APPENDIX F

Life Cycle Cost Analysis

Bridge Life Cycle Cost Analysis

$$PV = FVN/(1+DR)^N$$

PV= Present Value
FVN= Future Value at time N

DR= Discount Rate = 2.6%
N= Period (Years)

Alternate A - Major Rehabilitation

Superstructure Strengthening,Seismic Retrofit,Bearing Replacement,Deck Replacement,Substructure Repair&Spot Painting

Item	Present Value	Discount Rate	Period (Years)	Future Value
Major Rehabilitation (25 Year Service Life)	$19,800,000	2.60%	0	$19,800,000
Temporary Bridge				
Mechanical/Electrical Repair/Replacement (Year 10)	$2,707,662	2.60%	10	$3,500,000
Milling and Paving (Year 15)	$74,848	2.60%	15	$110,000
Mechanical/Electrical Repair/Replacement (Year 20)	$2,094,695	2.60%	20	$3,500,000
Rehabilitation Project (Year 25)	$4,527,041	2.60%	25	$8,600,000
Full Structure Painting				
Superstructure Rehab/Repair				
Substructure Patching				
Milling and Paving (Year 30)	$50,930	2.60%	30	$110,000
Mechanical/Electrical Repair/Replacement (Year 30)	$1,620,493	2.60%	30	$3,500,000
Full Structure Replacement (Year 40)	$12,822,969	2.60%	40	$35,800,000
Milling and Paving (Year 55)	$51,182	2.60%	55	$210,000
Full Structure Painting/Minor Repair (Year 65)	$1,131,287	2.60%	65	$6,000,000
Milling and Paving (Year 70)	$34,826	2.60%	70	$210,000
Salvage (Residual Value)	-$3,646,599	2.60%	75	-$25,000,000
Total Cost	**$41,269,335**			

Alternate B - Complete Structure Replacement

Item	Present Value	Discount Rate	Period (Years)	Future Value
Complete Replacement (75 Year Service Life)	$35,800,000	2.60%	0	$35,800,000
Milling and Paving (Year 15)	$142,892	2.60%	15	$210,000
Full Superstructure Painting/Minor Repair (Year 25)	$3,158,401	2.60%	25	$6,000,000
Milling and Paving (Year 30)	$97,230	2.60%	30	$210,000
Milling and Paving (Year 45)	$66,159	2.60%	45	$210,000
Rehabilitation Project (Year 50)	$3,325,165	2.60%	50	$12,000,000
Full Superstructure Painting/Repair				
Substructure Repair/Rehabilitation				
Milling and Paving (Year 60)	$45,017	2.60%	60	$210,000
Salvage (Residual Value)	-$1,203,378	2.60%	75	-$8,250,000
Total Cost	**$41,431,486**			