Appendix D Cost Estimates

Arlington Avenue Bridges Alternatives Analysis, Reno NV Table 2. Order of Magnitude Project Cost Ranges

Work Items (includes fully loaded labor, material, construction and management)

Preliminary Alternative-Specific Costs¹

	SP-Opt.1: P	recast Girder	SP-Opt.2: CIF	P Box	CS-Opt.2: Ri	gid Frame	EB:	CIP BOX	T	Single Pier	Single Pier	Clear Span	Elevated Bridge	
	-30%	50%	-30%	50%	-30%	50%	-30%	50%		Opt.1	Opt.2	Opt.2	clevated Bridge	
Preconstruction - Design/Permits	\$ 1,544,000 \$	3,308,000	\$ 1,544,000 \$	3,308,000	\$ 1,544,000 \$	3,308,000	\$ 1,817,000	\$ 3,893,000	1	\$2,205,500	\$2,205,500	\$2,205,500	\$2,595,500	
Mobilization	\$ 2,349,000 \$	5,034,000	\$ 2,349,000 \$	5,034,000	\$ 2,380,000 \$	5,099,000	\$ 2,384,000	\$ 5,109,000		\$3,355,900	\$3,355,900	\$3,399,300	\$3,405,900	
Environmental	\$ 690,000 \$	5 1,479,000	\$ 690,000 \$	1,479,000	\$ 651,000 \$	1,395,000	\$ 735,000	\$ 1,575,000		\$985,800	\$985,800	\$929,800	\$1,049,800	
Earthwork	\$ 1,364,000 \$	2,924,000	\$ 1,361,000 \$	2,917,000	\$ 1,361,000 \$	2,917,000	\$ 1,422,000	\$ 3,046,000		\$1,949,216	\$1,944,816	\$1,944,816	\$2,030,816	
Structural	\$ 3,422,000 \$	7,333,000	\$ 2,937,000 \$	6,293,000	\$ 3,847,000 \$	8,244,000	\$ 5,409,000	\$ 11,592,000		\$4,888,400	\$4,195,000	\$5,496,100	\$7,727,734	
Roadway	\$ 903,000 \$	1,934,000	\$ 526,000 \$	1,126,000	\$ 523,000 \$	1,122,000	\$ 1,127,000	\$ 2,415,000		\$1,289,590	\$750,720	\$747,670	\$1,609,853	
Aesthetics	\$ 308,000 \$	660,000	\$ 282,000 \$	605,000		663,000	\$ 387,000	\$ 829,000		\$440,232	\$403,132	\$441,696	\$552,588	
Drainage	\$ 719,000 \$	5 1,541,000	\$ 658,000 \$	1,411,000	\$ 721,000 \$	1,546,000		\$ 1,934,000		\$1,027,208	\$940,642	\$1,030,623	\$1,289,372	
Utilities/Electrical	\$ 257,000 \$	550,000	\$ 235,000 \$	504,000	\$ 258,000 \$	552,000	\$ 322,000	\$ 691,000		\$366,860	\$335,943	\$368,080	\$460,490	
Traffic Control	\$ 822,000 \$	5 1,761,000	\$ 753,000 \$	1,613,000	\$ 824,000 \$	1,767,000	\$ 1,031,000	\$ 2,210,000		\$1,173,952	\$1,075,019	\$1,177,855	\$1,473,568	
Landscaping	\$ 154,000 \$	330,000	\$ 141,000 \$	302,000		331,000		\$ 1,381,000		\$220,116	\$201,566	\$220,848	\$920,980	
Signing/Striping	\$ 205,000 \$	440,000	\$ 188,000 \$	403,000	\$ 206,000 \$	442,000	\$ 258,000	\$ 553,000		\$293,488	\$268,755	\$294,464	\$368,392	
Contingency- Detail Scope	\$ 3,184,000 \$	6,824,000	\$ 2,916,000 \$	6,249,000	\$ 3,195,000 \$	6,846,000	\$ 4,110,000	\$ 8,807,000		\$4,549,066	\$4,165,698	\$4,564,188	\$5,871,248	
Proj Mang./Constr. Mang.	\$ 2,122,000 \$	4,548,000	\$ 1,948,000 \$	4,174,000	\$ 2,129,000 \$	4,563,000	\$ 2,724,000	\$ 5,837,000		\$3,031,893	\$2,782,704	\$3,041,722	\$3,891,311	
TOTAL	\$ 18,043,000 \$	38,666,000	\$ 16,528,000 \$	35,418,000	\$ 18,103,000 \$	38,795,000	\$ 23,274,000	\$ 49,872,000		\$25,777,222	\$23,611,195	\$25,862,660	\$33,247,554	
1 – Order of Magnitude (Accuracy Range: +	50% / -30%)								-				· · · · · · ·	
SP-Opt.1 – Single Pier (Precast Concrete Gir	rders)							North	Bridge Deck Area (ft2)	9,562	9,562	10,238	11,453	LEGEND
SP-Opt.2 – Single Pier (Cast-in-Place Concre	ete Box)								Cost (\$/ft2)	\$364.93	\$304.02	\$407.52	\$364.93	\$/ft2 from quantity-
CS-Opt.2 – Clear Span (Rigid Frame)														estimates
EB - Elevated Bridge								South	Bridge Deck Area (ft2)	4,390	4,390	4,390	9,723	\$/ft2 assumed from
Includes North and South Bridges.									Cost (\$/ft2)	\$318.67	\$293.39	\$301.57	\$364.93	North Bridg

This is not an offer for construction and/or project execution.

These AACE Classification Class 4 cost estimates are assumed to represent the actual total installed cost within the range of -30 percent to +50 percent (% based on AACE) of the cost indicated. It would appear prudent that internal budget allowances account for the highest cost indicated by this range as well as other site specific allowances. The cost estimate has been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project will depend on actual labor and material costs, competitive market conditions, implementation schedule, and other variable factors. As a result, the final project costs will vary from the estimates presented herein. Because of this, project feasibility and funding needs must be carefully reviewed prior to making specific financial decisions to help ensure proper project evaluation and adequate funding.

P BOX		Single Pier		Clear Span	Elevated Bridge	
50%		Opt.1	Opt.2	Opt.2	Elevated Bridge	
3,893,000		\$2,205,500	\$2,205,500	\$2,205,500	\$2,595,500	
5,109,000		\$3,355,900	\$3,355,900	\$3,399,300	\$3,405,900	
1,575,000		\$985,800	\$985,800	\$929,800	\$1,049,800	
3,046,000		\$1,949,216	\$1,944,816	\$1,944,816	\$2,030,816	
11,592,000		\$4,888,400	\$4,195,000	\$5,496,100	\$7,727,734	
2,415,000		\$1,289,590	\$750,720	\$747,670	\$1,609,853	
829,000		\$440,232	\$403,132	\$441,696	\$552,588	
1,934,000		\$1,027,208	\$940,642	\$1,030,623	\$1,289,372	
691,000		\$366,860	\$335,943	\$368,080	\$460,490	
2,210,000		\$1,173,952	\$1,075,019	\$1,177,855	\$1,473,568	
1,381,000		\$220,116	\$201,566	\$220,848	\$920,980	
553,000		\$293,488	\$268,755	\$294,464	\$368,392	
8,807,000		\$4,549,066	\$4,165,698	\$4,564,188	\$5,871,248	
5,837,000		\$3,031,893	\$2,782,704	\$3,041,722	\$3,891,311	
49,872,000		\$25,777,222	\$23,611,195	\$25,862,660	\$33,247,554	
North I	Bridge Deck Area (ft2)	9,562	9,562	10,238	11,453	LEGEND
	Cost (\$/ft2)	\$364.93	\$304.02	\$407.52	\$364.93	\$/ft2 from quantity-based cost
						estimates
South I	Bridge Deck Area (ft2)	4,390	4,390	4,390	9,723	\$/ft2 assumed from SP-Opt. 1
	Cost (\$/ft2)	\$318.67	\$293.39	\$301.57	\$364.93	North Bridge

Arlington Avenue Bridges, Reno NV

Precast Prestress Bridge Alternative

COST ESTIMATE SUMMARY

Description: Precast Prestress Bridge Alternative

Site:Arlington Avenue BridgesLocation:Reno, NVPhase:Pre-NEPA/Construction Feasibility StudyBase Year:2021Date:1/27/2021

CAPITAL COSTS UNIT QTY UNIT TOTAL NOTES DESCRIPTION COST Preconstruction - Design/Permits 8000 HR \$175 \$1,400,000 Design Design PM \$160,000 800 HR \$200 Meetings w/stakeholders \$10,000 \$60,000 6 ΕA Biological survey and report \$125 220 HR \$27,500 Historical Cultural survey and report 360 HR \$150 \$54,000 Historical Survey 30 DY \$3,300 \$99,000 Includes office engineering Permits \$137,800 \$31,200 \$26,000 Initial Permit Application 1060 HR \$130 USACE 404 PERMIT Address comments, revise and resubmit 240 HR \$130 Permit Finalization 200 HR \$130 \$40,000 Permit Fee LS \$40.000 1 Initial Permit Application \$72,800 USACE 408 PERMIT HR \$130 560 Address comments, revise and resubmit 240 HR \$130 \$31,200 Permit Finalization 200 HR \$130 \$26,000 Permit Fee (Includes Funding via 1156 agreement) LS \$40,000 \$40,000 1 SUBTOTAL \$2,205,500 Mobilization/Demobilization Workplan, procurement 500 HR \$200 \$100,000 Historical, Contractor's cost H&S, Stormwater, Environmental Plans 360 HR \$110 \$39,600 Historical, Contractor's cost \$10,000 \$50,000 Permits 5 ΕA County construction Meetings w/stakeholders \$180,000 6 ΕA \$30,000 DY \$240,000 Includes office engineering \$3,000 Survey 80 Temporary fencing \$37,500 Traffic Control Below LF 1500 \$25 Temporary Utility Hookups LS \$30,000 \$30,000 Water, Power, communications 1 Set-up laydown yard 10 MO \$25,000 \$250,000 Trailers and Connex boxes MO \$10,000 \$300,000 Historical 30 Monthly trailer/utility costs 20 MO \$1,200 \$24,000 Historical Sanitary Units 40 MO \$120 \$4,800 \$1,200,000 Mobilize/Demob Equipment - Initial ΕA \$1,200,000 1 Mobilize/Demob Equipment- Winter Shutdown ΕA \$900,000 \$900,000 1 SUBTOTAL \$3,355,900 Environmental/Biological/Cultural/Water Treatment **Biological Audits/Reports** 320 HR \$125 \$40.000 Historical Cultural survey and report \$125 \$60,000 Historical HR 480 \$4,000 Historical Soil/Bridge Sampling 32 HR \$125 Sampling Supplies/Freight/Lab Analysis LS \$10,000 \$10,000 Allowance 1 Data Validation and Report 40 \$5,800 Historical HR \$145 Temp Upstream dam 3 ΕA \$50,000 \$150,000 Upstream dam Bypass Flue 1200 LF \$70 \$84,000 CMP Flue Misc Upstream Riprap 200 ΤN \$80 \$16,000 Cofferdam dewatering system 3 EA \$150,000 \$450,000 Sump pumps, piping, power connection Baker Tanks 3 EA \$50,000 \$150,000 \$16,000 Misc Downstream Riprap 200 ΤN \$80 SUBTOTAL \$985,800 Earthwork Site Prep/Access Road LS \$30,000 \$30,000 SF LS Temporary Cofferdam 40,000 \$35 \$1,400,000 North and South abutments, center pier \$75,000 **Demo Existing Utilities** \$75,000 Allowance 1 Demo Existing Fence and Walls Demo Existing Deck and Supports LS SF \$75,000 \$20 \$75,000 Allowance \$284,900 Sawcut sections 1 14,245 Demo Existing Foundation 628 CY \$22 \$13,816 Structural Excavation 1,000 CY \$44 \$44,000 CY CY Backfilling excavation with clean fill material \$7,000 assume 250 CY/day backfill 200 \$35 RipRap 300 \$65 \$19,500 SUBTOTAL \$1,949,216 Structural (North) \$50,000 Allowance \$331,200 NDOT Historical \$28,800 NDOT Historical Misc Falsework 2000 SF \$25 VF CY Drilled Shaft Foundation, 48" dia 720 36 \$460 \$800 Pile Cap North Abutment 130 CY \$143,000 NDOT Historical \$1,100 South Abutment 202 CY \$1,100 \$222,200 NDOT Historical CY CY LF \$275,600 NDOT Historical \$105,600 NDOT Historical Center Pier 212 \$1,300 \$1,200 Cap Beam 88 \$1,706,250 NDOT Historical Precast Girders 1625 \$1,050 Wing Walls CY \$1,200 \$97,200 NDOT Historical 81 \$120,000 NDOT Historical \$339,600 NDOT Historical CY LB Wing Wall Foundations 100 \$1,200 339600 Reinforcement \$1 \$40,000 NDOT Historical Expansion Joint LF \$250 160 Misc Minor Concrete LS \$30,000 1 \$30,000 SUBTOTAL \$3,489,450 Roadway (North) \$373,350 NDOT Historical Bridge Deck 9.825 SF \$38 \$6,540 NDOT Historical Bridge Deck Preparation 1,090 SY \$6 Thin Bonded Multilayer Overlay 1,090 SY \$55 \$59,950 NDOT Historical \$183,400 NDOT Historical Concrete Railing and walk 262 LF \$700 Guardrail 300 LF \$45 \$13,500 NDOT Historical

600	- ···			
000	SY	\$65	\$39,000	NDOT Historical
8,000	SF	\$8	\$64,000	NDOT Historical
			\$748,740	
1200	SF	\$25	\$30,000	Allowance
560	VF	\$250	\$140,000	NDOT Historical
22	CY	\$800	\$17,600	NDOT Historical
82	CY	\$1,100	\$90,200	NDOT Historical
146	CY	\$1,100	\$160,600	NDOT Historical
0	CY	\$1,300	\$0	NDOT Historical
0	CY	\$1,200	\$0	NDOT Historical
715	LF	\$970	\$693,550	NDOT Historical
25	CY	\$1,200	\$30,000	NDOT Historical
45	CY	\$1,200	\$54,000	NDOT Historical
128000	LB	\$1	\$128,000	NDOT Historical
140	LF	\$250	\$35,000	NDOT Historical
1	LS	\$20,000	\$20,000	
		· · · · ·	\$1,398,950	
4,420	SF	\$38	\$167,960	NDOT Historical
490	SY	\$6	\$2,940	NDOT Historical
490	SY	\$55	\$26,950	NDOT Historical
130	LF	\$700	\$91,000	NDOT Historical
400	LF	\$45	\$18,000	NDOT Historical
800	LF	\$45	\$36,000	NDOT Historical
1.200	SY	\$65	\$78,000	NDOT Historical
	SF	\$8	\$120,000	NDOT Historical
-,			\$540,850	
	SF		\$0	NDOT Historical
	1200 560 22 82 146 0 715 25 45 128000 140 1 4,420 490 130 400	1200 SF 560 VF 22 CY 82 CY 146 CY 0 CY 715 LF 25 CY 45 CY 128000 LB 140 LF 1 LS 4,420 SF 490 SY 130 LF 400 LF 800 LF 1,200 SY 15,000 SF	1200 SF \$25 560 VF \$250 22 CY \$800 82 CY \$1,100 146 CY \$1,300 0 CY \$1,200 715 LF \$970 25 CY \$1,200 45 CY \$1,200 128000 LB \$1 140 LF \$250 1 LS \$20,000 4,420 SF \$38 490 SY \$65 130 LF \$700 400 LF \$45 800 LF \$45 800 LF \$45 1,200 SY \$65 15,000 SF \$8	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

New AC Fill Volume SUBTOTAL	0	CY CY		\$0 NDOT Historical\$0 NDOT Historical\$0
Aesthetics 3% Lump Sum SUBTOTAL	1	LS	\$440,232	\$440,232_NDOT Historical \$440,232
Drainage 7% Lump Sum SUBTOTAL	1	LS	\$1,027,208	\$1,027,208 NDOT Historical \$1,027,208
Utilities/Electrical 2.5% Lump Sum SUBTOTAL	1	LS	\$366,860	\$366,860 NDOT Historical \$366,860
Traffic Control 8% Lump Sum SUBTOTAL	1	LS	\$1,173,952	\$1,173,952 NDOT Historical \$1,173,952
Landscaping 1.5% Lump Sum SUBTOTAL	1	LS	\$220,116	\$220,116 NDOT Historical \$220,116
Signing Striping 2% Lump Sum SUBTOTAL	1	LS	\$293,488	\$293,488 NDOT Historical \$293,488
SUBTOTAL CONSTRUCTION				\$18,196,263
Contingency - 25% of Construction Subtotal SUBTOTAL	25%	%	\$18,196,263	\$4,549,066_10% Scope + 15% Bid \$22,745,329
Project Management Construction Management Record Drawings SUBTOTAL	5% 8% 1	LS	\$22,745,329 \$22,745,329 \$75,000	\$1,137,266 USEPA 2000, p. 5-13, \$2M-\$10M \$1,819,626 USEPA 2000, p. 5-13, \$2M-\$10M <u>\$75,000</u> Document Const. Work, QA/QC, and Record DWGs \$3,031,893
TOTAL CAPITAL COST				\$25,780,000

Arlington Avenue Bridges, Reno NV Box Girder Bridge Alternative

COST ESTIMATE SUMMARY

Arlington Avenue Bridges Reno, NV Pre-NEPA/Construction Feasibility Study 2021 1/27/2021 Site: Location: Phase: Base Year: Date:

Description: Box Girder Bridge Alternative

CAPITAL COSTS

CAPITAL	COSTS			UNIT		
	DESCRIPTION	QTY	UNIT	COST	TOTAL	NOTES
	Preconstruction - Design/Permits					
	Design Design PM	8000 800	HR HR	\$175 \$200	\$1,400,000 \$160,000	
	Meetings w/stakeholders	6	EA	\$10,000	\$60,000	
	Biological survey and report Cultural survey and report	220 360	HR HR	\$125 \$150		Historical Historical
	Survey	30	DY	\$3,300	\$99,000	
	Permits Initial Permit Application	1060	HR	\$130	\$137,800	USACE 404 PERMIT
	Address comments, revise and resubmit	240	HR	\$130	\$31,200	USAGE 404 FERMIN
	Permit Finalization Permit Fee	200 1	HR LS	\$130 \$40,000	\$26,000 \$40,000	
	Initial Permit Application	560	HR	\$130	\$72,800	USACE 408 PERMIT
	Address comments, revise and resubmit Permit Finalization	240 200	HR HR	\$130 \$130	\$31,200 \$26,000	
	Permit Fee (Includes Funding via 1156 agreement)	1	LS	\$40,000	\$40,000	_
	SUBTOTAL				\$2,205,500	
	Mobilization/Demobilization					
	Workplan, procurement H&S, Stormwater, Environmental Plans	500 360	HR HR	\$200 \$110	\$100,000 \$39,600	
	Permits	5	EA	\$10,000	\$50,000	
	Meetings w/stakeholders Survey	6 80	EA DY	\$30,000 \$3,000	\$180,000 \$240,000	Includes office engineering
	Temporary fencing	1500	LF	\$25	\$37,500	Traffic Control Below
	Temporary Utility Hookups Set-up laydown yard	1 10	LS MO	\$30,000 \$25,000	\$30,000 \$250,000	Water, Power, communications
	Trailers and Connex boxes	30	MO	\$10,000	\$300,000	
	Monthly trailer/utility costs Sanitary Units	20 40	MO MO	\$1,200 \$120	\$24,000 \$4,800	Historical
	Mobilize/Demob Equipment - Initial	1	EA	\$1,200,000	\$1,200,000	
	Mobilize/Demob Equipment- Winter Shutdown SUBTOTAL	1	EA	\$900,000	\$900,000 \$3,355,900	-
	Environmental/Biological/Cultural/Water Treatment			_		
	Biological Audits/Reports Cultural survey and report	320 480	HR HR	\$125 \$125	. ,	Historical Historical
	Soil/Bridge Sampling	32	HR	\$125	\$4,000	Historical
	Sampling Supplies/Freight/Lab Analysis Data Validation and Report	1 40	LS HR	\$10,000 \$145	, .,	Allowance Historical
	Temp Upstream dam	3	EA	\$50,000		Upstream dam
	Bypass Flue Misc Upstream Riprap	1200 200	LF TN	\$70 \$80	\$84,000 \$16,000	CMP Flue
	Cofferdam dewatering system	3	EA	\$150,000	\$450,000	Sump pumps, piping, power connection
	Baker Tanks Misc Downstream Riprap	3 200	EA TN	\$50,000 \$80	\$150,000 \$16,000	
	SUBTOTAL				\$985,800	
	Earthwork					
	Site Prep/Access Road Temporary Cofferdam	1 40,000	LS SF	\$30,000 \$35	\$30,000 \$1 400 000	North and South abutments, center pier
	Demo Existing Utilities	1	LS	\$75,000	\$75,000	Allowance
	Demo Existing Fence and Walls Demo Existing Deck and Supports	1 14,245	LS SF	\$75,000 \$20		Allowance Sawcut sections
	Demo Existing Foundation	628 900	CY CY	\$22 \$44	\$13,816	
	Structural Excavation Backfilling excavation with clean fill material	200	CY	\$35	\$39,600 \$7,000	assume 250 CY/day backfill
	RipRap SUBTOTAL	300	CY	\$65	\$19,500 \$1,944,816	-
					÷.,•,••	
	Structural (North) Misc Falsework	9800	SF	\$25	\$245,000	Allowance
	Drilled Shaft Foundation, 48" dia	720	VF	\$460		NDOT Historical
	Pile Cap North Abutment	36 126	CY CY	\$800 \$1,100		NDOT Historical NDOT Historical
	South Abutment Center Pier	200 212	CY CY	\$1,100 \$1,300		NDOT Historical NDOT Historical
	Cap Beam	88	CY	\$1,200	\$105,600	NDOT Historical
	Cast-in-place Box and Deck Wing Walls	521 81	CY CY	\$1,400 \$1,200		NDOT Historical NDOT Historical
	Wing Wall Foundations	100	CY	\$1,200	\$120,000	NDOT Historical
	Reinforcement Expansion Joint	545600 160	LB LF	\$1 \$250		NDOT Historical NDOT Historical
	Misc Minor Concrete SUBTOTAL	1	LS	\$30,000	\$30,000 \$2,907,000	-
	Roadway (North) Bridge Deck	0	SF	\$38	\$0	NDOT Historical
	Bridge Deck Preparation	1,090	SY SY	\$6 \$55		NDOT Historical NDOT Historical
	Thin Bonded Multilayer Overlay Concrete Railing and walk	1,090 262	LF	\$700		NDOT Historical
	Guardrail Remove/Replace Existing Curb and Guttter	300 200	LF LF	\$45 \$45		NDOT Historical NDOT Historical
	Remove/Replace Existing Sidewalk	600	SY	\$65	\$39,000	NDOT Historical
	Resurface Interchange and Island Approach SUBTOTAL	8,000	SF	\$8	\$64,000 \$375,390	NDOT Historical
	Structural (South)					
	Misc Falsework	5000	SF	\$25	• • • • • • •	Allowance
	Drilled Shaft Foundation, 36" dia Pile Cap	560 22	VF CY	\$250 \$800		NDOT Historical NDOT Historical
	North Abutment	89	CY	\$1,100	\$97,900	NDOT Historical
	South Abutment Center Pier	91 0	CY CY	\$1,100 \$1,300		NDOT Historical NDOT Historical
	Cap Beam Cast-in-place Box and Deck	0 262	CY CY	\$1,200 \$1,400		NDOT Historical NDOT Historical
	Wing Walls	252	CY	\$1,200		NDOT Historical
	Wing Wall Foundations Reinforcement	100 235600	CY LB	\$1,200 \$1		NDOT Historical NDOT Historical
	Expansion Joint	140	LF	\$250	\$35,000	NDOT Historical
	Misc Minor Concrete SUBTOTAL	1	LS	\$20,000	\$20,000 \$1,288,000	
	Roadway (South)					
	Bridge Deck	0	SF	\$38		NDOT Historical
	Bridge Deck Preparation Thin Bonded Multilayer Overlay	530 530	SY SY	\$6 \$55		NDOT Historical NDOT Historical
	Concrete Railing and walk Guardrail	130 400	LF LF	\$700 \$45	\$91,000	NDOT Historical NDOT Historical
	Remove/Replace Existing Curb and Guttter	800	LF	\$45	\$36,000	NDOT Historical
	Remove/Replace Existing Sidewalk Resurface Interchange and Island Approach	1,200 15,000	SY SF	\$65 \$8		NDOT Historical NDOT Historical
	SUBTOTAL				\$375,330	
	Roadway (Middle)		~=			
	Pulverize Existing Roadway New Base	0	SF CY			NDOT Historical NDOT Historical

New AC Fill Volume SUBTOTAL	0	CY CY		\$0 NDOT Historical \$0 NDOT Historical \$0
Aesthetics 3% Lump Sum SUBTOTAL	1	LS	\$403,132	\$403,132 NDOT Historical \$403,132
Drainage 7% Lump Sum SUBTOTAL	1	LS	\$940,642	\$940,642 NDOT Historical \$940,642
Utilities/Electrical 2.5% Lump Sum SUBTOTAL	1	LS	\$335,943	\$335,943 NDOT Historical \$335,943
Traffic Control 8% Lump Sum SUBTOTAL	1	LS	\$1,075,019	\$1,075,019 NDOT Historical \$1,075,019
Landscaping 1.5% Lump Sum SUBTOTAL	1	LS	\$201,566	\$201,566 NDOT Historical \$201,566
Signing Striping 2% Lump Sum SUBTOTAL	1	LS	\$268,755	\$268,755 NDOT Historical \$268,755
SUBTOTAL CONSTRUCTION				\$16,662,793
Contingency SUBTOTAL	25%		\$16,662,793	\$4,165,698 \$20,828,491 10% Scope + 15% Bid
Project Management Construction Management Record Drawings SUBTOTAL	5% 8% 1	LS	\$20,828,491 \$20,828,491 \$75,000	\$1,041,425 USEPA 2000, p. 5-13, \$2M-\$10M \$1,666,279 USEPA 2000, p. 5-13, \$2M-\$10M <u>\$75,000</u> Document Const. Work, QA/QC, and Record DWGs \$2,782,704
TOTAL CAPITAL COST				\$23,610,000

Arlington Avenue Bridges, Reno NV Rigid Frame Bridge Alternative

COST ESTIMATE SUMMARY

Site: Arlington Avenue Bridges Location: Phase: Reno, NV Pre-NEPA/Construction Feasibility Study Base Year: 2021 1/27/2021 Date:

Description: Rigid Frame Bridge Alternative

CAPITAL COSTS					
DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
		•			
Preconstruction - Design/Permits	8000	ЦВ	¢175	£1 400 000	
Design Design PM	8000	HR HR	\$175 \$200	\$1,400,000 \$160,000	
Meetings w/stakeholders	6	EA	\$10,000	\$60,000	
Biological survey and report	220	HR	\$125	\$27,500	Historical
Cultural survey and report	360	HR	\$150		Historical
Survey	30	DY	\$3,300	\$99,000	Includes office engineering
Permits Initial Permit Application	1060	HR	\$130	\$137,800	USACE 404 PERMIT
Address comments, revise and resubmit	240	HR	\$130	\$31.200	
Permit Finalization	200	HR	\$130	\$26,000	
Permit Fee	1	LS	\$40,000	\$40,000	
Initial Permit Application	560	HR	\$130	\$72,800	USACE 408 PERMIT
Address comments, revise and resubmit Permit Finalization	240 200	HR HR	\$130 \$130	\$31,200 \$26,000	
Permit Fee (Includes Funding via 1156 agreement)	200	LS	\$40,000	\$40,000	
SUBTOTAL	·	20	¢.0,000	\$2,205,500	
Mobilization/Demobilization					
Workplan, procurement	500	HR	\$200	\$100,000	Historical
H&S, Stormwater, Environmental Plans	300	HR	\$110	\$33,000	Historical
Permits Maatings w/stalialadage	5	EA	\$20,000	\$100,000 \$180.000	USACE River, County
Meetings w/stakeholders Survey	6 80	EA DY	\$30,000 \$3,000	\$180,000 \$240,000	Includes office engineering
Temporary fencing	1500	LF	\$3,000	\$37,500	Traffic Control Below
Temporary Utility Hookups	1	LS	\$30,000	\$30,000	Water, Power, communications
Set-up laydown yard	10	MO	\$25,000	\$250,000	
Trailers and Connex boxes	30	MO	\$10,000	\$300,000	Historical
Monthly trailer/utility costs	20	MO	\$1,200	\$24,000	Historical
Sanitary Units Mobilize/Demob Equipment - Initial	40 1	MO EA	\$120 \$1,200,000	\$4,800 \$1,200,000	
Mobilize/Demob Equipment - Initial Mobilize/Demob Equipment- Winter Shutdown	1	EA	\$900,000	\$1,200,000	
SUBTOTAL	·	E, (\$000,000 <u></u>	\$3,399,300	
Environmental/Biological/Cultural/Water Treatment					
Biological Audits/Reports	320	HR	\$125		Historical
Cultural survey and report	480	HR	\$125		Historical
Soil/Bridge Sampling Sampling Supplies/Freight/Lab Analysis	32 1	HR LS	\$125 \$10,000		Historical Allowance
Data Validation and Report	40	HR	\$10,000		Historical
Temp Upstream dam	3	EA	\$50,000		Upstream dam
Bypass Flue	400	LF	\$70		CMP Flue
Misc Upstream Riprap	200	TN	\$80	\$16,000	
Cofferdam dewatering system	3	EA	\$150,000		Sump pumps, piping, power connection
Baker Tanks Misc Downstream Riprap	3 200	EA TN	\$50,000 \$80	\$150,000 \$16,000	
SUBTOTAL	200	1 IN	\$00 <u> </u>	\$929,800	
Earthwork					
Site Prep/Access Road	1	LS	\$30,000	\$30,000	
Temporary Cofferdam	40,000	SF	\$35		North and South abutments
Demo Existing Utilities	1	LS	\$75,000 \$75,000	1 - 7	Allowance
Demo Existing Fence and Walls Demo Existing Deck and Supports	1 14,245	LS SF	\$75,000 \$20		Allowance Sawcut sections
Demo Existing Foundation	628	CY	\$22	\$13,816	
Structural Excavation	900	CY	\$44	\$39,600	
Backfilling excavation with clean fill material	200	CY	\$35		assume 250 CY/day backfill
RipRap SUBTOTAL	300	CY	\$65	\$19,500 \$1,944,816	
				\$ 1,01-1,010	
Structural (North) Misc Falsework	14000	SF	\$35	¢400.000	Allowance
Drilled Shaft Foundation, 48" dia	1080	VF	\$35 \$460		NDOT Historical
Pile Cap	24	CY	\$800		NDOT Historical
North Abutment	142	CY	\$1,100		NDOT Historical
South Abutment	146	CY	\$1,100		NDOT Historical
Rigid Frame Wing Walls	1310 111	CY CY	\$1,300 \$1,200		NDOT Historical NDOT Historical
Wing Wall Foundations	150	CY	\$1,200		NDOT Historical
Reinforcement	753200	LB	\$1		NDOT Historical
Expansion Joint	160	LF	\$250	\$40,000	NDOT Historical
Misc Minor Concrete SUBTOTAL	1	LS	\$40,000	\$40,000 \$4,172,200	
Roadway (North)					
Bridge Deck Preparation	1,090	SY	\$6	\$6,540	NDOT Historical
Thin Bonded Multilayer Overlay	1,090	SY	\$55	\$59,950	NDOT Historical
Concrete Railing and walk	262	LF	\$700		NDOT Historical
Guardrail Remove/Replace Existing Curb and Guttter	300 200	LF LF	\$45 \$45		NDOT Historical NDOT Historical
Remove/Replace Existing Sidewalk	600	SY	\$65		NDOT Historical
Resurface Interchange and Island Approach	8,000	SF	\$8	\$64,000	NDOT Historical
SUBTOTAL				\$375,390	

Guardrail	300	LF	\$45	\$13,500 NDOT Historical
Remove/Replace Existing Curb and Guttter	200	LF	\$45	\$9,000 NDOT Historical
Remove/Replace Existing Sidewalk	600	SY	\$65	\$39,000 NDOT Historical
Resurface Interchange and Island Approach	8,000	SF	\$8	\$64,000 NDOT Historical
SUBTOTAL				\$375,390
Structural (South)				
Misc Falsework	5000	SF	\$25	\$125,000 Allowance
Drilled Shaft Foundation, 36" dia	560	VF	\$250	\$140,000 NDOT Historical
Pile Cap	22	CY	\$800	\$17,600 NDOT Historical
North Abutment	81	CY	\$1,100	\$89,100 NDOT Historical
South Abutment	91	CY	\$1,100	\$100,100 NDOT Historical
Rigid Frame	315	CY	\$1,300	\$409,500 NDOT Historical
Cap Beam	0	CY	\$1,200	\$0 NDOT Historical
Cast-in-place Box and Deck	0	CY	\$1,400	\$0 NDOT Historical
Wing Walls	50	CY	\$1,200	\$60,000 NDOT Historical
Wing Wall Foundations	65	CY	\$1,200	\$78,000 NDOT Historical
Reinforcement	249600	LB	\$1	\$249,600 NDOT Historical
Expansion Joint	140	LF	\$250	\$35,000 NDOT Historical
Misc Minor Concrete	1	LS	\$20,000	\$20,000
SUBTOTAL				\$1,323,900
Readings (South)				
Roadway (South)	0	05	600	
Bridge Deck	0	SF	\$38	\$0 NDOT Historical
Bridge Deck Preparation	480	SY	\$6	\$2,880 NDOT Historical
Thin Bonded Multilayer Overlay	480	SY	\$55	\$26,400 NDOT Historical
Concrete Railing and walk	130	LF	\$700	\$91,000 NDOT Historical
Guardrail	400	LF	\$45	\$18,000 NDOT Historical
Remove/Replace Existing Curb and Guttter	800	LF	\$45	\$36,000 NDOT Historical
Remove/Replace Existing Sidewalk	1,200	SY	\$65	\$78,000 NDOT Historical
Resurface Interchange and Island Approach	15,000	SF	\$8	\$120,000 NDOT Historical
SUBTOTAL				\$372,280
Roadway (Middle)				
Pulverize Existing Roadway		SF		\$0 NDOT Historical
New Base	0	CY		\$0 NDOT Historical
New AC				
	0	CY		\$0 NDOT Historical
Fill Volume		CY CY		\$0 NDOT Historical \$0 NDOT Historical

Aesthetics 3% Lump Sum SUBTOTAL	1	LS	\$441,696 _	\$441,696 NDOT Historical \$441,696
Drainage 7% Lump Sum SUBTOTAL	1	LS	\$1,030,623 _	\$1,030,623 NDOT Historical \$1,030,623
Utilities/Electrical 2.5% Lump Sum SUBTOTAL	1	LS	\$368,080 _	\$368,080 NDOT Historical \$368,080
Traffic Control 8% Lump Sum SUBTOTAL	1	LS	\$1,177,855 _	\$1,177,855 NDOT Historical \$1,177,855
Landscaping 1.5% Lump Sum SUBTOTAL	1	LS	\$220,848 _	\$220,848 NDOT Historical \$220,848
Signing Striping 2% Lump Sum SUBTOTAL	1	LS	\$294,464 _	\$294,464 NDOT Historical \$294,464
SUBTOTAL CONSTRUCTION			=	\$18,256,751
Contingency SUBTOTAL	25%		\$18,256,751	\$4,564,188_10% Scope + 15% Bid \$22,820,938
Project Management Construction Management Record Drawings SUBTOTAL	5% 8% 1	LS	\$22,820,938 \$22,820,938 \$75,000 _	\$1,141,047 USEPA 2000, p. 5-13, \$2M-\$10M \$1,825,675 USEPA 2000, p. 5-13, \$2M-\$10M \$75,000 Document Const. Work, QA/QC, and Record DWGs \$3,041,722
TOTAL CAPITAL COST				\$25,860,000

\$0

SUBTOTAL

Arlington Avenue Bridges, Reno NV Elevated Bridge Alternative

COST ESTIMATE SUMMARY

Site: Location: Phase: Base Year: Date: Arlington Avenue Bridges Reno, NV Pre-NEPA/Construction Feasibility Study 2021 1/27/2021

Description: Elevated Bridge Alternative

CADITAL COSTS

CAPITAL	COSTS					
	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	NOTES
	Preconstruction - Design/Permits					
	Design	10000	HR	\$175	\$1,750,000	
	Design PM Meetings w/stakeholders	1000 6	HR EA	\$200 \$10,000	\$200,000 \$60,000	
	Biological survey and report	220	HR	\$125		Historical
	Cultural survey and report Survey	360 30	HR DY	\$150 \$3,300	\$54,000 \$99,000	Historical Includes office engineering
	Permits					
	Initial Permit Application Address comments, revise and resubmit	1060 240	HR HR	\$130 \$130	\$137,800 \$31,200	USACE 404 PERMIT
	Permit Finalization	200	HR	\$130	\$26,000	
	Permit Fee Initial Permit Application	1 560	LS HR	\$40,000 \$130	\$40,000 \$72,800	USACE 408 PERMIT
	Address comments, revise and resubmit	240	HR	\$130	\$31,200	
	Permit Finalization Permit Fee (Includes Funding via 1156 agreement)	200 1	HR LS	\$130 \$40,000	\$26,000 \$40,000	
	SUBTOTAL	,	LO	\$ 4 0,000	\$2,595,500	-
	Mobilization/Demobilization					
	Workplan, procurement	500	HR	\$200	\$100,000	Historical, Contractor's cost
	H&S, Stormwater, Environmental Plans Permits	360 5	HR EA	\$110 \$20,000	\$39,600 \$100,000	Historical, Contractor's cost County construction
	Meetings w/stakeholders	6	EA	\$30,000	\$180,000	
	Survey Temporary fencing	80 1500	DY LF	\$3,000 \$25	\$240,000 \$37,500	Includes office engineering Traffic Control Below
	Temporary Utility Hookups	1	LS	\$30,000	\$30,000	Water, Power, communications
	Set-up laydown yard Trailers and Connex boxes	10 30	MO MO	\$25,000 \$10,000	\$250,000 \$300,000	Historical
	Monthly trailer/utility costs	20	MO	\$1,200	\$24,000	Historical
	Sanitary Units Mobilize/Demob Equipment - Initial	40 1	MO EA	\$120 \$1,200,000	\$4,800 \$1,200,000	
	Mobilize/Demob Equipment- Winter Shutdown	1	EA	\$900,000	\$900,000	_
	SUBTOTAL				\$3,405,900	
	Environmental/Piological/Culture/Marter Torstored					
	Environmental/Biological/Cultural/Water Treatment Biological Audits/Reports	320	HR	\$125	\$40.000	Historical
	Cultural survey and report	480	HR	\$125		Historical
	Soil/Bridge Sampling Sampling Supplies/Freight/Lab Analysis	32 1	HR LS	\$125 \$10,000		Historical Allowance
	Data Validation and Report	40	HR	\$145	\$5,800	Historical
	Temp Upstream dam Bypass Flue	3 1200	EA LF	\$50,000 \$70		Upstream dam CMP Flue
	Misc Upstream Riprap	600	TN	\$80	\$48,000	
	Cofferdam dewatering system Baker Tanks	3 3	EA EA	\$150,000 \$50,000	\$450,000 \$150,000	Sump pumps, piping, power connection
	Misc Downstream Riprap	600	TN	\$80	\$48,000	-
	SUBTOTAL				\$1,049,800	
	Earthwork Site Prep/Access Road	1	LS	\$30,000	\$30,000	
	Temporary Cofferdam	40,000	SF	\$35		North and South abutments
	Demo Existing Utilities Demo Existing Fence and Walls	1	LS LS	\$75,000 \$75,000		Allowance Allowance
	Demo Existing Deck and Supports	14,245	SF	\$20	\$284,900	Sawcut sections
	Demo Existing Foundation Structural Excavation	628 1,650	CY CY	\$22 \$44	\$13,816 \$72,600	
	Backfilling excavation with clean fill material	600	CY	\$35	\$21,000	assume 250 CY/day backfill
	RipRap SUBTOTAL	900	CY	\$65	\$58,500 \$2,030,816	-
	Structural (North)					
	Misc Falsework		SF	\$25		Allowance
	Drilled Shaft Foundation, 48" dia Pile Cap		VF CY	\$460 \$800		NDOT Historical NDOT Historical
	North Abutment		CY	\$1,100		NDOT Historical
	South Abutment Center Pier		CY CY	\$1,100 \$1,300		NDOT Historical NDOT Historical
	Cap Beam Precast Girders		CY LF	\$1,200 \$1,050		NDOT Historical NDOT Historical
	Wing Walls		CY	\$1,200		NDOT Historical
	Wing Wall Foundations Reinforcement	0	CY LB	\$1,200 \$1		NDOT Historical NDOT Historical
	Expansion Joint	0	LF	\$250	\$0	NDOT Historical
	Misc Minor Concrete SUBTOTAL		LS	\$30,000	\$0 \$0	-
	Poadway (North)					
	Roadway (North) Bridge Deck				\$0	NDOT Historical
	Bridge Deck Preparation Thin Bonded Multilayer Overlay	1,635 1,635	SY SY	\$6 \$55		NDOT Historical NDOT Historical
	Concrete Railing and walk	393	LF	\$700	\$275,100	NDOT Historical
	Guardrail Remove/Replace Existing Curb and Guttter	450 300	LF LF	\$45 \$45		NDOT Historical NDOT Historical
	Remove/Replace Existing Sidewalk	900	SY	\$65	\$58,500	NDOT Historical
	Resurface Interchange and Island Approach SUBTOTAL	8,000	SF	\$8	\$64,000 \$531,085	NDOT Historical
	Structural (South)					
	Misc Falsework		SF	\$25		Allowance
	Drilled Shaft Foundation, 36" dia Pile Cap		VF CY	\$250 \$800		NDOT Historical NDOT Historical
	North Abutment		CY	\$1,100	\$0	NDOT Historical
	South Abutment Center Pier		CY CY	\$1,100 \$1,300		NDOT Historical NDOT Historical
	Cap Beam		CY LF	\$1,200		NDOT Historical
	Precast Girders Wing Walls		CY	\$970 \$1,200		NDOT Historical NDOT Historical
	Wing Wall Foundations Reinforcement	0	CY LB	\$1,200 \$1		NDOT Historical NDOT Historical
	Expansion Joint	0	LF	\$250		NDOT Historical
	Misc Minor Concrete SUBTOTAL		LS	\$20,000	\$0 \$0	-
	Roadway (South) Bridge Deck		SF	\$38		NDOT Historical
	Bridge Deck Preparation Thin Bonded Multilayer Overlay	1,590 1,590	SY SY	\$6 \$55		NDOT Historical NDOT Historical
	Concrete Railing and walk	390	LF	\$700	\$273,000	NDOT Historical
	Guardrail Remove/Replace Existing Curb and Guttter	1,200 2,400	LF LF	\$45 \$45		NDOT Historical NDOT Historical
	Remove/Replace Existing Sidewalk	3,600	SY	\$65	\$234,000	NDOT Historical
	Resurface Interchange and Island Approach SUBTOTAL	15,000	SF	\$8	\$120,000 \$885,990	NDOT Historical
	Roadway (Middle) Pulverize Existing Roadway	4,800	SF	\$5		NDOT Historical
1	New 12" Base	180	CY	\$50	\$9,000	NDOT Historical; Arterial with MAC per RTC's RTP 6"

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New 6" AC Fill Volume SUBTOTAL	540 3,022	SY CY	\$100 \$35 _	\$54,000 NDOT Historical; Arterial with MAC per RTC's RTP 6" <u>\$105,778</u> NDOT Historical; 10' to FG in Middle (Subtract out \$192,778
Aesthetics 3% Lump Sum SUBTOTAL	1	LS	\$552,588 <u> </u>	\$552,588 NDOT Historical \$552,588
Drainage 7% Lump Sum SUBTOTAL	1	LS	\$1,289,372 _	\$1,289,372 NDOT Historical \$1,289,372
Utilities/Electrical 2.5% Lump Sum SUBTOTAL	1	LS	\$460,490 _	\$460,490 NDOT Historical \$460,490
Traffic Control 8% Lump Sum SUBTOTAL	1	LS	\$1,473,568	\$1,473,568 NDOT Historical \$1,473,568
Landscaping 5% Lump Sum SUBTOTAL	1	LS	\$920,980 _	\$920,980 NDOT Historical \$920,980
Signing Striping 2% Lump Sum SUBTOTAL	1	LS	\$368,392 _	\$368,392 NDOT Historical \$368,392
SUBTOTAL CONSTRUCTION			-	\$23,484,994
Contingency SUBTOTAL	25%		\$23,484,994 _	\$5,871,248 \$29,356,242
Project Management Construction Management Record Drawings SUBTOTAL	5% 8% 1	LS	\$29,356,242 \$29,356,242 \$75,000 _	\$1,467,812 USEPA 2000, p. 5-13, \$2M-\$10M \$2,348,499 USEPA 2000, p. 5-13, \$2M-\$10M \$75,000 Document Const. Work, QA/QC, and Record DWGs \$3,891,311
TOTAL CAPITAL COST				\$33,250,000