ft <sup>2</sup> ) 158.25	
Total	L	10.120	159.0	Sq. Ft.
Supplementary Wearing Surface Material				Accuracy 1 Cu. Yd.
See above			Volume (yd <sup>3</sup> ) 5	
Total			5	Cu. Yd.
Latex Modified Concrete Wearing Surface				Accuracy 1 Sq. Yd.
See above			Area (yd²) 1744	
Total			1744	Sq. Yd.
Class B-2 Concrete Assume 2'-0"x10" removed and replace on each side of	expansion joint on bridg	ge		Accuracy 0.1 Cu. Yard
Original Bridge	Length (ft) 211	Area (ft <sup>2</sup> ) 1.67	Volume (yd <sup>3</sup> ) 13.05	
Widened Portion	212.5	1.67	13.14	
Total			26.2	Cu. Yd.
Superstructure Repair (Unformed)				Accuracy 1 Sq. Ft.
1% of deck area			Area (ft <sup>2</sup> ) 118.6	
Total			119	Sq. Ft.
Slab Edge Repair (Bridges)				Accuracy 1 Lin. Ft.
Assume 20' (10' on each side) Total			20.0 <b>20</b>	Lin. Ft.
Parapet Repair (Formed)				Accuracy 1 Lin. Ft.
			20.0	
Total			20.0	Lin. Ft.

FJS	Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314			Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County	Bridge No.	11 - A0832		
8/1/2022 Half-Sole Repair				Accuracy 50 Sq. Ft.
			Area (ft <sup>2</sup> )	
10% of approach slab	a varia v		569.3	
Replace 10% of existing repairs removed prior to new of Total	overlay		85.1 <b>700</b>	Sq. Ft.
Full Donth Bonoir				Acquiracy EO Sa Et
Full Depth Repair			Area (ft <sup>2</sup> )	Accuracy 50 Sq. Ft.
			50.0	
Total			50	Sq. Ft.
Deinferning Official (Deinferne)				
Reinforcing Steel (Bridges) Reinforcing for deck at expansion joint replacement				Accuracy 10 Lb.
		Concrete		
Assume 270 lb/CY		volume (CY) 26.2	Weight (lb) 7072.45	
Total		2012	7072	Lb.
Bridge Replacement				
			2	
Total Bridge area removed and replaced:	Width (ft	, , ,	Area (ft <sup>2</sup> ) 11908.9	
Total Bridge area removed and replaced:	56.042	212.3	<b>1190</b> 8.9	Sq. Ft.
	1		1 - Martin	
	12'-6"			
Contraction of the second s	12-0			
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Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 11 - A0832

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 EB I-64 over Market

 Bridge No.
 A0832

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Remove & Replace Ex Concrete overlay w/ new hydro/latex & eliminate L-joint, etc.

Scope:

Total hydro demolition & scarification of bridge deck Remove existing wearing surface (original deck) Remove and replace existing deck repair where needed (beneath wearing surface) Latex modified concrete overlay Remove L-joint between bridges and at approach slabs Repair barrier Repair approach slab Misc. half-sole and full depth repairs

Assume staging of rehabilitation work required.

Say 10% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2161000	Scarification of Bridge Deck	Sq. Yd.	559	\$15.60	\$8,717.35
2161000	Total Surface Hydro Demolition	Sq. Yd.	1744	\$52.00	\$90,672.69
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	5908	\$3.25	\$19,201.00
2161503	Removal of Existing Deck Repair	Sq. Ft.	85	\$52.00	\$4,425.20
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	252	\$650.00	\$163,800.00
2169904	Partial Removal and Replacement of Approach Slab	Sq. Ft.	159	\$104.00	\$16,536.00
5050004	Supplementary Wearing Surface Material	Cu. Yd.	5	\$910.00	\$4,550.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	1744	\$130.00	\$226,681.72
7034214	Class B-2 Concrete	Cu. Yd.	26.2	\$4,290.00	\$112,373.37
7040103	Superstructure Repair (Unformed)	Sq. Ft.	119	\$169.00	\$20,111.00
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	20	\$260.00	\$5,200.00
7049903	Parapet Repair (Formed)	Lin. Ft.	20	\$195.00	\$3,900.00
7040104	Half-Sole Repair	Sq. Ft.	700	\$104.00	\$72,800.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7101000	Reinforcing Steel (Bridges)	Lb.	7072	\$1.82	\$12,871.86
	TOTAL BASE COST =				\$768,990.19

Misc. Construction Costs (10%): \$76,899.02

Sub-total: \$845,889.21

Mobilization (6%): \$50,753.35

Total Rehab Cost (2022): \$896,642.56

Cost/SF of Bridge: \$75.60

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## **H**

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name: Bridge No. A0832 Rehab/Replace Alternative: Replacement 10/25/50 Yr Remark (original): -

EB I-64 over Market

Scope: Replace with 3-Span Prestressed Concrete NU-Girder Bridge

Other Considerations (recommended individual % increase per EPG): Staged Construction (10%) Horizontally Curved (5%) Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Interstate bridge over interstate off ramp

Increase by bridge cost by 18% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	11860	\$24.70	\$292,950.95
-	3-Span NU-Girder Bridge	Sq. Ft.	11950	\$169.00	\$2,019,550.00
	TOTAL BASE COST =				\$2,312,500.95
			Aisc Bridge (	Costs (18%):	\$363,519.00
			nice. Bridge		\$000,010.00
		**Ro	adway Cost (	(Lump Sum):	\$2,159,640.00

-total:	\$4,835,659.95	Sub-total:
· · ·	\$290,139.60 \$48,356.60	Mobilization (6%): Surveying (1%):
<u>2022):</u> \$	\$5,174,156.15	Total Cost of Removal and Replacement (2022):

Cost/SF of Bridge: \$432.98

\*\*To meet vertical clearance standard of 16'-6" over Market St., a proposed grade raise of 24" was assumed for roadway costs (assuming similar structure depth). Lump sum cost for road work is based off of recent projects and estimated for approximate area of impact based on the proposed grade raise.

Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022

Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314

### Bridge No. 11 - A0832



Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314

### Bridge No. 11 - A0832

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

 Bridge Name:
 EB I-64 over Market

 Bridge No.
 A0832

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Remove & Replace Ex Concrete overlay w/ new hydro/latex & eliminate L-joint, etc.

#### Unit Costs:

Add 30% to account for 2022 price increases

2161000	Scarification of Bridge Deck	Sq. Yd.	559	\$15.60
	Reference			
	Pay Items 202		(<2000 SY)	
	Othe			
	Use	\$15.60		
2161000	Total Surface Hydro Demolition	Sq. Yd.	1744	\$52.00
		• •		
	Reference			
	Pay Items 202		(>1000 SY)	
	Othe			
	Use	\$52.00		
2161502	Removal of Concrete Wearing Surface	Sq. Ft.	5908	\$3.25
	Reference		, ,	
	Pay Items 202		(<10000 SY)	1
	Othe			
	Use	\$3.25		
2161503	Removal of Existing Deck Repair	Sq. Ft.	85	\$52.00
	Reference			
	Pay Items 202			
	Othe			
	Use	\$52.00		
2164500	Removal of Existing Expansion Joint & Adjacent Concrete	Lin. Ft.	252	\$650.00
				•
	Reference			
	Pay Items 202			
	Othe			
	Use	\$650.00		
2169904	Partial Removal and Replacement of Approach Slab	Sq. Ft.	159	\$104.00
	Reference			
	Pay Items 202			
	Othe			
	056	φ104.00		
5050004	Supplementary Wearing Surface Material	Cu. Yd.	5	\$910.00
	D.f			
	Reference			
	Pay Items 202			
	Othe			
	Use	φ910.00		

FJS	Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314			r: SFP Date: 07/13/2022 MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 11 - A0832			
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	1744	\$130.00
	Reference Pay Items 2021 Other Use:	\$100.00		-
7004044				<b>A</b> ( 000 00 1
7034214	Class B-2 Concrete	Cu. Yd.	26.2	\$4,290.00
	Reference Pay Items 2021 Other	\$3,300.00 -		-
	Use:	\$4,290.00		
7040103	Superstructure Repair (Unformed)	Sq. Ft.	119	\$169.00
	<b>Reference</b> Pay Items 2021 Other	\$130.00		
	Use:	\$169.00		-
7040107	Slab Edge Repair (Bridges)	Lin. Ft.	20	\$260.00
	Reference Pay Items 2021 Other	\$200.00 -		-
	Use:	\$260.00		
7049903	Parapet Repair (Formed)	Lin. Ft.	20	\$195.00
	Reference Pay Items 2021 Other Use:	\$150.00	(similar to s	lab edge repair) -
		-		1
7040104	Half-Sole Repair	Sq. Ft.	700	\$104.00
	Reference Pay Items 2021 Other	\$80.00 -	(<1000SF)	_
	Use:	\$104.00		
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00
	Reference Pay Items 2021 Other	\$110.00 -	(<100SF)	
	Use:	\$143.00		
7101000	Reinforcing Steel (Bridges)	Lb.	7072	\$1.82
	Reference Pay Items 2021 Other	\$1.40 -		_
	Use:	\$1.82		

## FC

Project: I-64 PEL Study Subject: No-Build Option (A0832) Task: Cost Estimates Job #: 10333314

Bridge No. 11 - A0832

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

#### Replacement Costs:

- Remove Bridge	Sq. Ft.	11860	\$24.70
Reference			
NW Bundle Slab Bridge (steel superstructure over creek) :	\$16.80	/SF	(HDR est. 2022)
Central District Bundle (concrete tee beam over creek):	\$12.60	/SF	(BidTabs 2021)
Conway (void slab on interstate):	\$20.00	/SF	(HDR Est 2021)
Route 100 (arched bridge over creek):	\$17.00	/SF	(BidTabs 2021)
Say:	\$24.70	/SF	
- 3-Span NU-Girder Bridge	Sq. Ft.	11950	\$169.00
Reference			
Route 100 (simple span NU43 over creek, part of larger project):	\$109.36	/SF	(BidTabs 2021)
Conway A9009 (simple span NU35 over roadway):	\$167.58	/SF	(HDR Est 2022)
Estimate for NU35 over interstate, Say:	\$169.00	/SF	

MoDOT Job Number J6I3585 St. Louis County 8/1/2022 Project: I-64 PEL Study Subject: No-Build Option (A3636) Task: Cost Estimates Job #: 10333314

#### Bridge No. 12 - A3636

WB I-64 On-Ramp from Market over Forest Park Ave Bridge Name: A3636 Bridge No. Rehab/Replace Alternative: 25 Yr Fix 10/25/50 Yr Remark (original): (25 Yr) - Hydro/latex Bridge Description Original Construction: 1981 Superstructure Type: P/S I-Girder Span Arrangement: 51'-51'-51' Roadway Width: 24'-10" Out-to-Out Width: 28'-2" AADT: 3,932 (2020); 4,915 (2040) Condition 6 Deck: Superstructure: 7 Substructure: 7 Sufficiency rating: 95.0% Vertical Clearance: 18'-0" (actual) Inspection Notes Railing and App Pavement Components and Ratings Barrier Moderate spalls on left left side at end with rebar exposed. Collision scraps at right roadway face. Light scaling and many vertical cracks throughout 25' of damaged rail on one side. Does not meet current standard for bridge rail. Approach pavement "Poor": Moderate long. Cracks, scaling, and spalls throughout. Minor settlement on west end (1/2") Drainage, Expansion devices, Bank/slope & Deck protective components **Bank/Slope Protection** Moderate settlement at east end slope protection **Deck Components** Bottom: Moderate effl. , few rebar exposed, minor sat (5%) Span 1 Other: Light pitting and scaling on driving surface, moderate spalls throughout bay 1, random transverse cracks throughout and at overhangs Light effl. And many transverse cracks on overhang. Mod. Effl, Span 2 few long. Cracks, and minor sat. (7%) throughout. Mod. Pitting and light scaling on driving surface Bottom: Minor delam. and saturation (5%) Span 3 Other: Mod. Effl. And few long. And many transv. Cracks throughout. Mod. Pitting and light scaling on driving surface.

Light effl. And many few cracks on overhang.

Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022



MoDOT Job Number J6I3585 St. Louis County 8/1/2022 <u>Superstructure Components:</u> All spans Project: I-64 PEL Study Subject: No-Build Option (A3636) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date: 07/13/2022

Checked by: MTW Date: 07/22/2022

### Bridge No. 12 - A3636

Minor issues only listed in inspection report From google earth, seems like there could be a crack on the northern exterior girder running along the bottom.



Substructure Components: All bents	Minor issues only. OK.
Clearance Information:	Measured at 18'-0"
Structure Paint Information:	-
<u>Requested Items:</u>	Stencil Bridge number Seal joints - Hot pour Seal paved joints on slope Repair approach roadway Repair guardrail Mudjack protection on slope Seal deck with silane (2024) Hydro demolition (2026)
Utility attachments:	-
Additional Recommendations	Replace approach slabs Superstructure repair (unformed), assume 2% of deck for overhang Crack filler (assume 100' for girders and misc cracking throughout bridge) Full depth repair (50 SF) Half-Sole repair (100 SF) Preformed Silicone Seal Assume 2 CY of supplementary wearing surface material
Others December detiens to Ocheciden	

Other Recommendations to Consider

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## $\mathbf{H}$

Project: I-64 PEL Study Subject: No-Build Option (A3636) Task: Cost Estimates Job #: 10333314

### Bridge No. 12 - A3636

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name: WB I-64 On-Ramp from Market over Forest Park Ave Bridge No. A3636 Rehab/Replace Alternative: 25 Yr Fix 10/25/50 Yr Remark (original): (25 Yr) - Hydro/latex

#### Scope/Recommendation:

Total hydro demolition and scarification of bridge deck Latex modified concrete overlay Superstructure repair (unformed) and crack filler Replace approach slabs and add vertical drain at end bents Provide joint seal at abutments/approach slab Misc. full depth and half-sole deck repairs

#### Existing properties/dimensions

24.83 ft	
28.167 ft	Total deck area:
156.02 ft	4394.6
174.10 ft	
165.08 ft	
	28.167 ft 156.02 ft 174.10 ft

#### **Quantities**

Class 1 Excavation		Accuracy 5	Cu. Yd.
Assume 3' width excavated to bottom of diaphragm			
	Length (ft)		
Height (ft)	(abut & wings)	Volume (yd <sup>3</sup> )	

		(abat of mingo)	, oranio () a )	
Abut 1	3.89	46.958	20.3	
Abut 4	3.89	37.8	16.3	
Total			35.0	Cu. Yd.

#### Scarification of Bridge Deck

Accuracy 1 Sq. Yd.

Accuracy 1 Sq. Yd.

(ft<sup>2</sup>)

	Width (ft)	Length(ft)	Area (yd²)	
Deck	24.83	156.02	430.5	
Total			430	Sq. Yd.

#### **Total Surface Hydro Demolition**

Width (ft) Length (ft) Area (yd<sup>2</sup>) 24.83 156.02 430 Total 430 Sq. Yd.

	4 PEL Study
Task: Cost	d Option (A3636)
Job #: 10	0333314
St. Louis County	12 - A3636
8/1/2022 Removal and Replacement of Approach Slab	Accuracy 1 Sq. Ft.
Area (ft <sup>2</sup> )	
App 1         550.0           App 2         770.0	(Google Earth) (Google Earth)
Fotal 1320	Sq. Ft.
Supplementary Wearing Surface Material	Accuracy 1 Cu. Yd.
Volume (yd 2	-)
Total 2	Cu. Yd.
Latex Modified Concrete Wearing Surface	Accuracy 1 Sq. Yd.
-	
Width (ft) Length (ft) Area (yd <sup>2</sup> 24.83 156.02 430	)
Total 430	Sq. Yd.
Superstructure Repair (Unformed)	Accuracy 1 Sq. Ft.
Area (ft <sup>2</sup> )	
2% from deck area 87.9	
Total 88	Sq. Ft.
Half-Sole Repair	Accuracy 50 Sq. F
Total 100	Sq. Ft.
Full Depth Repair	Accuracy 50 Sq. F
Total 50	Sq. Ft.
	Accuracy 1 Lip Et
	Accuracy 1 Lin. Ft.
Epoxy Pressure Injecting Length (ft Total 100	-

FJS		Sul	Project: I-64 P oject: No-Build C Task: Cost Es Job #: 103:	option (A3636) stimates	Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022 Vertical Drain at End Bents			Bridge No. 12	<b>2 - A3636</b> Accuracy 1 Lin. Ft.	
		Wing lengths			
	Bent length (ft)	(both) (ft)	Total Length (ft	)	
Abut 1 Abut 4	29.958 34.89	17 2.92	46.96 37.80		
	04.09	2.32	85	Lin. Ft.	
Preformed Silicone Expansion	Joint Seal (with arm	or)		Accuracy 1 Lin. Ft.	
			Length(ft)		
Abut 1			33.0		
Abut 4			36.0		
Total			69	Lin. Ft.	

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Project: I-64 PEL Study Subject: No-Build Option (A3636) Task: Cost Estimates Job #: 10333314 Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/22/2022

### Bridge No. 12 - A3636

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 WB I-64 On-Ramp from Market over Forest Park Ave

 Bridge No.
 A3636

 Rehab/Replace Alternative:
 25 Yr Fix

 10/25/50 Yr Remark (original):
 (25 Yr) - Hydro/latex

#### Scope:

Total hydro demolition and scarification of bridge deck Latex modified concrete overlay Superstructure repair (unformed) and crack filler Replace approach slabs and add vertical drain at end bents Provide joint seal at abutments/approach slab Misc. full depth and half-sole deck repairs

Say 5% increase in base cost for misc. construction and roadway costs associated with bridge rehabilitation.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
2061000	Class 1 Excavation	Cu. Yd.	35	\$58.50	\$2,047.50
2161000	Scarification of Bridge Deck	Sq. Yd.	430	\$15.60	\$6,715.70
2161001	Total Surface Hydro Demolition	Sq. Yd.	430	\$65.00	\$27,982.10
2169904	Removal and Replacement of Approach Slab	Sq. Ft.	1320	\$123.50	\$163,020.00
5050004	Supplementary Wearing Surface Material	Cu. Yd.	2	\$910.00	\$1,820.00
5052000	Latex Modified Concrete Wearing Surface	Sq. Yd.	430	\$130.00	\$55,964.20
7040103	Superstructure Repair (Unformed)	Sq. Ft.	88	\$169.00	\$14,872.00
7040104	Half-Sole Repair	Sq. Ft.	100	\$104.00	\$10,400.00
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	\$7,150.00
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	\$11,700.00
7151001	Vertical Drain at End Bents	Lin. Ft.	85	\$58.50	\$4,958.47
7174001	Preformed Silicone Expansion Joint Seal (with armor)	Lin. Ft.	69	\$585.00	\$40,365.00
	TOTAL BASE COST =				\$346,994.97

Misc. Construction Costs (5%): \$17,349.75

Sub-total:	\$364,344.72

\$87.88

Mobilization (6%): \$21,860.68

Total Rehab Cost (2022): \$386,205.40

Cost/SF of Bridge:

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Project: I-64 PEL Study Subject: No-Build Option (A3636) Task: Cost Estimates Job #: 10333314

Bridge No. 12 - A3636

MoDOT Job Number J6l3585 St. Louis County 8/1/2022

Unit Costs:

#### Add 30% to account for 2022 price increases

2169901	Class 1 Excavation		Cu. Yd.	35	\$58.50
		Reference	Unit Cost		
		Pay Items 2021	\$45.00		
		Other	-		
		Use:	\$58.50		
2161000	Scarification of Bridge Deck		Sq. Yd.	430	\$15.60
		Reference	Unit Cost		
		Pay Items 2021	\$12.00	(<2000 S	Y)
		Other	-		_
		Use:	\$15.60		
2161001	Total Surface Hydro Demolition		Sq. Yd.	430	\$65.00
					+
		Reference	Unit Cost		
		Pay Items 2021	\$50.00	(< 1000S	Y)
		Other	-		,
		Use:	\$65.00		-
2169904	Removal and Replacement of Approach Slab		Sq. Ft.	1320	\$123.50
2100001			09.14	1020	¢120.00
		Reference	Unit Cost		
		Pay Items 2021	\$95.00	(from par	tial removal/replac
		Other	-	(	
		Use:	\$123.50		-
5050004	Supplementary Wearing Surface Material		Cu. Yd.	2	\$910.00
		Reference	Unit Cost		
		Pay Items 2021	\$700.00		
		Other	φ/00.00 -		
		Use:	\$910.00		-
			<i><b>QU</b> 10100</i>		
5052000	Latex Modified Concrete Wearing Surface		Sq. Yd.	430	\$130.00
		Reference	Unit Cost		
		Pay Items 2021	Unit Cost \$100.00		
		Other	\$100.00		
		Use:	\$130.00		-
			÷.:0.00		
7040103	Superstructure Repair (Unformed)		Sq. Ft.	88	\$169.00
		Deference	Unit Cast		
		Reference	Unit Cost		
		Pay Items 2021	\$130.00		
		Other	-		-
		Use:	\$169.00		

FJS	Project: I-64 PEL Study Subject: No-Build Option (A363 Task: Cost Estimates Job #: 10333314	6)			ed by: SFP Date: 07/13/2022 d by: MTW Date: 07/22/2022
MoDOT Job Number J6l3585 St. Louis County 8/1/2022	Bridge No. 12 - A3636				
7040104	Half-Sole Repair	Sq. Ft.	100	\$104.00	]
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$80.00 - \$104.00	(<1000 SF	)	
7040400			50	<b>.</b>	1
7040106	Full Depth Repair	Sq. Ft.	50	\$143.00	]
	Reference Pay Items 2021 Other Use:	Unit Cost \$110.00 - \$143.00	(<100 SF)		
	030.	φ1+0.00			
7040110	Epoxy Pressure Injecting	Lin. Ft.	100	\$117.00	]
	Reference Pay Items 2021 Other Use:	<u>Unit Cost</u> \$90.00 - \$117.00			
7151001	Vertical Drain at End Bents	Lin. Ft.	85	\$58.50	1
	Pay Items 2021 Other Use:				-
7174001	Preformed Silicone Expansion Joint Seal (with armor)	Lin. Ft.	69	\$585.00	]
	Reference Pay Items 2021 additional \$150/ft for any concrete removal/replace. required Use:	Unit Cost \$300.00 \$150.00 \$585.00			-

## **FC**

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Project: I-64 PEL Study Subject: No-Build Option (A0835) Task: Cost Estimates Job #: 10333314

Bridge No. 13 - A0835

Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/20/2022

Bridge Name:	EB I-64 Off-Ramp to Market over Forest Park Ave
Bridge No.	A0835
Rehab/Replace Alternative:	Replacement
10/25/50 Yr Remark (original):	-
Deides Description	
Bridge Description	4000
Original Construction:	1963
Superstructure Type:	3-Cell Concrete Box Girder
Span Arrangement:	56'-80'-64'
Roadway Width:	28'-0"
Out-to-Out Width:	
AADT:	7,349 (2020); 11,024 (2040)
Condition	
Deck:	5
Superstructure:	5
Substructure:	7
Sufficiency rating:	65.4%
Vertical Clearance:	15'-2" (actual)
Inspection Notes	
Railing and App Pavement Compon	ents and Ratings
Barrier	Large and moderate delam, spalls, and scaling throughout both
	curbs. Does not meet current standard for bridge rail.
Approach pavement	New asphalt overlay (2018)
Drainage, Expansion devices, Bank	/slope & Deck protective components
Wearing Surface	Existing asphalt milled off and new 2" asphalt applied (2018)
Banks/Slope	Moderate eroding (east side collapsing)
Deck Components	
All spans	Moderate to heavy effl., saturation, and cracks throughout

FJS	Project: I-64 PEL Study Subject: No-Build Option (A0835) Task: Cost Estimates Job #: 10333314
MoDOT Job Number J6I3585 St. Louis County 8/1/2022	Bridge No. 13 - A0835
Superstructure Components: Box Girders	Moderate to heavy effl., saturation, cracks, and damage throughout.
Substructure Components:	Minor erosion in SE quadrant at abut 4 wings
Clearance Information:	Preceding bridge signed at 14'-5", 15'-2" actual per inspection report
Structure Paint Information:	-
Requested Items:	Repair 'A' curb Place vertical clearance sign Seal joints Epoxy Coat quad box bottom at drain and abutment face Patch curb spalls Repair overhead hazard Remove/replace wearing surface, hydro/latex OR replace bridge (2030) with A0832
Utility attachments:	1" steel conduit under span 2 Lights on bent 2 column

Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/20/2022

Additional Recommendations

Other:

Project: I-64 PEL Study Subject: No-Build Option (A0835) Task: Cost Estimates Job #: 10333314

Bridge No. 13 - A0835

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

 Bridge Name:
 EB I-64 Off-Ramp to Market over Forest Park Ave

 Bridge No.
 A0835

 Rehab/Replace Alternative:
 Replacement

 10/25/50 Yr Remark (original):

#### Scope/Recommendation:

Replace with 3-Span Prestressed Concrete NU-Girder Bridge

#### Existing properties/dimensions

Roadway Width	28.00 ft	
Deck width:	32.75 ft	Total deck area:
Deck length:	203 ft	6648.3 (ft <sup>2</sup> )
Left Barrier length:	211.54 ft	
Right Barrier length:	210.96 ft	

#### Bridge Replacement

	Area (ft <sup>2</sup> )	
Total Bridge area removed:	6648.3	
	6650	Sq. Ft.
	Area (ft <sup>2</sup> )	
Total Bridge area replaced:	6225.4	
	6250	Sq. Ft.

## F)

Bridge Name:

Bridge No.

Project: I-64 PEL Study Subject: No-Build Option (A0835) Task: Cost Estimates Job #: 10333314

Bridge No. 13 - A0835

Computed by: SFP Date: 07/13/2022 Checked by: MTW Date: 07/20/2022

#### MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Rehab/Replace Alternative:

EB I-64 Off-Ramp to Market over Forest Park Ave A0835 Replacement 10/25/50 Yr Remark (original):

Scope: Replace with 3-Span Prestressed Concrete NU-Girder Bridge

#### Other Considerations (recommended individual % increase per EPG): Horizontally Curved (5%)

Seismic Performance Category B (10%) Tight Site/Limited Access (3%) Interstate ramp over interestate off ramp

Increase by bridge cost by 10% for misc. construction cost.

Item Number	Item Description	Units	Quantity	Unit Cost	Estimated Cost
-	Remove Bridge	Sq. Ft.	6650	\$22.10	\$146,965.00
-	3-Span NU-Girder Bridge	Sq. Ft.	6250	\$162.50	\$1,015,625.00
	TOTAL BASE COST =				\$1,162,590.00
		Misc. Bridge Costs (10%):			\$101,562.50
		*	*Roadway C	ost (Lump Sum):	\$1,079,820.00
				Sub-total:	\$2,343,972.50
				obilization (6%):	<b>A</b> 4 4 0 0 0 0 0 5
		\$140,638.35			
				Surveying (1%):	\$23,439.73
	Total Cost of Removal and Replacement (2022):				\$2,508,050.58
	<u></u>	φ <b>2</b> ,300,030.30			
			60	st/SF of Bridge:	\$401.29
			0	such of bridge.	\$401.29

\*\*To meet vertical clearance standard of 16'-6" over Forest Park Parkway, a proposed grade raise of 18" was assumed for roadway costs (assuming similar structure depth). Lump sum cost for road work is based off of recent projects and estimated for approximate area of impact based on the proposed grade raise.

#### Project: I-64 PEL Study Subject: No-Build Option (A0835) Task: Cost Estimates Job #: 10333314

### Bridge No. 13 - A0835

MoDOT Job Number J6I3585 St. Louis County 8/1/2022

Bridge Name: EB I-64 Off-Ramp to Market over Forest Park Ave A0835 Rehab/Replace Alternative: Replacement 10/25/50 Yr Remark (original): \_

#### Replacement Costs:

Bridge No.

#### Add 30% to account for 2022 price increases

- Remove Bridge	Sq. Ft.	6650	\$22.10
Reference			
NW Bundle Slab Bridge (steel superstructure over creek) :	\$12.60 /SF (BidT \$20.00 /SF (HDF		(HDR est. 2022
Central District Bundle (concrete tee beam over creek):			(BidTabs 2021
Conway (void slab on interstate):			(HDR Est 2021
Route 100 (arched bridge over creek):			(BidTabs 2021
3-cell box girder. Say:			
- 3-Span NU-Girder Bridge	Sq. Ft.	6250	\$162.50
Reference	Reference		
Route 100 (simple span NU43 over creek, part of larger project):	\$109.36 /SF		(BidTabs 2021
Conway A9009 (simple span NU35 over roadway):	\$167.58 /SF		(HDR Est 2022
Estimate for NU35 over interstate, Say:	\$162.50 /SF		

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