

Essex Hudson Greenway Bridges Estimate
Hackensack Bridge Life Cycle Cost Analysis

AACE Level 5 Estimate

August 27th, 2020

Prepared by:-

ARUP

77 Water Street

Floor 4

New York, NY

10005

Estimate Level	Estimate Description	Design Phase	Level of Completion	Methodology	Accuracy Range
5	Rough Order of Magnitude	Planning Schematic Design	0% to 5%	Parametric Models Capacity Factored Historical Costs	L: -20% to - 50% H: +30% to +100%
4	Concept Feasibility	Planning Schematic Design	1% to 15%	Equipment Factored Parametric Models	L: -15% to - 30% H: +20% to +50%
3	Budget Authorization	Planning Schematic Design Design Documents	10% to 40%	Unit Costs Assembles	L: -10% to - 20% H: +10% to +40%
2	Budget Control Estimate	Preliminary Design Engineering Design Documents Construction Documents	30% to 70%	Detailed Unit Cost Detailed Take-Off	L: -5% to - 15% H: +5% to +30%
1	Bid	Detailed Design Engineering Construction Documents	50% to 100%	Detailed Unit Cost Detailed Take-Off Productivities Subcontractor Quotes	L: -2% to - 5% H: +3% to + 15%

1 Basis of Pricing

The cost estimate is classified as a Class 5 budget authorization estimate according to Arup's estimate classification matrix (Level 5), which was developed from the Association for the Advancement of Cost Engineering (AACE) best practices. The accuracy range of this estimate has been determined to be +30%/-30% and is indicative of likely bid prices if the project was issued to tender at this current stage.

Pricing shown reflects probable construction costs obtainable for the infrastructure works on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors, that is to mean 4 to 5 bids. If fewer bids are received, bid results can be expected to be higher.

This document is based on the measurement and pricing of quantities, wherever information is provided and/or reasonable assumptions for other works not covered in the drawings and programs as stated in this document. The unit rates reflected herein have been developed from project experience and industry research.

2 Scope of the Project

The scope of this cost estimate includes for the followings works:

- Contractor mobilization, construction of temporary facilities and laydown areas
- Demolition, Rehabilitation, and Replacement scopes of work for the 15 bridges outlined by Arup
- Contractor demobilization and site clean up

3 Documentations

The following documents and sources were used to develop the estimate of the Essex Hudson Greenway:

1. Structural Report by NAIK
2. Table of Bridges (WIP 28July20 rev0).xlsx
3. Google Earth

4 Project Construction Schedule

A project construction schedule was not part of the scope of work presented.

5 Contractors Indirect

Contractor's Indirect includes costs for general conditions, mobilization, site supervision, insurance, bonds, and other temporary works not included in the direct costs.

5 Contractors Overhead and Profit

Contractor's overhead and profit is reflective of the General Contractor's office overhead and profit.

6 Additional Contractor Cost Add-ons

Contractor Contingency of 25% has been included. This does not include additional items of scope, but rather design development of existing scope.

Five years of escalation has been included at 2.83%pa amounting to 15% as is included in the Essex Hudson Greenway Conceptual Cost Estimate prepared by Gardiner and Theobald on July 29th, 2020

7 Soft Costs

Soft costs have been included for this estimate under the following line items:

- Planning and preliminary engineering design (3%)
- Final engineering design (7%)
- Site investigations surveying, inspections, testing, etc. (2%)
- Project and construction management (5%)
- Legal, permits, agency reviews (3%)

8 Assumptions

Capital Cost

Timber piles for Penhorn Creek assumed to be 25ft long

Assuming 2500 kg/m³ (.078034 Tons/lb3) density of ballast based on AS 1141.6 and a 10% compaction

Assuming four girders length long, total replacement, 8"x12" for Penhorn Creek

Assuming penetrating concrete sealer for concrete bridges

Assume 8" thick for precast concrete panels on top of bridge

Assume 6" thick for poured concrete on top of bridge

Assuming Railing is 48" bicycle/pedestrian railing and fencing

Assumed a piece of furniture for every 250 sqft

For Concrete rehabilitation, it was assumed 1" of concrete needed for repair over the calculated sqft

An average labor rate of \$150 was used to represent the average of all trades working on the project.

An average equipment rate of \$30 was used to represent the average of all equipment used on the project. If there was a substantial equipment need for an activity, the hourly equipment rate was adjusted accordingly.

Assumed geomembrane is the same cost as sheet waterproofing.

Assumed graffiti removal was done one 10% of the sf of the structures

Assumed concrete jacket for Hackensack option 1 extends for height of 30ft and is built with tremie concrete construction methods

Assumed power cable installed underwater under navigation channel rests on top of river bed

Life Cycle Cost

The discount rate was estimated to be 4% from analyzing recent bond rates from the NJ Transportation Trust Fund Authority (<https://www.state.nj.us/ttfa/financing/bonds.shtml>)

Bridge operators cost assumed to be 5 people at 90k/year each

Assumed maintenance costs for mechanical equipment of the swing bridge was assumed to be 40 hours per month plus 10,000 in materials per month

An allowance for annual repairs of the bridge include costs for expansion joints, bearings, drainage, inspections, etc.

The annual allowance for alternative 1 bridge was estimated to be \$150k a year because of the older steel material stock of the bridge, alternative 2 bridge was estimated at \$50k due to new material stock and a larger composition of concrete, and alternative 3 was estimated at \$200k because of the new material stock, larger bridge footprint, and a larger composition of concrete.

\$5k a month was allocated for misc. repairs of the swing bridge options

\$10k a month was allocated for misc. repairs of the swing bridge options due to larger bridge area

It was assumed the mechanical equipment would have to be repaired every 25 years

It was assumed that special maintenance and rehab costs would occur every 20 years at 5% of the project price of the Alternative 1 and 3% of the project price of Alternative 2 and 3

9 Items excluded from the Cost Estimate

Facilitating with the Croxton Intermodal Terminal Not Included.

Owner's Contingency and a risk based assessment of project risks, unknowns, and schedule impacts. A thorough risk assessment and statistical analysis to develop an Owner's Contractor Contingency and confidence level should be developed for a more insightful Contractor Contingency value.

The Owner's facilities onsite

Owner's direct management costs, running, and maintenance costs

Planning and enquiry costs, including legal expenses and fees

Site investigation

Land acquisition costs

Tests and inspections performed by others, apart from that listed in the estimate

Compensatory costs to other interested parties

Protection or relocation of existing utilities (unless stated)

Hazardous or contaminated mitigation (unless stated)

Agency engineering, management and administrative costs

No allowance has been included for construction managers / programs managers / project managers overseeing the work's completion.

Quality Assurance to be carried out by the Owner

Discovery of archaeological artifacts and their consequential effect on the project

Local taxes and duties

No interim repairs, stabilization, or safety measures are included from now until rehabilitation.

10 Items that may affect the cost estimate

Modifications to the scope of work included in this estimate

Special phasing requirements (unless stated)

Restrictive technical specifications or excessive contract conditions

Any other non-competitive bid situations

Bids delayed beyond the projected schedule

11 Statements of Probable Cost

Arup has no control over the cost of labor and materials, general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of the experience, qualifications, and best judgment of the professional consultant familiar with the construction industry. Arup cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

12 Recommendation for Cost Control

Arup recommends that the Owner carefully review this document, including line item descriptions, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and markups. If the project is over budget, or if there are unresolved budgeting issues, alternate system schemes should be evaluated before proceeding into the construction phase.

13 Request for Modifications

Requests for modifications of any apparent errors or omissions to this document must be made to Arup within thirty (30) days of receipt of this estimate. Otherwise, it will be understood that the content has been concurred with and accepted by the Owner.

Life Cycle Cost of Hackensack Bridge Options

Date August 27th, 2020

Inputs

Item	Value
Discount Rate	4.0%
Capital Cost Alternative 1	\$ 45,820,250
Capital Cost Alternative 2	\$ 48,097,807
Capital Cost Alternative 3	\$ 47,643,940
Mechanical Replacement	\$ 11,000,000
Life Cycle Length	50

Net Present Value

Option	NPV
Alternative 1	\$ 28,077,588
Alternative 2	\$ 25,365,672
Alternative 3	\$ 8,253,976

Average Yearly Life Cycle Cost (NPV)

Option	Yearly Cost
Alternative 1	\$ 561,552
Alternative 2	\$ 507,313
Alternative 3	\$ 165,080

Description

The Life Cycle Cost Analysis consists of high-level operation, maintenance, and replacement costs for the three bridge options of the Hackensack river crossing. The costs were calculated on a per annum basis and discounted to provide a view of the present value of future costs in today's dollars. The discounted yearly costs were summed to provide a Net Present Value for each alternative to provide a comparison of the life cycle costs between alternatives. The average yearly NPV cost was also calculated to demonstrate the average yearly discounted cost for operation, maintenance, and replacement works for each alternative.

*Note: The discount rate is reflective of recent bond rates of the NJ Transportation Trust Fund Authority
(<https://www.state.nj.us/ttfa/financing/bonds.shtml>)

Hackensack Option Summary

Date August 27th, 2020

Alternative 1: Full Rehabilitation

This option includes complete rehabilitation of the existing bridge, both approach spans and center truss span. The approach spans substructure will be rehabilitated such that the approach spans are raised by 3ft to raise the girders above the flood level, taking into account sea level rise. The center truss will be returned to operable condition, including all new mechanical equipment for the movable swing span

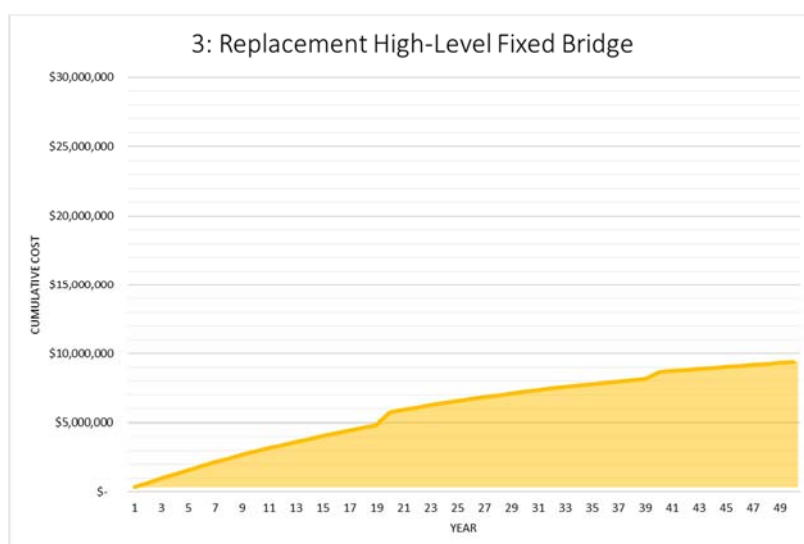
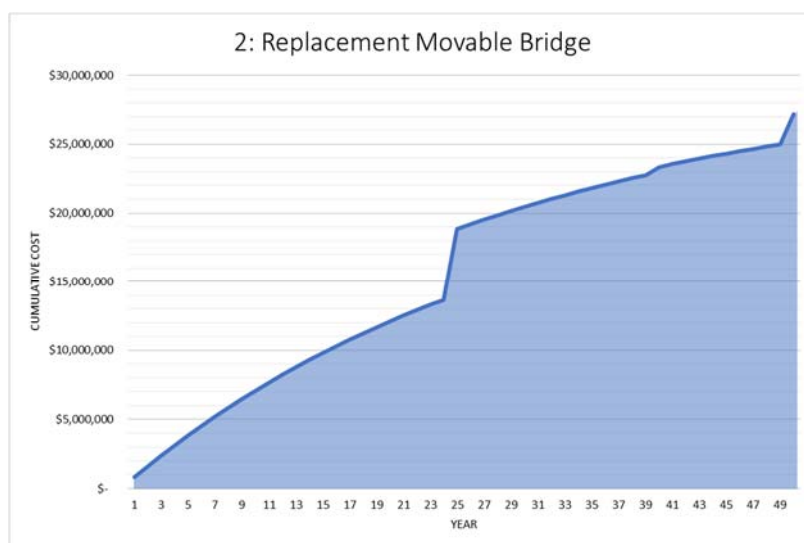
Alternative 2: Replacement Movable Bridge

This option includes complete demolition of the existing bridge and replacement with a new low level movable bridge. The approach spans are constructed from precast concrete elements to increase durability in comparison with the existing steel structure. The navigation span will be a lightweight pedestrian truss swing span.

Alternative 3: Replacement High-Level Bridge

This option includes complete demolition of the existing bridge and replacement with a new high-level fixed bridge that spans the navigation channel, providing 50ft required navigation clearance. The bridge will be constructed with steel girder approach spans and a long span pedestrian truss over the navigation channel. The bridge will be approximately 2260ft in length in order to climb to the required elevation over the navigation channel at the maximum 5% grade.

Hackensack Bridge – Life Cycle Cost Comparison



Discount Rate		Source															
Year				0		1		2		3		4		5		6	
Discount Rate		NJ Transportation Trust Fund Authority		4.0%		4.0%		4.0%		4.0%		4.0%		4.0%		4.0%	
Discount Factor				1		0.961538462		0.924556213		0.888996359		0.854804191		0.821927107		0.790314526	
Discounted Costs																	
Alternative 1	Per Annum Cost			\$	972,000	\$	934,615	\$	898,669	\$	864,104	\$	830,870	\$	798,913	\$	768,186
Operations				\$	570,000	\$	548,077	\$	526,997	\$	506,728	\$	487,238	\$	468,498	\$	450,479
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	450,000	\$	432,692	\$	416,050	\$	400,048	\$	384,662	\$	369,867	\$	355,642
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	120,000	\$	115,385	\$	110,947	\$	106,680	\$	102,577	\$	98,631	\$	94,838
Maintenance				\$	402,000	\$	386,538	\$	371,672	\$	357,377	\$	343,631	\$	330,415	\$	317,706
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	192,000	\$	184,615	\$	177,515	\$	170,687	\$	164,122	\$	157,810	\$	151,740
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.	\$	150,000	\$	144,231	\$	138,683	\$	133,349	\$	128,221	\$	123,289	\$	118,547
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)	\$	60,000	\$	57,692	\$	55,473	\$	53,340	\$	51,288	\$	49,316	\$	47,419
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	25 years	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2	Per Annum Cost			\$	872,000	\$	838,462	\$	806,213	\$	775,205	\$	745,389	\$	716,720	\$	689,154
Operations				\$	570,000	\$	548,077	\$	526,997	\$	506,728	\$	487,238	\$	468,498	\$	450,479
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	450,000	\$	432,692	\$	416,050	\$	400,048	\$	384,662	\$	369,867	\$	355,642
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	120,000	\$	115,385	\$	110,947	\$	106,680	\$	102,577	\$	98,631	\$	94,838
Maintenance				\$	302,000	\$	290,385	\$	279,216	\$	268,477	\$	258,151	\$	248,222	\$	238,675
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	192,000	\$	184,615	\$	177,515	\$	170,687	\$	164,122	\$	157,810	\$	151,740
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections	\$	50,000	\$	48,077	\$	46,228	\$	44,450	\$	42,740	\$	41,096	\$	39,516
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)	\$	60,000	\$	57,692	\$	55,473	\$	53,340	\$	51,288	\$	49,316	\$	47,419
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	Every 25 years	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3	Per Annum Cost			\$	340,000	\$	326,923	\$	314,349	\$	302,259	\$	290,633	\$	279,455	\$	268,707
Operations				\$	20,000	\$	19,231	\$	18,491	\$	17,780	\$	17,096	\$	16,439	\$	15,806
Electrical Operation	\$	20,000	Allowance electrical bridge lighting	\$	20,000	\$	19,231	\$	18,491	\$	17,780	\$	17,096	\$	16,439	\$	15,806
Maintenance				\$	320,000	\$	307,692	\$	295,858	\$	284,479	\$	273,537	\$	263,017	\$	252,901
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections	\$	200,000	\$	192,308	\$	184,911	\$	177,799	\$	170,961	\$	164,385	\$	158,063
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)	\$	120,000	\$	115,385	\$	110,947	\$	106,680	\$	102,577	\$	98,631	\$	94,838
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Cumulative Discounted Costs																	
Alternative 1	Per Annum Cost			\$	972,000	\$	1,906,615	\$	2,805,284	\$	3,669,388	\$	4,500,258	\$	5,299,171	\$	6,067,357
Operations				\$	570,000	\$	1,118,077	\$	1,645,074	\$	2,151,802	\$	2,639,040	\$	3,107,539	\$	3,558,018
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	450,000	\$	882,692	\$	1,298,743	\$	1,698,791	\$	2,083,453	\$	2,453,320	\$	2,808,962
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	120,000	\$	235,385	\$	346,331	\$	453,011	\$	555,587	\$	654,219	\$	749,056
Maintenance				\$	402,000	\$	788,538	\$	1,160,210	\$	1,517,587	\$	1,861,218	\$	2,191,633	\$	2,509,339
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	192,000	\$	376,615	\$	554,130	\$	724,817	\$	888,940	\$	1,046,750	\$	1,198,490
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.	\$	150,000	\$	294,231	\$	432,914	\$	566,264	\$	694,484	\$	817,773	\$	936,321
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)	\$	60,000	\$	117,692	\$	173,166	\$	226,505	\$	277,794	\$	327,109	\$	374,528
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	25 years	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2	Per Annum Cost			\$	872,000	\$	1,710,462	\$	2,516,675	\$	3,291,879	\$	4,037,269	\$	4,753,989	\$	5,443,143
Operations				\$	570,000	\$	1,118,077	\$	1,645,074	\$	2,151,802	\$	2,639,040	\$	3,107,539	\$	3,558,018
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	450,000	\$	882,692	\$	1,298,743	\$	1,698,791	\$	2,083,453	\$	2,453,320	\$	2,808,962
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	120,000	\$	235,385	\$	346,331	\$	453,011	\$	555,587	\$	654,219	\$	749,056
Maintenance				\$	302,000	\$	592,385	\$	871,601	\$	1,140,077	\$	1,398,228	\$	1,646,450	\$	1,885,125
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	192,000	\$	376,615	\$	554,130	\$	724,817	\$	888,940	\$	1,046,750	\$	1,198,490
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections	\$	50,000	\$	98,077	\$	144,305	\$	188,755	\$	231,495	\$	272,591	\$	312,107
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)	\$	60,000	\$	117,692	\$	173,166	\$	226,505	\$	277,794	\$	327,109	\$	374,528
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	Every 25 years	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3	Per Annum Cost			\$	340,000	\$	666,923	\$	981,272	\$	1,283,531	\$	1,574,164	\$	1,853,620	\$	2,122,327
Operations				\$	20,000	\$	39,231	\$	57,722	\$	75,502	\$	92,598	\$	109,036	\$	124,843
Electrical Operation	\$	20,000	Allowance electrical bridge lighting	\$	20,000	\$	39,231	\$	57,722	\$	75,502	\$	92,598	\$	109,036	\$	124,843
Maintenance				\$	320,000	\$	627,692	\$	923,550	\$	1,208,029	\$	1,481,566	\$	1,744,583	\$	1,997,484
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections	\$	200,000	\$	392,308	\$	577,219	\$	755,018	\$	925,979	\$	1,090,364	\$	1,248,427
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)	\$	120,000	\$	235,385	\$	346,331	\$	453,011	\$	555,587	\$	654,219	\$	749,056
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-

Discount Rate				Source																	
Year								7		8		9		10		11		12		13	
Discount Rate				NJ Transportation Trust Fund Authority				4.0%		4.0%		4.0%		4.0%		4.0%		4.0%		4.0%	
Discount Factor								0.759917813		0.730690205		0.702586736		0.675564169		0.649580932		0.62459705		0.600574086	
Discounted Costs																					
Alternative 1		Per Annum Cost						\$	738,640	\$	710,231	\$	682,914	\$	656,648	\$	631,393	\$	607,108	\$	583,758
Operations								\$	433,153	\$	416,493	\$	400,474	\$	385,072	\$	370,261	\$	356,020	\$	342,327
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)					\$	341,963	\$	328,811	\$	316,164	\$	304,004	\$	292,311	\$	281,069	\$	270,258
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting					\$	91,190	\$	87,683	\$	84,310	\$	81,068	\$	77,950	\$	74,952	\$	72,069
Maintenance								\$	305,487	\$	293,737	\$	282,440	\$	271,577	\$	261,132	\$	251,088	\$	241,431
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials					\$	145,904	\$	140,293	\$	134,897	\$	129,708	\$	124,720	\$	119,923	\$	115,310
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.					\$	113,988	\$	109,604	\$	105,388	\$	101,335	\$	97,437	\$	93,690	\$	90,086
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)					\$	45,595	\$	43,841	\$	42,155	\$	40,534	\$	38,975	\$	37,476	\$	36,034
Replacement								\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	25 years					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2		Per Annum Cost						\$	662,648	\$	637,162	\$	612,656	\$	589,092	\$	566,435	\$	544,649	\$	523,701
Operations								\$	433,153	\$	416,493	\$	400,474	\$	385,072	\$	370,261	\$	356,020	\$	342,327
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)					\$	341,963	\$	328,811	\$	316,164	\$	304,004	\$	292,311	\$	281,069	\$	270,258
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting					\$	91,190	\$	87,683	\$	84,310	\$	81,068	\$	77,950	\$	74,952	\$	72,069
Maintenance								\$	229,495	\$	220,668	\$	212,181	\$	204,020	\$	196,173	\$	188,628	\$	181,373
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials					\$	145,904	\$	140,293	\$	134,897	\$	129,708	\$	124,720	\$	119,923	\$	115,310
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections					\$	37,996	\$	36,535	\$	35,129	\$	33,778	\$	32,479	\$	31,230	\$	30,029
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)					\$	45,595	\$	43,841	\$	42,155	\$	40,534	\$	38,975	\$	37,476	\$	36,034
Replacement								\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	Every 25 years					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3		Per Annum Cost						\$	258,372	\$	248,435	\$	238,879	\$	229,692	\$	220,858	\$	212,363	\$	204,195
Operations								\$	15,198	\$	14,614	\$	14,052	\$	13,511	\$	12,992	\$	12,492	\$	12,011
Electrical Operation	\$	20,000	Allowance electrical bridge lighting					\$	15,198	\$	14,614	\$	14,052	\$	13,511	\$	12,992	\$	12,492	\$	12,011
Maintenance								\$	243,174	\$	233,821	\$	224,828	\$	216,181	\$	207,866	\$	199,871	\$	192,184
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections					\$	151,984	\$	146,138	\$	140,517	\$	135,113	\$	129,916	\$	124,919	\$	120,115
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)					\$	91,190	\$	87,683	\$	84,310	\$	81,068	\$	77,950	\$	74,952	\$	72,069
Replacement								\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Cumulative Discounted Costs																					
Alternative 1		Per Annum Cost						\$	6,805,997	\$	7,516,228	\$	8,199,142	\$	8,855,791	\$	9,487,183	\$	10,094,292	\$	10,678,050
Operations								\$	3,991,171	\$	4,407,665	\$	4,808,139	\$	5,193,211	\$	5,563,472	\$	5,919,492	\$	6,261,819
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)					\$	3,150,925	\$	3,479,735	\$	3,795,899	\$	4,099,903	\$	4,392,215	\$	4,673,283	\$	4,943,542
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting					\$	840,247	\$	927,929	\$	1,012,240	\$	1,093,307	\$	1,171,257	\$	1,246,209	\$	1,318,278
Maintenance								\$	2,814,826	\$	3,108,563	\$	3,391,003	\$	3,662,580	\$	3,923,712	\$	4,174,800	\$	4,416,230
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials					\$	1,344,394	\$	1,484,687	\$	1,619,584	\$	1,749,292	\$	1,874,012	\$	1,993,934	\$	2,109,244
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.					\$	1,050,308	\$	1,159,912	\$	1,265,300	\$	1,366,634	\$	1,464,072	\$	1,557,761	\$	1,647,847
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)					\$	420,123	\$	463,965	\$	506,120	\$	546,654	\$	585,629	\$	623,104	\$	659,139
Replacement								\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	25 years					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2		Per Annum Cost						\$	6,105,792	\$	6,742,954	\$	7,355,609	\$	7,944,701	\$	8,511,136	\$	9,055,784	\$	9,579,485
Operations								\$	3,991,171	\$	4,407,665	\$	4,808,139	\$	5,193,211	\$	5,563,472	\$	5,919,492	\$	6,261,819
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)					\$	3,150,925	\$	3,479,735	\$	3,795,899	\$	4,099,903	\$	4,392,215	\$	4,673,283	\$	4,943,542
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting					\$	840,247	\$	927,929	\$	1,012,240	\$	1,093,307	\$	1,171,257	\$	1,246,209	\$	1,318,278
Maintenance								\$	2,114,621	\$	2,335,289	\$	2,547,470	\$	2,751,491	\$	2,947,664	\$	3,136,292	\$	3,317,666
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials					\$	1,344,394	\$	1,484,687	\$	1,619,584	\$	1,749,292	\$	1,874,012	\$	1,993,934	\$	2,109,244
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections					\$	350,103	\$	386,637	\$	421,767	\$	455,545	\$	488,024	\$	519,254	\$	549,282
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)					\$	420,123	\$	463,965	\$	506,120	\$	546,654	\$	585,629	\$	623,104	\$	659,139
Replacement								\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Mechanical Replacement	\$	11,000,000	Every 25 years					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3		Per Annum Cost						\$	2,380,699	\$	2,629,133	\$	2,868,013	\$	3,097,705	\$	3,318,562	\$	3,530,925	\$	3,735,120
Operations								\$	140,041	\$	154,655	\$	168,707	\$	182,218	\$	195,210	\$	207,701	\$	219,713
Electrical Operation	\$	20,000	Allowance electrical bridge lighting					\$	140,041	\$	154,655	\$	168,707	\$	182,218	\$	195,210	\$	207,701	\$	219,713
Maintenance								\$	2,240,657	\$	2,474,478	\$	2,699,306	\$	2,915,487	\$	3,123,353	\$	3,323,224	\$	3,515,407
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections					\$	1,400,411	\$	1,546,549	\$	1,687,066	\$	1,822,179	\$	1,952,095	\$	2,077,015	\$	2,197,130
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)					\$	840,247	\$	927,929	\$	1,012,240	\$	1,093,307	\$	1,171,257	\$	1,246,209	\$	1,318,278
Replacement								\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost					\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-

Discount Rate				Source																													
Year								14		15		16		17		18		19		20													
Discount Rate				NJ Transportation Trust Fund Authority				4.0%		4.0%		4.0%		4.0%		4.0%		4.0%		4.0%													
Discount Factor								0.577475083		0.555264503		0.533908176		0.513373246		0.493628121		0.474642424		0.456386946													
Discounted Costs																																	
Alternative 1		Per Annum Cost				\$		561,306		\$		539,717		\$		518,959		\$		498,999		\$		479,807		\$		461,352		\$		1,489,196	
Operations						\$		329,161		\$		316,501		\$		304,328		\$		292,623		\$		281,368		\$		270,546		\$		260,141	
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$		259,864		\$		249,869		\$		240,259		\$		231,018		\$		222,133		\$		213,589		\$		205,374	
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$		69,297		\$		66,632		\$		64,069		\$		61,605		\$		59,235		\$		56,957		\$		54,766	
Maintenance						\$		232,145		\$		223,216		\$		214,631		\$		206,376		\$		198,439		\$		190,806		\$		183,468	
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$		110,875		\$		106,611		\$		102,510		\$		98,568		\$		94,777		\$		91,131		\$		87,626	
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$		86,621		\$		83,290		\$		80,086		\$		77,006		\$		74,044		\$		71,196		\$		68,458	
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$		34,649		\$		33,316		\$		32,034		\$		30,802		\$		29,618		\$		28,479		\$		27,383	
Replacement						\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		1,045,588	
Mechanical Replacement		\$	11,000,000	25 years		\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		-	
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		1,045,588.19	
Alternative 2		Per Annum Cost				\$		503,558		\$		484,191		\$		465,568		\$		447,661		\$		430,444		\$		413,888		\$		1,056,506	
Operations						\$		329,161		\$		316,501		\$		304,328		\$		292,623		\$		281,368		\$		270,546		\$		260,141	
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$		259,864		\$		249,869		\$		240,259		\$		231,018		\$		222,133		\$		213,589		\$		205,374	
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$		69,297		\$		66,632		\$		64,069		\$		61,605		\$		59,235		\$		56,957		\$		54,766	
Maintenance						\$		174,397		\$		167,690		\$		161,240		\$		155,039		\$		149,076		\$		143,342		\$		137,829	
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$		110,875		\$		106,611		\$		102,510		\$		98,568		\$		94,777		\$		91,131		\$		87,626	
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$		28,874		\$		27,763		\$		26,695		\$		25,669		\$		24,681		\$		23,732		\$		22,819	
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$		34,649		\$		33,316		\$		32,034		\$		30,802		\$		29,618		\$		28,479		\$		27,383	
Replacement						\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		658,536	
Mechanical Replacement		\$	11,000,000	Every 25 years		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-</td>		\$		-	
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">658,536</td>		\$		658,536	
Alternative 3		Per Annum Cost				\$		196,342		\$		188,790		\$		181,529		\$		174,547		\$		167,834		\$		161,378		\$		807,494	
Operations						\$		11,550		\$		11,105		\$		10,678		\$		10,267		\$		9,873		\$		9,493		\$		9,128	
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$		11,550		\$		11,105		\$		10,678		\$		10,267		\$		9,873		\$		9,493		\$		9,128	
Maintenance						\$		184,792		\$		177,685		\$		170,851		\$		164,279		\$		157,961		\$		151,886		\$		146,044	
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$		115,495		\$		111,053		\$		106,782		\$		102,675		\$		98,726		\$		94,928		\$		91,277	
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$		69,297		\$		66,632		\$		64,069		\$		61,605		\$		59,235		\$		56,957		\$		54,766	
Replacement						\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		652,322	
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">652,322</td>		\$		652,322	
Cumulative Discounted Costs																																	
Alternative 1		Per Annum Cost				\$		11,239,355		\$		11,779,073		\$		12,298,031		\$		12,797,030		\$		13,276,837		\$		13,738,189		\$		15,227,385	
Operations						\$		6,590,980		\$		6,907,481		\$		7,211,808		\$		7,504,431		\$		7,785,799		\$		8,056,345		\$		8,316,486	
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$		5,203,405		\$		5,453,274		\$		5,693,533		\$		5,924,551		\$		6,146,684		\$		6,360,273		\$		6,565,647	
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$		1,387,575		\$		1,454,206		\$		1,518,275		\$		1,579,880		\$		1,639,116		\$		1,696,073		\$		1,750,839	
Maintenance						\$		4,648,375		\$		4,871,592		\$		5,086,223		\$		5,292,599		\$		5,491,037		\$		5,681,844		\$		5,865,311	
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$		2,220,120		\$		2,326,730		\$		2,429,241		\$		2,527,808		\$		2,622,585		\$		2,713,716		\$		2,801,343	
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$		1,734,468		\$		1,817,758		\$		1,897,844		\$		1,974,850		\$		2,048,895		\$		2,120,091		\$		2,188,549	
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$		693,787		\$		727,103		\$		759,138		\$		789,940		\$		819,558		\$		848,036		\$		875,420	
Replacement						\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		1,045,588	
Mechanical Replacement		\$	11,000,000	25 years		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-</td>		\$		-	
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">1,045,588</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">1,045,588</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">1,045,588</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">1,045,588</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">1,045,588</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">1,045,588</td>		\$		1,045,588	
Alternative 2		Per Annum Cost				\$		10,083,043		\$		10,567,234		\$		11,032,802		\$		11,480,463		\$		11,910,907		\$		12,324,795		\$		13,381,301	
Operations						\$		6,590,980		\$		6,907,481		\$		7,211,808		\$		7,504,431		\$		7,785,799		\$		8,056,345		\$		8,316,486	
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$		5,203,405		\$		5,453,274		\$		5,693,533		\$		5,924,551		\$		6,146,684		\$		6,360,273		\$		6,565,647	
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$		1,387,575		\$		1,454,206		\$		1,518,275		\$		1,579,880		\$		1,639,116		\$		1,696,073		\$		1,750,839	
Maintenance						\$		3,492,063		\$		3,659,753		\$		3,820,993		\$		3,976,032		\$		4,125,108		\$		4,268,450		\$		4,406,279	
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$		2,220,120		\$		2,326,730		\$		2,429,241		\$		2,527,808		\$		2,622,585		\$		2,713,716		\$		2,801,343	
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$		578,156		\$		605,919		\$		632,615		\$		658,283		\$		682,965		\$		706,697		\$		729,516	
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$		693,787		\$		727,103		\$		759,138		\$		789,940		\$		819,558		\$		848,036		\$		875,420	
Replacement						\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		658,536	
Mechanical Replacement		\$	11,000,000	Every 25 years		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-</td>		\$		-	
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">658,536</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">658,536</td>		\$		658,536	
Alternative 3		Per Annum Cost				\$		3,931,462		\$		4,120,252		\$		4,301,781		\$		4,476,327		\$		4,644,161		\$		4,805,539		\$		5,613,033	
Operations						\$		231,262		\$		242,368		\$		253,046		\$		263,313		\$		273,186		\$		282,679		\$		291,807	
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$		231,262		\$		242,368		\$		253,046		\$		263,313		\$		273,186		\$		282,679		\$		291,807	
Maintenance						\$		3,700,199		\$		3,877,884		\$		4,048,735		\$		4,213,014		\$		4,370,975		\$		4,522,861		\$		4,668,904	
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$		2,312,625		\$		2,423,677		\$		2,530,459		\$		2,633,134		\$		2,731,859		\$		2,826,788		\$		2,918,065	
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$		1,387,575		\$		1,454,206		\$		1,518,275		\$		1,579,880		\$		1,639,116		\$		1,696,073		\$		1,750,839	
Replacement						\$		-		\$		-		\$		-		\$		-		\$		-		\$		-		\$		652,322	
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">-<td colspan="2">\$</td><td colspan="2">652,322</td></td>		\$		- <td colspan="2">\$</td> <td colspan="2">652,322</td>		\$		652,322	

Discount Rate		Source													
Year				21		22		23		24		25		26	
Discount Rate		NJ Transportation Trust Fund Authority													
Discount Factor				4.0%		4.0%		4.0%		4.0%		4.0%		4.0%	
				0.438833602		0.421955387		0.405726333		0.390121474		0.375116802		0.360689233	
Discounted Costs															
Alternative 1	Per Annum Cost			\$	426,546	\$	410,141	\$	394,366	\$	379,198	\$	4,490,898	\$	350,590
Operations				\$	250,135	\$	240,515	\$	231,264	\$	222,369	\$	213,817	\$	205,593
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	197,475	\$	189,880	\$	182,577	\$	175,555	\$	168,803	\$	162,310
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	52,660	\$	50,635	\$	48,687	\$	46,815	\$	45,014	\$	43,283
Maintenance				\$	176,411	\$	169,626	\$	163,102	\$	156,829	\$	150,797	\$	144,997
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	84,256	\$	81,015	\$	77,899	\$	74,903	\$	72,022	\$	69,252
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.	\$	65,825	\$	63,293	\$	60,859	\$	58,518	\$	56,268	\$	54,103
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)	\$	26,330	\$	25,317	\$	24,344	\$	23,407	\$	22,507	\$	21,641
Replacement				\$	-	\$	-	\$	-	\$	-	\$	4,126,285	\$	-
Mechanical Replacement	\$	11,000,000	25 years	\$	-	\$	-	\$	-	\$	-	\$	4,126,285	\$	-
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2	Per Annum Cost			\$	382,663	\$	367,945	\$	353,793	\$	340,186	\$	4,453,387	\$	314,521
Operations				\$	250,135	\$	240,515	\$	231,264	\$	222,369	\$	213,817	\$	205,593
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	197,475	\$	189,880	\$	182,577	\$	175,555	\$	168,803	\$	162,310
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	52,660	\$	50,635	\$	48,687	\$	46,815	\$	45,014	\$	43,283
Maintenance				\$	132,528	\$	127,431	\$	122,529	\$	117,817	\$	113,285	\$	108,928
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	84,256	\$	81,015	\$	77,899	\$	74,903	\$	72,022	\$	69,252
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections	\$	21,942	\$	21,098	\$	20,286	\$	19,506	\$	18,756	\$	18,034
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)	\$	26,330	\$	25,317	\$	24,344	\$	23,407	\$	22,507	\$	21,641
Replacement				\$	-	\$	-	\$	-	\$	-	\$	4,126,285	\$	-
Mechanical Replacement	\$	11,000,000	Every 25 years	\$	-	\$	-	\$	-	\$	-	\$	4,126,285	\$	-
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3	Per Annum Cost			\$	149,203	\$	143,465	\$	137,947	\$	132,641	\$	127,540	\$	122,634
Operations				\$	8,777	\$	8,439	\$	8,115	\$	7,802	\$	7,502	\$	7,214
Electrical Operation	\$	20,000	Allowance electrical bridge lighting	\$	8,777	\$	8,439	\$	8,115	\$	7,802	\$	7,502	\$	7,214
Maintenance				\$	140,427	\$	135,026	\$	129,832	\$	124,839	\$	120,037	\$	115,421
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections	\$	87,767	\$	84,391	\$	81,145	\$	78,024	\$	75,023	\$	72,138
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)	\$	52,660	\$	50,635	\$	48,687	\$	46,815	\$	45,014	\$	43,283
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Cumulative Discounted Costs															
Alternative 1	Per Annum Cost			\$	15,653,932	\$	16,064,072	\$	16,458,438	\$	16,837,636	\$	21,328,535	\$	21,679,125
Operations				\$	8,566,621	\$	8,807,136	\$	9,038,400	\$	9,260,769	\$	9,474,586	\$	9,680,178
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	6,763,122	\$	6,953,002	\$	7,135,579	\$	7,311,133	\$	7,479,936	\$	7,642,246
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	1,803,499	\$	1,854,134	\$	1,902,821	\$	1,949,636	\$	1,994,650	\$	2,037,932
Maintenance				\$	6,041,722	\$	6,211,348	\$	6,374,450	\$	6,531,279	\$	6,682,076	\$	6,827,073
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	2,885,599	\$	2,966,614	\$	3,044,514	\$	3,119,417	\$	3,191,439	\$	3,260,692
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.	\$	2,254,374	\$	2,317,667	\$	2,378,526	\$	2,437,044	\$	2,493,312	\$	2,547,415
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)	\$	901,750	\$	927,067	\$	951,411	\$	974,818	\$	997,325	\$	1,018,966
Replacement				\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	5,171,873	\$	5,171,873
Mechanical Replacement	\$	11,000,000	25 years	\$	-	\$	-	\$	-	\$	-	\$	4,126,285	\$	4,126,285
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588
Alternative 2	Per Annum Cost			\$	13,763,964	\$	14,131,909	\$	14,485,702	\$	14,825,888	\$	19,279,275	\$	19,593,796
Operations				\$	8,566,621	\$	8,807,136	\$	9,038,400	\$	9,260,769	\$	9,474,586	\$	9,680,178
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	6,763,122	\$	6,953,002	\$	7,135,579	\$	7,311,133	\$	7,479,936	\$	7,642,246
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	1,803,499	\$	1,854,134	\$	1,902,821	\$	1,949,636	\$	1,994,650	\$	2,037,932
Maintenance				\$	4,538,806	\$	4,666,237	\$	4,788,766	\$	4,906,583	\$	5,019,868	\$	5,128,796
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	2,885,599	\$	2,966,614	\$	3,044,514	\$	3,119,417	\$	3,191,439	\$	3,260,692
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections	\$	751,458	\$	772,556	\$	792,842	\$	812,348	\$	831,104	\$	849,138
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)	\$	901,750	\$	927,067	\$	951,411	\$	974,818	\$	997,325	\$	1,018,966
Replacement				\$	658,536	\$	658,536	\$	658,536	\$	658,536	\$	4,784,821	\$	4,784,821
Mechanical Replacement	\$	11,000,000	Every 25 years	\$	-	\$	-	\$	-	\$	-	\$	4,126,285	\$	4,126,285
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost	\$	658,536	\$	658,536	\$	658,536	\$	658,536	\$	658,536	\$	658,536
Alternative 3	Per Annum Cost			\$	5,762,237	\$	5,905,701	\$	6,043,648	\$	6,176,290	\$	6,303,829	\$	6,426,464
Operations				\$	300,583	\$	309,022	\$	317,137	\$	324,939	\$	332,442	\$	339,655
Electrical Operation	\$	20,000	Allowance electrical bridge lighting	\$	300,583	\$	309,022	\$	317,137	\$	324,939	\$	332,442	\$	339,655
Maintenance				\$	4,809,331	\$	4,944,357	\$	5,074,189	\$	5,199,028	\$	5,319,066	\$	5,434,486
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections	\$	3,005,832	\$	3,090,223	\$	3,171,368	\$	3,249,393	\$	3,324,416	\$	3,396,554
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)	\$	1,803,499	\$	1,854,134	\$	1,902,821	\$	1,949,636	\$	1,994,650	\$	2,037,932
Replacement				\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost	\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322

Discount Rate				Source											
Year															
Discount Rate				NJ Transportation Trust Fund Authority											
Discount Factor															
Discounted Costs															
Alternative 1				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	156,067	\$	150,065	\$	144,293	\$	138,743	\$	128,276
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	41,618	\$	40,017	\$	38,478	\$	36,998	\$	34,207
Maintenance															
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	66,589	\$	64,028	\$	61,565	\$	59,197	\$	54,731
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$	52,022	\$	50,022	\$	48,098	\$	46,248	\$	42,759
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$	20,809	\$	20,009	\$	19,239	\$	18,499	\$	17,103
Replacement															
Mechanical Replacement		\$	11,000,000	25 years		\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	156,067	\$	150,065	\$	144,293	\$	138,743	\$	128,276
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	41,618	\$	40,017	\$	38,478	\$	36,998	\$	34,207
Maintenance															
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	66,589	\$	64,028	\$	61,565	\$	59,197	\$	54,731
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$	17,341	\$	16,674	\$	16,033	\$	15,416	\$	14,253
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$	20,809	\$	20,009	\$	19,239	\$	18,499	\$	17,103
Replacement															
Mechanical Replacement		\$	11,000,000	Every 25 years		\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3				Per Annum Cost											
Operations															
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$	6,936	\$	6,670	\$	6,413	\$	6,166	\$	5,701
Maintenance															
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$	69,363	\$	66,695	\$	64,130	\$	61,664	\$	57,012
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$	41,618	\$	40,017	\$	38,478	\$	36,998	\$	34,207
Replacement															
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$	-	\$	-	\$	-	\$	-	\$	-
Cumulative Discounted Costs															
Alternative 1				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	7,798,314	\$	7,948,378	\$	8,092,672	\$	8,231,415	\$	8,493,098
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	2,079,550	\$	2,119,568	\$	2,158,046	\$	2,195,044	\$	2,264,826
Maintenance															
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	3,327,280	\$	3,391,308	\$	3,452,873	\$	3,512,070	\$	3,623,722
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$	2,599,438	\$	2,649,459	\$	2,697,557	\$	2,743,805	\$	2,831,033
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$	1,039,775	\$	1,059,784	\$	1,079,023	\$	1,097,522	\$	1,132,413
Replacement															
Mechanical Replacement		\$	11,000,000	25 years		\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588
Alternative 2				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	7,798,314	\$	7,948,378	\$	8,092,672	\$	8,231,415	\$	8,493,098
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	2,079,550	\$	2,119,568	\$	2,158,046	\$	2,195,044	\$	2,264,826
Maintenance															
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	3,327,280	\$	3,391,308	\$	3,452,873	\$	3,512,070	\$	3,623,722
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$	866,479	\$	883,153	\$	899,186	\$	914,602	\$	943,678
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$	1,039,775	\$	1,059,784	\$	1,079,023	\$	1,097,522	\$	1,132,413
Replacement															
Mechanical Replacement		\$	11,000,000	Every 25 years		\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$	658,536	\$	658,536	\$	658,536	\$	658,536	\$	658,536
Alternative 3				Per Annum Cost											
Operations															
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$	346,592	\$	353,261	\$	359,674	\$	365,841	\$	377,471
Maintenance															
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$	3,465,917	\$	3,532,613	\$	3,596,743	\$	3,658,407	\$	3,774,710
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$	2,079,550	\$	2,119,568	\$	2,158,046	\$	2,195,044	\$	2,264,826
Replacement															
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322

Discount Rate		Source															
Year				33		34		35		36		37		38			
Discount Rate		NJ Transportation Trust Fund Authority		4.0%		4.0%		4.0%		4.0%		4.0%		4.0%			
Discount Factor				0.274094173		0.26355209		0.253415471		0.243668722		0.234296848		0.225285431			
Discounted Costs																	
Alternative 1	Per Annum Cost			\$	266,420	\$	256,173	\$	246,320	\$	236,846	\$	227,737	\$	218,977		
Operations				\$	156,234	\$	150,225	\$	144,447	\$	138,891	\$	133,549	\$	128,413		
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	123,342	\$	118,598	\$	114,037	\$	109,651	\$	105,434	\$	101,378		
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	32,891	\$	31,626	\$	30,410	\$	29,240	\$	28,116	\$	27,034		
Maintenance				\$	110,186	\$	105,948	\$	101,873	\$	97,955	\$	94,187	\$	90,565		
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	52,626	\$	50,602	\$	48,656	\$	46,784	\$	44,985	\$	43,255		
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.	\$	41,114	\$	39,533	\$	38,012	\$	36,550	\$	35,145	\$	33,793		
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)	\$	16,446	\$	15,813	\$	15,205	\$	14,620	\$	14,058	\$	13,517		
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Mechanical Replacement	\$	11,000,000	25 years	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Alternative 2	Per Annum Cost			\$	239,010	\$	229,817	\$	220,978	\$	212,479	\$	204,307	\$	196,449		
Operations				\$	156,234	\$	150,225	\$	144,447	\$	138,891	\$	133,549	\$	128,413		
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	123,342	\$	118,598	\$	114,037	\$	109,651	\$	105,434	\$	101,378		
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	32,891	\$	31,626	\$	30,410	\$	29,240	\$	28,116	\$	27,034		
Maintenance				\$	82,776	\$	79,593	\$	76,531	\$	73,588	\$	70,758	\$	68,036		
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	52,626	\$	50,602	\$	48,656	\$	46,784	\$	44,985	\$	43,255		
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections	\$	13,705	\$	13,178	\$	12,671	\$	12,183	\$	11,715	\$	11,264		
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)	\$	16,446	\$	15,813	\$	15,205	\$	14,620	\$	14,058	\$	13,517		
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Mechanical Replacement	\$	11,000,000	Every 25 years	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Alternative 3	Per Annum Cost			\$	93,192	\$	89,608	\$	86,161	\$	82,847	\$	79,661	\$	76,597		
Operations				\$	5,482	\$	5,271	\$	5,068	\$	4,873	\$	4,686	\$	4,506		
Electrical Operation	\$	20,000	Allowance electrical bridge lighting	\$	5,482	\$	5,271	\$	5,068	\$	4,873	\$	4,686	\$	4,506		
Maintenance				\$	87,710	\$	84,337	\$	81,093	\$	77,974	\$	74,975	\$	72,091		
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections	\$	54,819	\$	52,710	\$	50,683	\$	48,734	\$	46,859	\$	45,057		
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)	\$	32,891	\$	31,626	\$	30,410	\$	29,240	\$	28,116	\$	27,034		
Replacement				\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-		
Cumulative Discounted Costs																	
Alternative 1	Per Annum Cost			\$	23,783,385	\$	24,039,557	\$	24,285,877	\$	24,522,723	\$	24,750,460	\$	24,969,437		
Operations				\$	10,914,158	\$	11,064,383	\$	11,208,830	\$	11,347,721	\$	11,481,270	\$	11,609,683		
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	8,616,441	\$	8,735,039	\$	8,849,076	\$	8,958,727	\$	9,064,160	\$	9,165,539		
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	2,297,717	\$	2,329,344	\$	2,359,754	\$	2,388,994	\$	2,417,109	\$	2,444,144		
Maintenance				\$	7,697,354	\$	7,803,301	\$	7,905,175	\$	8,003,129	\$	8,097,317	\$	8,187,881		
Routine Mechanical Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	3,676,348	\$	3,726,950	\$	3,775,606	\$	3,822,390	\$	3,867,375	\$	3,910,630		
Annual Repairs	\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.	\$	2,872,147	\$	2,911,680	\$	2,949,692	\$	2,986,242	\$	3,021,387	\$	3,055,180		
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs, etc)	\$	1,148,859	\$	1,164,672	\$	1,179,877	\$	1,194,497	\$	1,208,555	\$	1,222,072		
Replacement				\$	5,171,873	\$	5,171,873	\$	5,171,873	\$	5,171,873	\$	5,171,873	\$	5,171,873		
Mechanical Replacement	\$	11,000,000	25 years	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285		
Structural Rehab	\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588	\$	1,045,588		
Alternative 2	Per Annum Cost			\$	21,481,568	\$	21,711,386	\$	21,932,364	\$	22,144,843	\$	22,349,150	\$	22,545,599		
Operations				\$	10,914,158	\$	11,064,383	\$	11,208,830	\$	11,347,721	\$	11,481,270	\$	11,609,683		
Bridge Operators	\$	450,000	Bridge Operators (5 people @ \$90k)	\$	8,616,441	\$	8,735,039	\$	8,849,076	\$	8,958,727	\$	9,064,160	\$	9,165,539		
Electrical Operation	\$	120,000	Allowance for bridge operation and bridge lighting	\$	2,297,717	\$	2,329,344	\$	2,359,754	\$	2,388,994	\$	2,417,109	\$	2,444,144		
Maintenance				\$	5,782,589	\$	5,862,182	\$	5,938,713	\$	6,012,301	\$	6,083,059	\$	6,151,095		
Routine Maintenance	\$	192,000	40 hrs/month @ \$75/hr+\$10k materials	\$	3,676,348	\$	3,726,950	\$	3,775,606	\$	3,822,390	\$	3,867,375	\$	3,910,630		
Annual Repairs	\$	50,000	Allowance for expansion joints, bearings, drainage, inspections	\$	957,382	\$	970,560	\$	983,231	\$	995,414	\$	1,007,129	\$	1,018,393		
Miscellaneous Repairs	\$	60,000	5k/month (cleaning, changing lightbulbs)	\$	1,148,859	\$	1,164,672	\$	1,179,877	\$	1,194,497	\$	1,208,555	\$	1,222,072		
Replacement				\$	4,784,821	\$	4,784,821	\$	4,784,821	\$	4,784,821	\$	4,784,821	\$	4,784,821		
Mechanical Replacement	\$	11,000,000	Every 25 years	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285		
Structural Rehab	\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost	\$	658,536	\$	658,536	\$	658,536	\$	658,536	\$	658,536	\$	658,536		
Alternative 3	Per Annum Cost			\$	7,162,522	\$	7,252,129	\$	7,338,291	\$	7,421,138	\$	7,500,799	\$	7,577,396		
Operations				\$	382,953	\$	388,224	\$	393,292	\$	398,166	\$	402,852	\$	407,357		
Electrical Operation	\$	20,000	Allowance electrical bridge lighting	\$	382,953	\$	388,224	\$	393,292	\$	398,166	\$	402,852	\$	407,357		
Maintenance				\$	6,127,247	\$	6,211,583	\$	6,292,676	\$	6,370,650	\$	6,445,625	\$	6,517,717		
Annual Repairs	\$	200,000	Allowance for expansion joints, bearings, drainage, inspections	\$	3,829,529	\$	3,882,240	\$	3,932,923	\$	3,981,656	\$	4,028,516	\$	4,073,573		
Miscellaneous Repairs	\$	120,000	10k/month (cleaning, changing lightbulbs)	\$	2,297,717	\$	2,329,344	\$	2,359,754	\$	2,388,994	\$	2,417,109	\$	2,444,144		
Replacement				\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322		
Structural Rehab	\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost	\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322	\$	652,322		

Discount Rate				Source											
Year				NJ Transportation Trust Fund Authority											
Discount Rate				4.0%											
Discount Factor				0.2166206060.2082890450.2002779280.192574930.1851682020.178046348											
Discounted Costs															
Alternative 1				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	97,479	\$	93,730	\$	90,125	\$	86,659	\$	83,326
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	25,994	\$	24,995	\$	24,033	\$	23,109	\$	22,220
Maintenance															
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	41,591	\$	39,991	\$	38,453	\$	36,974	\$	35,552
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$	32,493	\$	31,243	\$	30,042	\$	28,886	\$	27,775
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$	12,997	\$	12,497	\$	12,017	\$	11,554	\$	11,110
Replacement															
Mechanical Replacement		\$	11,000,000	25 years		\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$	-	\$	477,192.80	\$	-	\$	-	\$	-
Alternative 2				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	97,479	\$	93,730	\$	90,125	\$	86,659	\$	83,326
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	25,994	\$	24,995	\$	24,033	\$	23,109	\$	22,220
Maintenance															
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	41,591	\$	39,991	\$	38,453	\$	36,974	\$	35,552
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$	10,831	\$	10,414	\$	10,014	\$	9,629	\$	9,258
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$	12,997	\$	12,497	\$	12,017	\$	11,554	\$	11,110
Replacement															
Mechanical Replacement		\$	11,000,000	Every 25 years		\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$	-	\$	300,547	\$	-	\$	-	\$	-
Alternative 3				Per Annum Cost											
Operations															
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$	4,332	\$	4,166	\$	4,006	\$	3,851	\$	3,703
Maintenance															
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$	43,324	\$	41,658	\$	40,056	\$	38,515	\$	37,034
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$	25,994	\$	24,995	\$	24,033	\$	23,109	\$	22,220
Replacement															
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$	-	\$	297,711	\$	-	\$	-	\$	-
Cumulative Discounted Costs															
Alternative 1				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	9,263,018	\$	9,356,748	\$	9,446,873	\$	9,533,532	\$	9,616,858
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	2,470,138	\$	2,495,133	\$	2,519,166	\$	2,542,275	\$	2,564,495
Maintenance															
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	3,952,221	\$	3,992,213	\$	4,030,666	\$	4,067,640	\$	4,103,193
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$	3,087,673	\$	3,118,916	\$	3,148,958	\$	3,177,844	\$	3,205,619
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$	1,235,069	\$	1,247,566	\$	1,259,583	\$	1,271,138	\$	1,282,248
Replacement															
Mechanical Replacement		\$	11,000,000	25 years		\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$	1,045,588	\$	1,522,781	\$	1,522,781	\$	1,522,781	\$	1,522,781
Alternative 2				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	9,263,018	\$	9,356,748	\$	9,446,873	\$	9,533,532	\$	9,616,858
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	2,470,138	\$	2,495,133	\$	2,519,166	\$	2,542,275	\$	2,564,495
Maintenance															
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	3,952,221	\$	3,992,213	\$	4,030,666	\$	4,067,640	\$	4,103,193
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$	1,029,224	\$	1,039,639	\$	1,049,653	\$	1,059,281	\$	1,068,540
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$	1,235,069	\$	1,247,566	\$	1,259,583	\$	1,271,138	\$	1,282,248
Replacement															
Mechanical Replacement		\$	11,000,000	Every 25 years		\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$	658,536	\$	959,084	\$	959,084	\$	959,084	\$	959,084
Alternative 3				Per Annum Cost											
Operations															
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$	411,690	\$	415,855	\$	419,861	\$	423,713	\$	427,416
Maintenance															
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$	4,116,897	\$	4,158,555	\$	4,198,610	\$	4,237,125	\$	4,274,159
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$	2,470,138	\$	2,495,133	\$	2,519,166	\$	2,542,275	\$	2,564,495
Replacement															
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$	652,322	\$	950,033	\$	950,033	\$	950,033	\$	950,033

Discount Rate				Source											
Year				NJ Transportation Trust Fund Authority											
Discount Rate				4.0%											
Discount Factor				0.1711984120.1646138580.1582825550.1521947650.146341120.140712615											
Discounted Costs															
Alternative 1				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	77,039	\$	74,076	\$	71,227	\$	68,488	\$	65,854
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	20,544	\$	19,754	\$	18,994	\$	18,263	\$	17,561
Maintenance															
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	32,870	\$	31,606	\$	30,390	\$	29,221	\$	28,097
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$	25,680	\$	24,692	\$	23,742	\$	22,829	\$	21,951
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$	10,272	\$	9,877	\$	9,497	\$	9,132	\$	8,780
Replacement															
Mechanical Replacement		\$	11,000,000	25 years		\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 2				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	77,039	\$	74,076	\$	71,227	\$	68,488	\$	65,854
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	20,544	\$	19,754	\$	18,994	\$	18,263	\$	17,561
Maintenance															
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	32,870	\$	31,606	\$	30,390	\$	29,221	\$	28,097
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$	8,560	\$	8,231	\$	7,914	\$	7,610	\$	7,317
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$	10,272	\$	9,877	\$	9,497	\$	9,132	\$	8,780
Replacement															
Mechanical Replacement		\$	11,000,000	Every 25 years		\$	-	\$	-	\$	-	\$	-	\$	-
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$	-	\$	-	\$	-	\$	-	\$	-
Alternative 3				Per Annum Cost											
Operations															
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$	3,424	\$	3,292	\$	3,166	\$	3,044	\$	2,927
Maintenance															
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$	34,240	\$	32,923	\$	31,657	\$	30,439	\$	29,268
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$	20,544	\$	19,754	\$	18,994	\$	18,263	\$	17,561
Replacement															
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$	-	\$	-	\$	-	\$	-	\$	-
Cumulative Discounted Costs															
Alternative 1				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	9,774,018	\$	9,848,094	\$	9,919,321	\$	9,987,809	\$	10,053,662
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	2,606,405	\$	2,626,158	\$	2,645,152	\$	2,663,416	\$	2,680,977
Maintenance															
Routine Mechanical Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	4,170,248	\$	4,201,853	\$	4,232,244	\$	4,261,465	\$	4,289,563
Annual Repairs		\$	150,000	Allowance for expansion joints, bearings, drainage, inspections, etc.		\$	3,258,006	\$	3,282,698	\$	3,306,440	\$	3,329,270	\$	3,351,221
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs, etc)		\$	1,303,202	\$	1,313,079	\$	1,322,576	\$	1,331,708	\$	1,340,488
Replacement															
Mechanical Replacement		\$	11,000,000	25 years		\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285
Structural Rehab		\$	2,291,012	20 and 40 years special maintenance and rehab at 5% of capital cost		\$	1,522,781	\$	1,522,781	\$	1,522,781	\$	1,522,781	\$	1,522,781
Alternative 2				Per Annum Cost											
Operations															
Bridge Operators		\$	450,000	Bridge Operators (5 people @ \$90k)		\$	9,774,018	\$	9,848,094	\$	9,919,321	\$	9,987,809	\$	10,053,662
Electrical Operation		\$	120,000	Allowance for bridge operation and bridge lighting		\$	2,606,405	\$	2,626,158	\$	2,645,152	\$	2,663,416	\$	2,680,977
Maintenance															
Routine Maintenance		\$	192,000	40 hrs/month @ \$75/hr+\$10k materials		\$	4,170,248	\$	4,201,853	\$	4,232,244	\$	4,261,465	\$	4,289,563
Annual Repairs		\$	50,000	Allowance for expansion joints, bearings, drainage, inspections		\$	1,086,002	\$	1,094,233	\$	1,102,147	\$	1,109,757	\$	1,117,074
Miscellaneous Repairs		\$	60,000	5k/month (cleaning, changing lightbulbs)		\$	1,303,202	\$	1,313,079	\$	1,322,576	\$	1,331,708	\$	1,340,488
Replacement															
Mechanical Replacement		\$	11,000,000	Every 25 years		\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285	\$	4,126,285
Structural Rehab		\$	1,442,934	20 and 40 years special maintenance and rehab at 3% of the capital cost		\$	959,084	\$	959,084	\$	959,084	\$	959,084	\$	959,084
Alternative 3				Per Annum Cost											
Operations															
Electrical Operation		\$	20,000	Allowance electrical bridge lighting		\$	434,401	\$	437,693	\$	440,859	\$	443,903	\$	446,829
Maintenance															
Annual Repairs		\$	200,000	Allowance for expansion joints, bearings, drainage, inspections		\$	4,344,008	\$	4,376,931	\$	4,408,587	\$	4,439,026	\$	4,468,294
Miscellaneous Repairs		\$	120,000	10k/month (cleaning, changing lightbulbs)		\$	2,606,405	\$	2,626,158	\$	2,645,152	\$	2,663,416	\$	2,680,977
Replacement															
Structural Rehab		\$	1,429,318	20 and 40 years special maintenance and rehab at 3% of capital cost		\$	950,033	\$	950,033	\$	950,033	\$	950,033	\$	950,033