

Appendix D
Life-Cycle Cost Reports

Inflation Rate: 2.05%	Design Life: 20 Years	Life-Cycle: 75 Years	RibbonCutting: 2013
Discount Rate: 2.80%	Structure Life: 75 Years	Construction: 2010	End of Life: 2088

CROSSING CONCEPT MAINTENANCE COSTS	CYCLE (Years)	PAVED	GRAVEL	BRIDGE	FERRY	FREIGHT
		COST/LF or LUMP SUM				
Annualized General Maintenance	1	\$4.29	\$4.29	\$1.14	\$5.71/5.70/3.42M	
Bridge inspections, above ground	2			\$40,000	\$40,000	\$40,000
Bridge inspections, underwater foundations	5			\$40,000	\$25,000	\$40,000
Rail replacement: 10% bridge 50% road	5	\$117	\$117	\$23		
Fendering system repairs	5				\$50,000	\$50,000
Planing and pavement overlay	10	\$102		\$102		\$400,000
Anode replacements	10			\$100,000	\$20,000	\$100,000
Joint neoprene gland replacement	10			\$500,000		
Signing and illumination replacement	15	\$5	\$5	\$5		
Recoat transfer span	15				\$150,000	\$150,000
Bridge support-float recoat	15				\$75,000	\$75,000
Joint assembly replacement	25			\$1,400,000		
Mooring structure replacement	35				\$1.5M	\$1.5M
Ferry Replacement	35				\$8.0M	
Transfer Bridge	75				\$2.0M	\$2.0M

LIFE-CYCLE COST SUMMARY						
Alt #	Paved Road	Gravel Road	Bridge	Ferry & Dock	Freight Dock	TOTAL
C3a						435,033,752
C3b						332,166,773
C4						411,071,473
C3-4						231,133,040
D1						274,735,938
F1						369,234,263
F3						301,179,592
F3v						341,770,926
G2						211,048,924
G3						198,071,714
G4						180,949,220
G4v						148,342,133
M1						388,208,335
M2						445,097,447
T1						442,183,826
No-Build						75,566,445

G2			G3			G4			M1			T1			No-Build		
Length	Unit \$	Total \$	Length	Unit \$	Total \$	Length	Unit \$	Total \$	Length	Unit \$	Total \$	Length	Unit \$	Total \$	Length	Unit \$	Total \$
0	1.14	\$0	0	1.14	\$0	0	1.14	\$0	1,400	1.14	\$1,596	3,200	1.14	\$3,648	0	1.14	\$0
21,675	4.29	\$92,986	10,198	4.29	\$43,749	0	4.29	\$0	1,640	4.29	\$7,036	25,314	4.29	\$108,597	0	4.29	\$0
16,714	4.29	\$71,703	25,554	4.29	\$109,627	34,408	4.29	\$147,610	34,408	4.29	\$147,610	16,714	4.29	\$71,703	30,178	4.29	\$129,464
1	3,200,000	\$3,200,000	1	3,200,000	\$3,200,000	1	3,200,000	\$3,200,000	1	750,000	\$750,000	1	2,000,000	\$2,000,000	1	1,800,000	\$1,800,000
	TOTAL:	\$3,364,689		TOTAL:	\$3,353,376		TOTAL:	\$3,347,610		TOTAL:	\$906,242		TOTAL:	\$2,183,948		TOTAL:	\$1,929,464
5	40,000	\$200,000	5	40,000	\$200,000	5	40,000	\$200,000	1	40,000	\$40,000	1	40,000	\$40,000	2	40,000	\$80,000
	TOTAL:	\$200,000		TOTAL:	\$200,000		TOTAL:	\$200,000		TOTAL:	\$40,000		TOTAL:	\$40,000		TOTAL:	\$80,000
0	23	\$0	0	23	\$0	0	23	\$0	1,400	23	\$32,200	0	23	\$0	0	23	\$0
10,838	117	\$1,267,988	5,099	117	\$596,583	0	117	\$0	120	117	\$14,040	11,057	117	\$1,293,669	0	117	\$0
1,671	117	\$195,554	2,555	117	\$298,982	3,441	117	\$402,574	3,441	117	\$402,574	1,671	117	\$195,554	3,018	117	\$353,083
	TOTAL:	\$1,463,541		TOTAL:	\$895,565		TOTAL:	\$402,574		TOTAL:	\$448,814		TOTAL:	\$1,489,223		TOTAL:	\$353,083
5	25,000	\$125,000	5	25,000	\$125,000	5	25,000	\$125,000	1	40,000	\$40,000	1	40,000	\$40,000	2	25,000	\$50,000
	TOTAL:	\$125,000		TOTAL:	\$125,000		TOTAL:	\$125,000		TOTAL:	\$40,000		TOTAL:	\$40,000		TOTAL:	\$50,000
5	50,000	\$250,000	5	50,000	\$250,000	5	50,000	\$250,000	0	50,000	\$0	0	50,000	\$0	2	50,000	\$100,000
	TOTAL:	\$250,000		TOTAL:	\$250,000		TOTAL:	\$250,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$100,000
0	102	\$0	0	102	\$0	0	102	\$0	1,400	102	\$142,800	3,200	102	\$326,400	0	102	\$0
21,675	102	\$2,210,850	10,198	102	\$1,040,196	0	102	\$0	240	102	\$24,480	22,114	102	\$2,255,628	0	102	\$0
	TOTAL:	\$2,210,850		TOTAL:	\$1,040,196		TOTAL:	\$0		TOTAL:	\$167,280		TOTAL:	\$2,582,028		TOTAL:	\$0
1	400,000	\$400,000	1	400,000	\$400,000	1	400,000	\$400,000	0	400,000	\$0	0	400,000	\$0	0	400,000	\$0
	TOTAL:	\$400,000		TOTAL:	\$400,000		TOTAL:	\$400,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$0
5	20,000	\$100,000	5	20,000	\$100,000	5	20,000	\$100,000	1	100,000	\$100,000	1	100,000	\$100,000	2	20,000	\$40,000
	TOTAL:	\$100,000		TOTAL:	\$100,000		TOTAL:	\$100,000		TOTAL:	\$100,000		TOTAL:	\$100,000		TOTAL:	\$40,000
0	500,000	\$0	0	500,000	\$0	0	500,000	\$0	1	500,000	\$500,000	1	500,000	\$500,000	0	500,000	\$0
	TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$500,000		TOTAL:	\$500,000		TOTAL:	\$0
0	5	\$0	0	5	\$0	0	5	\$0	1,400	5	\$7,000	3,200	5	\$16,000	0	5	\$0
10,838	5	\$54,188	5,099	5	\$25,495	0	5	\$0	120	5	\$600	11,057	5	\$55,285	0	5	\$0
3,343	5	\$16,714	5,111	5	\$25,554	6,882	5	\$34,408	6,882	5	\$34,408	3,343	5	\$16,714	6,036	5	\$30,178
	TOTAL:	\$70,902		TOTAL:	\$51,049		TOTAL:	\$34,408		TOTAL:	\$42,008		TOTAL:	\$87,999		TOTAL:	\$30,178
5	150,000	\$750,000	5	150,000	\$750,000	5	150,000	\$750,000	0	150,000	\$0	0	150,000	\$0	2	150,000	\$300,000
	TOTAL:	\$750,000		TOTAL:	\$750,000		TOTAL:	\$750,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$300,000
5	75,000	\$375,000	5	75,000	\$375,000	5	75,000	\$375,000	0	75,000	\$0	0	75,000	\$0	2	75,000	\$150,000
	TOTAL:	\$375,000		TOTAL:	\$375,000		TOTAL:	\$375,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$150,000
0	1,400,000	\$0	0	1,400,000	\$0	0	1,400,000	\$0	1	1,400,000	\$1,400,000	1	1,400,000	\$1,400,000	0	1,400,000	\$0
	TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$1,400,000		TOTAL:	\$1,400,000		TOTAL:	\$0
5	1,500,000	\$7,500,000	5	1,500,000	\$7,500,000	5	1,500,000	\$7,500,000	0	1,500,000	\$0	0	1,500,000	\$0	2	1,500,000	\$3,000,000
	TOTAL:	\$7,500,000		TOTAL:	\$7,500,000		TOTAL:	\$7,500,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$3,000,000
7	7,500,000	\$52,500,000	7	7,500,000	\$52,500,000	7	7,500,000	\$52,500,000	0	7,500,000	\$0	0	7,500,000	\$0	4	7,500,000	\$30,000,000
	TOTAL:	\$52,500,000		TOTAL:	\$52,500,000		TOTAL:	\$52,500,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$30,000,000
2	2,000,000	\$4,000,000	2	2,000,000	\$4,000,000	2	2,000,000	\$4,000,000	0	2,000,000	\$0	0	2,000,000	\$0	2	2,000,000	\$4,000,000
	TOTAL:	\$4,000,000		TOTAL:	\$4,000,000		TOTAL:	\$4,000,000		TOTAL:	\$0		TOTAL:	\$0		TOTAL:	\$4,000,000

* Assume 100 percent of the length of all bridges have guardrail, signs, and illumination; 50 percent of the length of all paved roads have guardrail, signs, and illumination; 20 percent of the length of all gravel roads have signs and illumination; and that 10 percent of the length all gravel roads have guardrail.



Inflation Rate: 2.05%	Design Life: 20 Years	Life-Cycle: 75 Years	RibbonCutting: 2013
Discount Rate: 2.80%	Structure Life: 75 Years	Construction: 2010	End of Life: 2088

ALT No	ALIGNMENT ALTERNATIVE	TOTAL CONCEPT LENGTH (LF)	Airport Access Length	Boro Lands Access Length	ALIGNMENT CROSSING ALTERNATIVES SEGMENT LENGTHS											
					Revilla Island Segments				Gravina Island Segments							
					Revilla Road Segment	Tongass Narrows/East Channel Bridge Segment	Pennock Road Segment	West Channel Bridge Segment	Gravina Road Segment	Airport Access Road	Gravina Island Highway	Lewis Reef Road	Seley Road	Airport Return Loop	G2 Connection to Lewis Point	G3 Connection to Clump Cove
C3a	550x200-foot high connection to Airport Terminal	46,908	12,500	34,408	3,500	6,800	na	na	400	6,084	16,714	7,380	4,230	1,800	na	na
C3b	500x120-foot high connection to Airport Terminal	43,908	9,500	34,408	3,400	4,250	na	na	50	6,084	16,714	7,380	4,230	1,800	na	na
C4	550x200-foot high connection to Airport Terminal	45,408	11,000	34,408	3,100	5,000	na	na	800	6,084	16,714	7,380	4,230	2,100	na	na
D1	500x120-foot high connection to Airport Terminal	42,808	8,400	34,408	2,100	3,600	na	na	500	6,084	16,714	7,380	4,230	2,200	na	na
F1	550x200 and 500x120-foot high connections via Pennock Island	48,742	37,132	11,610	5,448	3,400	3,090	2,465	na	6,084	16,645	7,380	4,230	na	na	na
F3	350x60 and 550x200-foot high connections via Pennock Island	42,584	30,974	11,610	50	1,985	4,605	2,450	na	6,084	15,800	7,380	4,230	na	na	na
G2	Ferry connection from Peninsula Point with existing ferry	38,389	21,675	16,714	na	na	na	na	na	6,084	16,714	7,380	4,230	na	3,981	na
G3	Ferry connection from Downtown with existing ferry	35,734	10,180	25,554	na	na	na	na	2,770	6,084	13,944	7,380	4,230	na	na	1,344
G4	Ferry connection with existing ferry terminal	34,408	0	34,408	na	na	na	na	na	6,084	16,714	7,380	4,230	na	na	na
NB	No-Build	30,178	0	30,178	na	na	na	na	na	6,084	16,714	7,380	na	na	na	na

OVERLAY COSTS (per 100LF @ 40' wide)	GUARDRAIL COSTS (per 100LF)	MODULAR EXPANSION JOINT COSTS (each)	Paved Length	M&O Cost	Gravel Length	M&O Cost	Bridge Length	Bridge/Ferry M&O Cost	Total M&O Cost
8% Engineering: \$ 756	8% Engineering: \$ 1,737	8% Engineering: \$ 51,529 \$ 17,311	12,500	53,616	34,408	147,585	6,800	7,727	208,928
Existing Roadway (@ \$6.50/SY): \$ 963	Removal of Old Railing (@ \$10/LF): \$ 2,000	Removal of Old Joint* (@ \$100/LF): \$ 5,100 \$ 2,550	9,500	40,748	34,408	147,585	4,250	4,830	193,163
Overlay Pavement (@ \$75/ton): \$ 3,800	W-Beam Guardrail (@ \$45/LF): \$ 9,000	Install New Joint* (@ \$300/inch/LF): \$ 321,300 \$ 107,100	11,000	47,182	34,408	147,585	5,000	5,682	200,449
Stripping (@ \$1500/mile): \$ 28	10% Traffic Control: \$ 1,100	10% Traffic Control: \$ 32,640 \$ 10,965	21,470	92,091	34,408	147,585	4,190	4,761	244,437
10% Traffic Control: \$ 479	10% Office, Survey, EroPolu: \$ 1,100	10% Office, Survey, EroPolu: \$ 32,640 \$ 10,965	8,400	36,030	34,408	147,585	3,600	4,091	187,706
10% Office, Survey, EroPolu: \$ 479	30% Contingencies: \$ 3,960	30% Contingencies: \$ 117,504 \$ 39,474	37,132	159,269	11,610	49,798	5,865	6,665	215,732
30% Contingencies: \$ 1,725	10% Mob and Demob: \$ 1,716	10% Mob and Demob: \$ 50,918 \$ 17,105	30,974	132,856	11,610	49,798	4,435	5,040	187,694
10% Mob and Demob: \$ 747	15% Construction Admin: \$ 2,831	15% Construction Admin: \$ 84,015 \$ 28,224	21,675	92,970	16,714	71,691	--	5,710,000	5,874,661
15% Construction Admin: \$ 1,233	Total: \$ 23,444	Modular Expansion Joint Replacement Total: \$ 695,647	10,180	43,665	25,554	109,608	--	5,710,000	5,863,273
Total: \$ 10,212		Gland Replacement Total: \$ 233,694	0	0	34,408	147,585	--	5,700,000	5,847,585
		* assume 21" joints at bridge ends; remove old glands \$50/LF, new glands \$100/LF, remove old joints \$100"/LF, new joints \$300"/LF	0	0	34,408	147,585	--	3,420,000	3,567,585
			0	0	30,178	129,442	--	3,420,000	3,549,442

CROSSING CONCEPT MAINTENANCE COSTS	CYCLE (Years)	PAVED ROAD	GRAVEL ROAD	BRIDGE	FERRY
		COST/LF or		LUMP SUM	
Annualized General Maintenance* * * * *	1	\$4.29	\$4.29	\$1.14	\$5.71/5.70/3.42M
Periodic Maintenance Costs:					
Bridge inspections, above ground	2			\$40,000	
Bridge inspections, underwater foundations	5			\$40,000	
Rail replacement: 10% bridge 50% road	5	\$117	\$117	\$23	
Planing and pavement overlay	10	\$102		\$102	
Joint neoprene gland replacement	10			\$500,000	
Joint assembly replacement	25			\$1,400,000	
Signing and illumination replacement*****	15	\$5	\$5	\$5	
Ferry Replacement	40				\$8.0M

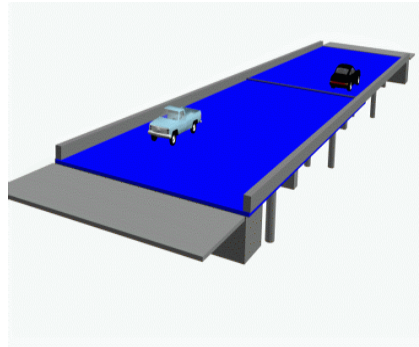
* Annual Roadway Maintenance for Paved Road: \$5000/lane-mile = 2 lanes with 2 shoulders = 4 lanes = \$4/2-lane linear foot
 ** Annual Roadway Maintenance for Gravel Road: \$6500/lane-mile = 2 lanes with 2 shoulders = 4 lanes = \$5/2-lane linear foot
 *** Annual Bridge Maintenance costs are in addition to the roadway maintenance costs: \$1500/lane-mile = 2 lanes with 2 shoulders = 4 lanes = \$1/2-lane linear foot
 **** Annual Ferry Maintenance costs for Alternative G2 and G3 (\$5.71), and G4 (\$5.70M)
 ***** Signing and Illumination repair and/or replacement: \$25,000/mile/year = \$5/linear foot
 ***** No-build ferry maintenance is the 0.6 annual maintenance of the ferry (\$3,420,000) plus the roadway costs (6,084 + 16,714 + 7,380 = 30,178 * \$5/LF = \$150,890) \$3,570,890

LIFE-CYCLE COST SUMMARY							
Alt No	Paved Road	Gravel Road	Bridge	Ferry & Dock	Freight Dock	TOTAL	
C3a						\$435,033,752	
C3b						\$332,166,773	
C4						\$411,071,473	
C3-4						\$231,133,040	
D1						\$274,735,938	
F1						\$369,234,263	
F3						\$301,179,592	
F3v						\$341,770,926	
G2						\$211,048,924	
G3						\$198,071,714	
G4					\$148,342,133	\$180,949,220	
No-Build						\$75,566,445	
Alt No	PAVED	GRAVEL	Ferry \$	Wait/Bag \$	Barge \$	Road \$	TOTAL
G2	21,675	16,714	40,664,650	1,500,000	5,800,000	16,029,263	\$63,993,913
G3	10,180	25,554	41,036,670	1,500,000	5,800,000	8,257,015	\$56,593,685
G4	0	34,408	39,014,910	1,500,000	5,800,000	4,840,000	\$51,154,910

BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- C and D Alignments

02/09/2009



Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD



Analysis: Summary of Life-Cycle Costs

02/09/2009

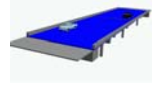


	Name	Base Case	Alternative #1	Alternative #2	Alternative #3	Alternative #4
	Total Life-Cycle Cost	\$435,033,752	\$332,166,773	\$411,071,473	\$231,133,040	\$274,735,938
By Cost Bearer:	Agency Costs	\$435,033,752	\$332,166,773	\$411,071,473	\$231,133,040	\$274,735,938
	User Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Third-Party Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
By Cost Timing:	Initial Construction Costs	\$414,296,040	\$315,470,797	\$394,954,289	\$215,290,820	\$260,201,468
	OM&R Costs	\$ 20,737,712	\$ 16,695,975	\$ 16,117,185	\$ 15,842,220	\$ 14,534,469
	Disposal Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
By Cost Component:	Elemental Costs	\$435,033,752	\$332,166,773	\$411,071,473	\$231,133,040	\$274,735,938
	Non-elemental Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	New-Technology	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0



Data: Project Parameters

02/09/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

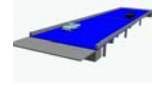
Elements

#1	Bridge
#2	Paved Road
#3	Gravel Road
#4	Ferry
#5	Dock
#6	Non-elemental
#7	New technology



Data: Alternatives

02/09/2009



C3a

Lanes on	2	Area of deck (ft)	348,500.00
	0	Length of bridge (ft)	6,800.00

Alignment C3a. Provide paved access between North Tongass Avenue at Signal Road on Revilla Island and the KTN passenger terminal on Gravina Island with a single balanced cantilever cast-in-place concrete box girder bridge over Tongass Narrows that will allow for a 200 x 550-foot navigational opening. Also included are gravel roads serving the KGB developable lands on Gravina Island.

C3b

Lanes on	2	Area of deck (ft)	217,813.00
	0	Length of bridge (ft)	4,250.00

Alignment C3b. Provide paved access between North Tongass Avenue at Signal Road on Revilla Island and the KTN passenger terminal on Gravina Island with a single balanced cantilever cast-in-place concrete box girder bridge over Tongass Narrows that will allow for a 120 x 550-foot navigational opening. Also included are gravel roads serving the KGB developable lands on Gravina Island.

C4

Lanes on	2	Area of deck (ft)	256,250.00
	0	Length of bridge (ft)	5,000.00

Alignment C4. Provide paved access between North Tongass Avenue near Cambria Drive on Revilla Island and the KTN passenger terminal on Gravina Island with a single balanced cantilever cast-in-place concrete box girder bridge over Tongass Narrows that will allow for a 200 x 550-foot navigational opening. Also included are gravel roads serving the KGB developable lands on Gravina Island.

C3-4

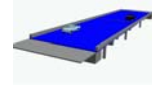
Lanes on	2	Area of deck (ft)	214,738.00
	0	Length of bridge (ft)	4,190.00

Alignment C3-4. Provide paved access along the KGB's Bench (ByPass) Road between North Tongass Avenue on Revilla Island and the KTN passenger terminal on Gravina Island with a single balanced cantilever cast-in-place concrete box girder bridge over Tongass Narrows that will allow for a 200 x 550-foot navigational opening. Also included are gravel roads serving the KGB developable lands on Gravina Island.



Data: Alternatives

02/09/2009



D1

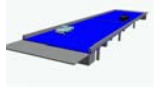
Lanes on	2	Area of deck (ft)	185,400.00
	0	Length of bridge (ft)	3,600.00

Alignment D1. Provide paved access between North Tongass Avenue near Cambria Drive on Revilla Island and the KTN passenger terminal on Gravina Island with a single balanced cantilever cast-in-place concrete box girder bridge over Tongass Narrows that will allow for a 120 x 550-foot navigational opening. Also included are gravel roads serving the KGB developable lands on Gravina Island.



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$462,682,678	\$462,682,678	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Bridge	<no event>	5	80	1.0000	6800.000	Length of	\$ 1	\$ 7,820	
M&O Paved Road	<no event>	5	80	1.0000	12100.000	LS	\$ 4	\$ 52,030	
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Gound	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	5	80	5.0000	6800.000	Length of	\$ 23	\$ 156,400	
Guardrail Paved Road	<no event>	5	80	5.0000	2650.000	LS	\$ 117	\$ 310,050	
Guardrail Gravel Road	<no event>	5	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Replace Pavement Bridge	<no event>	5	80	10.0000	6800.000	Length of	\$ 102	\$ 693,600	
Replace Pavement Paved	<no event>	5	80	10.0000	5300.000	LS	\$ 102	\$ 540,600	
Anode Replacement	<no event>	5	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	5	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Bridge	<no event>	5	80	15.0000	6800.000	Length of	\$ 5	\$ 34,000	
Signs/Illumination Paved	<no event>	5	80	15.0000	2650.000	LS	\$ 5	\$ 13,250	
Signs/Illumination Gravel	<no event>	5	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Joint Assembly Replacement	<no event>	5	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	

Alternative #4

Agency
Initial Construction



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$290,591,028	\$290,591,028	.
O, M, and R									
M&O Bridge	<no event>	5	80	1.0000	3600.000	Length of	\$ 1	\$ 4,140	
M&O Paved Road	<no event>	5	80	1.0000	8400.000	LS	\$ 4	\$ 36,120	
M&O Gravel Road	<no event>	5	80	1.0000	32208.000	LS	\$ 4	\$ 138,494	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	10	80	5.0000	3600.000	Length of	\$ 23	\$ 82,800	
Guardrail Paved Road	<no event>	10	80	5.0000	2400.000	LS	\$ 117	\$ 280,800	
Guardrail Gravel Road	<no event>	10	80	5.0000	3221.000	LS	\$ 117	\$ 376,857	
Replace Pavement Bridge	<no event>	15	80	10.0000	3600.000	Length of	\$ 102	\$ 367,200	
Replace Pavement Road	<no event>	15	80	10.0000	4800.000	LS	\$ 102	\$ 489,600	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Bridge	<no event>	20	80	15.0000	3600.000	Length of	\$ 5	\$ 18,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	2400.000	LS	\$ 5	\$ 12,000	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6442.000	LS	\$ 5	\$ 32,210	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.

Alternative #2

Agency									
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$441,081,957	\$441,081,957	.
O, M, and R									
M&O Bridge	<no event>	5	80	1.0000	5000.000	Length of	\$ 1	\$ 5,750	



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
M&O Paved Road	<no event>	5	80	1.0000	11000.000	LS	\$ 4	\$ 47,300	
M&O Gravel Road	<no event>	5	80	1.0000	32308.000	LS	\$ 4	\$ 138,924	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	10	80	5.0000	5000.000	Length of	\$ 23	\$ 115,000	
Guardrail Paved Road	<no event>	10	80	5.0000	3000.000	LS	\$ 117	\$ 351,000	
Guardrail Gravel Road	<no event>	10	80	5.0000	3231.000	LS	\$ 117	\$ 378,027	
Replace Pavement Bridge	<no event>	15	80	10.0000	5000.000	Length of	\$ 102	\$ 510,000	
Replace Pavement Road	<no event>	15	80	10.0000	6000.000	LS	\$ 102	\$ 612,000	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Bridge	<no event>	20	80	15.0000	5000.000	Length of	\$ 5	\$ 25,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	3000.000	LS	\$ 5	\$ 15,000	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6462.000	LS	\$ 5	\$ 32,310	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #3

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$240,435,156	\$240,435,156	
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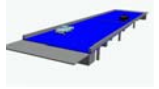
O, M, and R

M&O Bridge	<no event>	5	80	1.0000	4190.000	Length of	\$ 1	\$ 4,819	
M&O Paved Road	<no event>	5	80	1.0000	9842.000	LS	\$ 4	\$ 42,321	
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	10	80	5.0000	4190.000	Length of	\$ 23	\$ 96,370	
Guardrail Paved Road	<no event>	10	80	5.0000	2826.000	LS	\$ 117	\$ 330,642	
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Replace Pavement Bridge	<no event>	15	80	10.0000	4190.000	Length of	\$ 102	\$ 427,380	
Replace Pavement Road	<no event>	15	80	10.0000	5652.000	LS	\$ 102	\$ 576,504	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Bridge	<no event>	20	80	15.0000	4190.000	Length of	\$ 5	\$ 20,950	
Signs/Illumination Paved	<no event>	20	80	15.0000	2826.000	LS	\$ 5	\$ 14,130	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6881.000	LS	\$ 5	\$ 34,405	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #1

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$352,315,396	\$352,315,396	
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O, M, and R

M&O Bridge	<no event>	5	80	1.0000	4250.000	Length of	\$ 1	\$ 4,888	
M&O Paved Road	<no event>	5	80	1.0000	11600.000	LS	\$ 4	\$ 49,880	
M&O Gravel Road	<no event>	5	80	1.0000	32608.000	LS	\$ 4	\$ 140,214	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	10	80	5.0000	4250.000	Length of	\$ 23	\$ 97,750	
Guardrail Paved Road	<no event>	10	80	5.0000	3675.000	LS	\$ 117	\$ 429,975	



Data: Individual Costs

02/09/2009



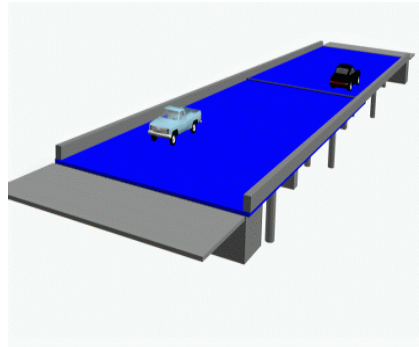
Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Guardrail Gravel Road	<no event>	10	80	5.0000	3261.000	LS	\$ 117	\$ 381,537	
Replace Pavement Bridge	<no event>	15	80	10.0000	4250.000	Length of	\$ 102	\$ 433,500	
Replace Pavement Road	<no event>	15	80	10.0000	7350.000	LS	\$ 102	\$ 749,700	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Signs/Illumination Bridge	<no event>	20	80	15.0000	4250.000	Length of	\$ 5	\$ 21,250	
Signs/Illumination Paved	<no event>	20	80	15.0000	3675.000	LS	\$ 5	\$ 18,375	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6522.000	LS	\$ 5	\$ 32,610	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	



BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- F Alignments

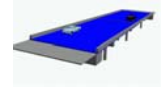
02/09/2009



Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD

Analysis: Summary of Life-Cycle Costs

02/09/2009

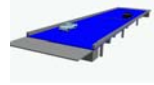


	Name	Base Case	Alternative #1	Alternative #2
	Total Life-Cycle Cost	\$369,234,263	\$301,179,592	\$341,770,926
By Cost Bearer:	Agency Costs	\$369,234,263	\$301,179,592	\$341,770,926
	User Costs	\$ 0	\$ 0	\$ 0
	Third-Party Costs	\$ 0	\$ 0	\$ 0
By Cost Timing:	Initial Construction Costs	\$335,980,030	\$271,917,681	\$312,352,413
	OM&R Costs	\$ 33,254,233	\$ 29,261,911	\$ 29,418,513
	Disposal Costs	\$ 0	\$ 0	\$ 0
By Cost Component:	Elemental Costs	\$369,234,263	\$301,179,592	\$341,770,926
	Non-elemental Costs	\$ 0	\$ 0	\$ 0
	New-Technology	\$ 0	\$ 0	\$ 0



Data: Project Parameters

02/09/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

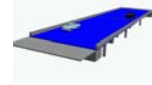
Elements

#1	Bridges
#2	Paved Road
#3	Gravel Road
#4	
#5	
#6	Non-elemental
#7	New technology



Data: Alternatives

02/09/2009



F1

Lanes on	2	Area of deck (ft)	300,581.00
	0	Length of bridges (ft)	5,865.00

Alignment F1. Provide paved access between South Tongass Avenue near Tatsuda's Market on Revilla Island, across Pennock Island, and up Gravina Island to the KTN passenger terminal with two balanced cantilever cast-in-place concrete box girder bridges over Tongass Narrows. The East Channel will allow for a 200 x 550-foot navigational opening, and the West Channel will provide for a 120 x 500-foot navigaitonal opening. Also included is gravel road serving the KGB developable lands on Gravina Island.

F3

Lanes on	2	Area of deck (ft)	228,319.00
	0	Length of bridges (ft)	4,455.00

Alignment F3. Provide paved access between South Tongass Avenue near the USCG Station on Revilla Island, across Pennock Island, and up Gravina Island to the KTN passenger terminal with two balanced cantilever cast-in-place concrete box girder bridges over Tongass Narrows. The East Channel will allow for a 60 x 350-foot navigational opening, and the West Channel will provide for a 200 x 550-foot navigaitonal opening. Also included is gravel road serving the KGB developable lands on Gravina Island.

F3v

Lanes on	2	Area of deck (ft)	175,275.00
	0	Length of bridges (ft)	3,420.00

Alignment F3v. Provide paved access between South Tongass Avenue near the USCG Station on Revilla Island, across Pennock Island, and up Gravina Island to the KTN passenger terminal with two shorter balanced cantilever cast-in-place concrete box girder bridges over Tongass Narrows; additional fill allows for the reduced structure length. The East Channel will allow for a 60 x 350-foot navigational opening, and the West Channel will provide for a 200 x 550-foot navigaitonal opening. Also included is gravel road serving the KGB developable lands on Gravina Island.



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$375,219,952	\$375,219,952	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Bridges	<no event>	5	80	1.0000	5865.000	Length of	\$ 1	\$ 6,745	
M&O Paved Road	<no event>	5	80	1.0000	37132.000	LS	\$ 4	\$ 159,668	
M&O Gravel Road	<no event>	5	80	1.0000	11610.000	LS	\$ 4	\$ 49,923	
Inspection Above Ground	<no event>	7	80	2.0000	2.000	LS	\$ 40,000	\$ 80,000	
Inspection Underwater	<no event>	10	80	5.0000	2.000	LS	\$ 40,000	\$ 80,000	
Guardrail Bridge	<no event>	10	80	5.0000	5865.000	Length of	\$ 23	\$ 134,895	
Guardrail Paved Road	<no event>	10	80	5.0000	15634.000	LS	\$ 117	\$ 1,829,178	
Guardrail Gravel Road	<no event>	10	80	5.0000	1161.000	LS	\$ 117	\$ 135,837	
Replace Pavement Bridges	<no event>	15	80	10.0000	5865.000	Length of	\$ 102	\$ 598,230	
Replace Pavement Paved	<no event>	15	80	10.0000	31267.000	LS	\$ 102	\$ 3,189,234	
Anode Replacement	<no event>	15	80	10.0000	2.000	LS	\$ 100,000	\$ 200,000	
Joint Replacement	<no event>	15	80	10.0000	2.000	LS	\$ 500,000	\$ 1,000,000	
Sign/Illumination Bridges	<no event>	20	80	15.0000	5865.000	Length of	\$ 5	\$ 29,325	
Sign/Illumination Paved Road	<no event>	20	80	15.0000	15634.000	LS	\$ 5	\$ 78,170	
Sign/Illumination Gravel Road	<no event>	20	80	15.0000	2322.000	LS	\$ 5	\$ 11,610	
Joint Assembly Replacement	<no event>	30	80	25.0000	2.000	LS	\$ 1,400,000	\$ 2,800,000	

Alternative #2

Agency
Initial Construction



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$348,832,808	\$348,832,808	.
O, M, and R									
M&O Bridges	<no event>	5	80	1.0000	3420.000	Length of	\$ 1	\$ 3,933	
M&O Paved Road	<no event>	5	80	1.0000	30974.000	LS	\$ 4	\$ 133,188	
M&O Gravel Road	<no event>	5	80	1.0000	11610.000	LS	\$ 4	\$ 49,923	
Inspection Above Ground	<no event>	7	80	2.0000	2.000	LS	\$ 40,000	\$ 80,000	
Inspection Underwater	<no event>	10	80	5.0000	2.000	LS	\$ 40,000	\$ 80,000	
Guardrail Bridges	<no event>	10	80	5.0000	3420.000	Length of	\$ 23	\$ 78,660	
Guardrail Paved Road	<no event>	10	80	5.0000	13777.000	LS	\$ 117	\$ 1,611,909	
Guardrail Gravel Road	<no event>	10	80	5.0000	1161.000	LS	\$ 117	\$ 135,837	
Replace Pavement Bridges	<no event>	15	80	10.0000	3420.000	Length of	\$ 102	\$ 348,840	
Replace Pavement Road	<no event>	15	80	10.0000	27554.000	LS	\$ 102	\$ 2,810,508	
Anode Replacement	<no event>	15	80	10.0000	2.000	LS	\$ 100,000	\$ 200,000	
Joint Gland Replacement	<no event>	15	80	10.0000	2.000	LS	\$ 500,000	\$ 1,000,000	
Sign/Illumination Bridges	<no event>	20	80	15.0000	3420.000	Length of	\$ 5	\$ 17,100	
Sign/Illumination Paved Road	<no event>	20	80	15.0000	13777.000	LS	\$ 5	\$ 68,885	
Sign/Illumination Gravel Road	<no event>	20	80	15.0000	2322.000	LS	\$ 5	\$ 11,610	
Joint Assembly Replacement	<no event>	30	80	25.0000	2.000	LS	\$ 1,400,000	\$ 2,800,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.

Alternative #1

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$303,675,606	\$303,675,606	.
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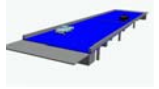
O, M, and R

M&O Bridges	<no event>	5	80	1.0000	4455.000	Length of	\$ 1	\$ 5,123	
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Data: Individual Costs

02/09/2009



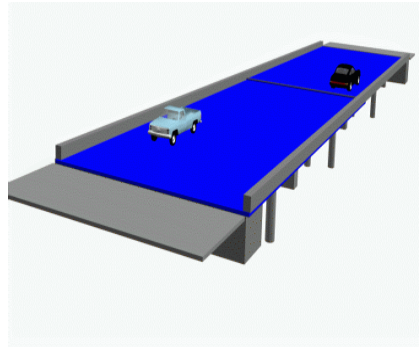
Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
M&O Paved Road	<no event>	5	80	1.0000	30973.000	LS	\$ 4	\$ 133,184	
M&O Gravel Road	<no event>	5	80	1.0000	11610.000	LS	\$ 4	\$ 49,923	
Inspection Above Ground	<no event>	7	80	2.0000	2.000	LS	\$ 40,000	\$ 80,000	
Inspection Underwater	<no event>	10	80	5.0000	2.000	LS	\$ 40,000	\$ 80,000	
Guardrail Bridges	<no event>	10	80	5.0000	4455.000	Length of	\$ 23	\$ 102,465	
Guardrail Paved Road	<no event>	10	80	5.0000	13259.000	LS	\$ 117	\$ 1,551,303	
Guardrail Gravel Road	<no event>	10	80	5.0000	1161.000	LS	\$ 117	\$ 135,837	
Replace Pavement Bridges	<no event>	15	80	10.0000	4455.000	Length of	\$ 102	\$ 454,410	
Replace Pavement Road	<no event>	15	80	10.0000	26518.000	LS	\$ 102	\$ 2,704,836	
Anode Replacement	<no event>	15	80	10.0000	2.000	LS	\$ 100,000	\$ 200,000	
Joint Gland Replacement	<no event>	15	80	10.0000	2.000	LS	\$ 500,000	\$ 1,000,000	
Sign/Illumination Bridges	<no event>	20	80	15.0000	4455.000	Length of	\$ 5	\$ 22,275	
Sign/Illumination Paved Road	<no event>	20	80	15.0000	13259.000	LS	\$ 5	\$ 66,295	
Sign/Illumination Gravel Road	<no event>	20	80	15.0000	2322.000	LS	\$ 5	\$ 11,610	
Joint Assembly Replacement	<no event>	30	80	25.0000	2.000	LS	\$ 1,400,000	\$ 2,800,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	



BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- G Alignments (w/o Revenue)

02/09/2009



**Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD**

Analysis: Summary of Life-Cycle Costs

02/09/2009

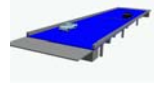


	Name	Base Case	Alternative #1	Alternative #2	Alternative #3	Alternative #4
	Total Life-Cycle Cost	\$201,235,273	\$188,258,063	\$171,135,569	\$ 9,813,651	\$138,528,482
By Cost Bearer:	Agency Costs	\$201,235,273	\$188,258,063	\$171,135,569	\$ 9,813,651	\$138,528,482
	User Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Third-Party Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
By Cost Timing:	Initial Construction Costs	\$ 68,836,071	\$ 62,049,647	\$ 50,216,951	\$ 6,536,577	\$ 23,413,353
	OM&R Costs	\$132,399,201	\$126,208,415	\$120,918,618	\$ 3,277,073	\$115,115,130
	Disposal Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
By Cost Component:	Elemental Costs	\$201,235,273	\$188,258,063	\$171,135,569	\$ 9,813,651	\$138,528,482
	Non-elemental Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	New-Technology	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0



Data: Project Parameters

02/09/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

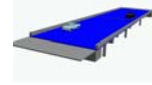
Elements

#1	Ferry
#2	Dock
#3	Paved Road
#4	Gravel Road
#5	
#6	Non-elemental
#7	New technology



Data: Alternatives

02/09/2009



G2 (Peninsula Point)

Number of Ferries	4	Area of deck (ft)	0.00
Number of Docks	4	Length of bridge (ft)	0.00

Alignment G2. In addition to the existing ferries and ferry terminals, provide two new ferries and ferry terminals at Peninsula Point on Revilla Island and Lewis Point on Gravina Island. Included is a new paved road from Lewis Point up the hill to the Seley Road, and then an upgraded and paved Seley Road, and a paved Lewis Reef and Airport Access Roads to the KTN passenger terminal. Also included is the gravel Gravina Island Highway serving the KGB developable lands on Gravina Island.

G3 (Bar Point)

Number of Ferries	4	Area of deck (ft)	0.00
Number of Docks	4	Length of bridge (ft)	0.00

Alignment G3. In addition to the existing ferries and ferry terminals, provide two new ferries and ferry terminals at Bar Point on Jefferson Street near downtown Ketchikan on Revilla Island and near Clump Cove on Gravina Island. Included is a new paved road from Clump Cove up the hill to the Gravina Island Highway, and then across and down the Airport Access Roads to the KTN passenger terminal. Also included are the gravel Gravina Island Highway, Lewis Reef Road and Seley Road serving the KGB developable lands on Gravina Island.

G4 (Charcoal Point)

Number of Ferries	4	Area of deck (ft)	0.00
Number of Docks	4	Length of bridge (ft)	0.00

Alignment G4. In addition to the existing ferries and ferry terminals, provide two new ferries and ferry terminals adjacent to the existing terminals on Revilla and Gravina island at the crossing of Tongass Narrows to the KTN passenger terminal. Also included are the gravel Gravina Island Highway, Lewis Reef Road and Seley Road serving the KGB developable lands on Gravina Island.

Waiting Area & Freight Dock

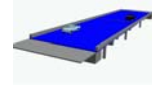
Number of Ferries	0	Area of deck (ft)	0.00
Number of Docks	1	Length of bridge (ft)	0.00

This work includes construction of a passenger waiting and baggage handling facility (including shuttle vans, etc) at Charcoal Point, and a heavy freight dock and 2.5-acre staging area on Gravina Island for oversized and overweight loads that cannot be accommodated on the current ferry, at a location just south of the existing ferry terminal. The dock will also be capable of laying over AMHS-class ferries.



Data: Alternatives

02/09/2009



G4v (Charcoal Point)

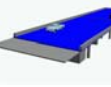
Number of Ferries	2	Area of deck (ft)	0.00
Number of Docks	2	Length of bridge (ft)	0.00

Alignment G4. Continuation of operation of the existing ferries and ferry terminals. Two new ferries and ferry terminals adjacent to the existing terminals on Revilla and Gravina island at the crossing of Tongass Narrows to the KTN passenger terminal will be added at some future date when traffic warrants a system expansion. Also included are the gravel Gravina Island Highway, Lewis Reef Road and Seley Road serving the KGB developable lands on Gravina Island.



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$ 76,875,603	\$ 76,875,603	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 3,200,000	\$ 3,200,000	
M&O Paved Road	<no event>	5	80	1.0000	21675.000	LS	\$ 4	\$ 93,203	
M&O Gravel Road	<no event>	5	80	1.0000	16714.000	LS	\$ 4	\$ 71,870	
Inspection Above Ground	<no event>	7	80	2.0000	4.000	LS	\$ 40,000	\$ 160,000	
Inspection Underwater	<no event>	10	80	5.0000	4.000	LS	\$ 25,000	\$ 100,000	
Guardrail Paved Road	<no event>	10	80	5.0000	10838.000	LS	\$ 117	\$ 1,268,046	
Guardrail Gravel Road	<no event>	10	80	5.0000	1671.000	LS	\$ 117	\$ 195,507	
Fendering System Repairs	<no event>	10	80	5.0000	4.000	LS	\$ 50,000	\$ 200,000	
Pavement Replacement Road	<no event>	15	80	10.0000	21675.000	LS	\$ 102	\$ 2,210,850	
Anode Replacement	<no event>	15	80	10.0000	4.000	LS	\$ 20,000	\$ 80,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	10838.000	LS	\$ 5	\$ 54,190	
Signs/Illumination Gravel	<no event>	20	80	15.0000	3343.000	LS	\$ 5	\$ 16,715	
Recoat Transfer Span	<no event>	20	80	15.0000	4.000	LS	\$ 150,000	\$ 600,000	
Bridge Support-Float Recoat	<no event>	20	80	15.0000	4.000	LS	\$ 75,000	\$ 300,000	
Mooring Structure	<no event>	40	80	35.0000	4.000	LS	\$ 1,500,000	\$ 6,000,000	
Ferry Replacement	<no event>	40	80	35.0000	3.000	LS	\$ 8,000,000	\$ 24,000,000	
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	

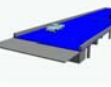
Alternative #4

Agency



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Initial Construction									
Initial Construction Costs	<no event>	5	5	1.0000	1.000	LS	\$ 9,027,000	\$ 9,027,000	
One Ferry Construction Cost	<no event>	25	80	35.0000	1.000	LS	\$ 8,000,000	\$ 8,000,000	
Two Docks Construction Cost	<no event>	25	80	75.0000	1.000	LS	\$ 18,700,000	\$ 18,700,000	
O, M, and R									
M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 3,200,000	\$ 3,200,000	
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	3.000	LS	\$ 40,000	\$ 120,000	Quantity ass
Inspection Underwater	<no event>	10	80	5.0000	3.000	LS	\$ 25,000	\$ 75,000	Quantity ass
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Fendering System Repairs	<no event>	10	80	5.0000	3.000	LS	\$ 50,000	\$ 150,000	Quantity ass
Anode Replacement	<no event>	15	80	10.0000	3.000	LS	\$ 20,000	\$ 60,000	Quantity ass
Signs/Illumination Gravel	<no event>	20	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Recoat Transfer Span	<no event>	20	80	15.0000	3.000	LS	\$ 150,000	\$ 450,000	Quantity ass
Bridge Support-Float Recoat	<no event>	20	80	15.0000	3.000	LS	\$ 75,000	\$ 225,000	Quantity ass
Mooring Structure	<no event>	40	80	35.0000	3.000	LS	\$ 1,500,000	\$ 4,500,000	Quantity ass
Ferry Replacement	<no event>	40	80	35.0000	2.000	LS	\$ 8,000,000	\$ 16,000,000	
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	
Disposal									
Disposal Cost	<no event>	1	1	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #2

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$ 56,081,910	\$ 56,081,910	.
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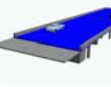
O, M, and R

M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 3,200,000	\$ 3,200,000	
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Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	4.000	LS	\$ 40,000	\$ 160,000	
Inspection Underwater	<no event>	10	80	5.0000	4.000	LS	\$ 25,000	\$ 100,000	
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Fendering System Repairs	<no event>	10	80	5.0000	4.000	LS	\$ 50,000	\$ 200,000	
Anode Replacement	<no event>	15	80	10.0000	4.000	LS	\$ 20,000	\$ 80,000	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Recoat Transfer Span	<no event>	20	80	15.0000	4.000	LS	\$ 150,000	\$ 600,000	
Bridge Support-Float Recoat	<no event>	20	80	15.0000	4.000	LS	\$ 75,000	\$ 300,000	
Mooring Structure	<no event>	40	80	35.0000	4.000	LS	\$ 1,500,000	\$ 6,000,000	
Ferry Replacement	<no event>	40	80	35.0000	3.000	LS	\$ 8,000,000	\$ 24,000,000	
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #3

Agency

Initial Construction

Freight Dock Construction	<no event>	5	5	1.0000	1.000	LS	\$ 5,800,000	\$ 5,800,000	
Passenger Waiting Area	<no event>	5	5	1.0000	1.000	LS	\$ 1,500,000	\$ 1,500,000	

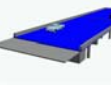
O, M, and R

M&O Freight Dock	<no event>	5	80	1.0000	1.000	LS	\$ 0	\$ 0	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Fendering System Repairs	<no event>	10	80	5.0000	1.000	LS	\$ 50,000	\$ 50,000	
Freight Dock Resurfacing	<no event>	15	80	10.0000	1.000	LS	\$ 400,000	\$ 400,000	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Recoat Transfer Span	<no event>	20	80	15.0000	1.000	LS	\$ 150,000	\$ 150,000	
Bridge Support-Float Recoat	<no event>	20	80	15.0000	1.000	LS	\$ 75,000	\$ 75,000	
Mooring Structure	<no event>	40	80	35.0000	1.000	LS	\$ 1,500,000	\$ 1,500,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #1

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$ 69,296,576	\$ 69,296,576	
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O, M, and R

M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 3,200,000	\$ 3,200,000	
M&O Paved Road	<no event>	5	80	1.0000	10180.000	LS	\$ 4	\$ 43,774	
M&O Gravel Road	<no event>	5	80	1.0000	25554.000	LS	\$ 4	\$ 109,882	
Inspection Above Ground	<no event>	7	80	2.0000	4.000	LS	\$ 40,000	\$ 160,000	
Inspection Underwater	<no event>	10	80	5.0000	4.000	LS	\$ 25,000	\$ 100,000	
Guardrail Paved Road	<no event>	10	80	5.0000	5090.000	LS	\$ 117	\$ 595,530	
Guardrail Gravel Road	<no event>	10	80	5.0000	2555.000	LS	\$ 117	\$ 298,935	
Fendering System Repairs	<no event>	10	80	5.0000	4.000	LS	\$ 50,000	\$ 200,000	
Pavement Replacement Road	<no event>	15	80	10.0000	10180.000	LS	\$ 102	\$ 1,038,360	
Anode Replacement	<no event>	15	80	10.0000	4.000	LS	\$ 20,000	\$ 80,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	5090.000	LS	\$ 5	\$ 25,450	
Signs/Illumination Gravel	<no event>	20	80	15.0000	5111.000	LS	\$ 5	\$ 25,555	
Recoat Transfer Span	<no event>	20	80	15.0000	4.000	LS	\$ 150,000	\$ 600,000	
Bridge Support-Float Recoat	<no event>	20	80	15.0000	4.000	LS	\$ 75,000	\$ 300,000	
Mooring Structure	<no event>	40	80	35.0000	4.000	LS	\$ 1,500,000	\$ 6,000,000	
Ferry Replacement	<no event>	40	80	35.0000	3.000	LS	\$ 8,000,000	\$ 24,000,000	



Data: Individual Costs

02/09/2009



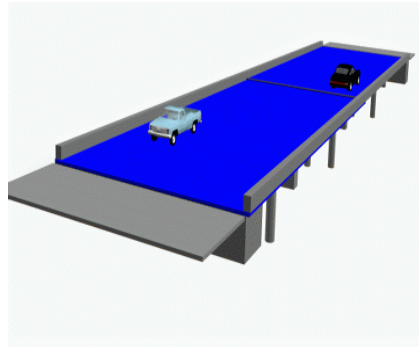
Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.



BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- G Alignments (w/ Revenue)

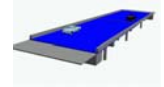
02/09/2009



Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD

Analysis: Summary of Life-Cycle Costs

02/09/2009

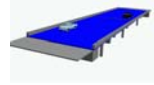


	Name	Base Case	Alternative #1	Alternative #2	Alternative #3	Alternative #4
	Total Life-Cycle Cost	\$157,969,255	\$144,992,044	\$127,869,551	\$ 9,813,651	\$ 95,262,464
By Cost Bearer:	Agency Costs	\$157,969,255	\$144,992,044	\$127,869,551	\$ 9,813,651	\$ 95,262,464
	User Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	Third-Party Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
By Cost Timing:	Initial Construction Costs	\$ 68,836,071	\$ 62,049,647	\$ 50,216,951	\$ 6,536,577	\$ 23,413,353
	OM&R Costs	\$ 89,133,183	\$ 82,942,397	\$ 77,652,600	\$ 3,277,073	\$ 71,849,111
	Disposal Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
By Cost Component:	Elemental Costs	\$157,969,255	\$144,992,044	\$127,869,551	\$ 9,813,651	\$ 95,262,464
	Non-elemental Costs	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
	New-Technology	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0



Data: Project Parameters

02/09/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

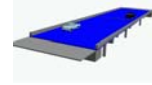
Elements

#1	Ferry
#2	Dock
#3	Paved Road
#4	Gravel Road
#5	
#6	Non-elemental
#7	New technology



Data: Alternatives

02/09/2009



G2 (Peninsula Point)

Number of Ferries	4	Area of deck (ft)	0.00
Number of Docks	4	Length of bridge (ft)	0.00

Alignment G2. In addition to the existing ferries and ferry terminals, provide two new ferries and ferry terminals at Peninsula Point on Revilla Island and Lewis Point on Gravina Island. Included is a new paved road from Lewis Point up the hill to the Seley Road, and then an upgraded and Paved Seley Road, and a paved Lewis Reef and Airport Access Roads to the KTN passenger terminal. Also included is the gravel Gravina Island Highway serving the KGB developable lands on Gravina Island.

G3 (Bar Point)

Number of Ferries	4	Area of deck (ft)	0.00
Number of Docks	4	Length of bridge (ft)	0.00

Alignment G3. In addition to the existing ferries and ferry terminals, provide two new ferries and ferry terminals at Bar Point on Jefferson Street near downtown Ketchikan on Revilla Island and near Clump Cove on Gravina Island. Included is a new paved road from Clump Cove up the hill to the Gravina Island Highway, and then across and down the Airport Access Roads to the KTN passenger terminal. Also included are the gravel Gravina Island Highway, Lewis Reef Road and Seley Road serving the KGB developable lands on Gravina Island.

G4 (Charcoal Point)

Number of Ferries	4	Area of deck (ft)	0.00
Number of Docks	4	Length of bridge (ft)	0.00

Alignment G4. In addition to the existing ferries and ferry terminals, provide two new ferries and ferry terminals adjacent to the existing terminals on Revilla and Gravina islands at the crossing of Tongass Narrows to the KTN passenger terminal. Also included are the gravel Gravina Island Highway, Lewis Reef Road and Seley Road serving the KGB developable lands on Gravina Island.

Waiting Area & Freight Dock

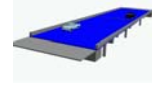
Number of Ferries	0	Area of deck (ft)	0.00
Number of Docks	1	Length of bridge (ft)	0.00

This work includes construction of a passenger waiting and baggage handling facility (including shuttle vans, etc) at Charcoal Point, and a heavy freight dock and 2.5 acre staging area on Gravina Island for oversized and overweight loads that cannot be accommodated on the current ferry, at a location just south of the existing ferry terminal. The dock will also be capable of laying over AMHS-class ferries.



Data: Alternatives

02/09/2009



G4v (Charcoal Point)

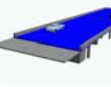
Number of Ferries	2	Area of deck (ft)	0.00
Number of Docks	2	Length of bridge (ft)	0.00

Alignment G4v. Continuation of operation of the existing ferries and ferry terminals. Two new ferries and ferry terminals adjacent to the existing terminals on Revilla and Gravina islands at the crossing of Tongass Narrows to the KTN passenger terminal will be added at some future date when traffic warrants a system expansion. Also included are the gravel Gravina Island Highway, Lewis Reef Road and Seley Road serving the KGB developable lands on Gravina Island.



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$ 76,875,603	\$ 76,875,603	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 1,700,000	\$ 1,700,000	
M&O Paved Road	<no event>	5	80	1.0000	21675.000	LS	\$ 4	\$ 93,203	
M&O Gravel Road	<no event>	5	80	1.0000	16714.000	LS	\$ 4	\$ 71,870	
Inspection Above Ground	<no event>	7	80	2.0000	4.000	LS	\$ 40,000	\$ 160,000	
Inspection Underwater	<no event>	10	80	5.0000	4.000	LS	\$ 25,000	\$ 100,000	
Guardrail Paved Road	<no event>	10	80	5.0000	10838.000	LS	\$ 117	\$ 1,268,046	
Guardrail Gravel Road	<no event>	10	80	5.0000	1671.000	LS	\$ 117	\$ 195,507	
Fendering System Repairs	<no event>	10	80	5.0000	4.000	LS	\$ 50,000	\$ 200,000	
Pavement Replacement Road	<no event>	15	80	10.0000	21675.000	LS	\$ 102	\$ 2,210,850	
Anode Replacement	<no event>	15	80	10.0000	4.000	LS	\$ 20,000	\$ 80,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	10838.000	LS	\$ 5	\$ 54,190	
Signs/Illumination Gravel	<no event>	20	80	15.0000	3343.000	LS	\$ 5	\$ 16,715	
Recoat Transfer Span	<no event>	20	80	15.0000	4.000	LS	\$ 150,000	\$ 600,000	
Bridge Support Float Recoat	<no event>	20	80	15.0000	4.000	LS	\$ 75,000	\$ 300,000	
Mooring Structure	<no event>	40	80	35.0000	4.000	LS	\$ 1,500,000	\$ 6,000,000	
Ferry Replacement	<no event>	40	80	35.0000	3.000	LS	\$ 8,000,000	\$ 24,000,000	
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	

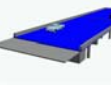
Alternative #4

Agency



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Initial Construction									
Initial Construction Cost	<no event>	5	5	1.0000	1.000	LS	\$ 9,027,000	\$ 9,027,000	
One Ferry Construction Cost	<no event>	25	80	35.0000	1.000	LS	\$ 8,000,000	\$ 8,000,000	
Two Docks Construction Cost	<no event>	25	80	75.0000	1.000	LS	\$ 18,700,000	\$ 18,700,000	
O, M, and R									
M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 1,700,000	\$ 1,700,000	
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	3.000	LS	\$ 40,000	\$ 120,000	Quantity ass
Inspection Underwater	<no event>	10	80	5.0000	3.000	LS	\$ 25,000	\$ 75,000	Quantity ass
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Fendering System Repairs	<no event>	10	80	5.0000	3.000	LS	\$ 50,000	\$ 150,000	Quantity ass
Anode Replacement	<no event>	15	80	10.0000	3.000	LS	\$ 20,000	\$ 60,000	Quantity ass
Signs/Illumination Gravel	<no event>	20	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Recoat Transfer Span	<no event>	20	80	15.0000	3.000	LS	\$ 150,000	\$ 450,000	Quantity ass
Bridge Support Float Recoat	<no event>	20	80	15.0000	3.000	LS	\$ 75,000	\$ 225,000	Quantity ass
Mooring Structure	<no event>	40	80	35.0000	3.000	LS	\$ 1,500,000	\$ 4,500,000	Quantity ass
Ferry Replacement	<no event>	40	80	35.0000	2.000	LS	\$ 8,000,000	\$ 16,000,000	
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	
Disposal									
Disposal Cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #2

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$ 56,081,910	\$ 56,081,910	.
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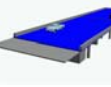
O, M, and R

M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 1,700,000	\$ 1,700,000	
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Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	4.000	LS	\$ 40,000	\$ 160,000	
Inspection Underwater	<no event>	10	80	5.0000	4.000	LS	\$ 25,000	\$ 100,000	
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Fendering System Repairs	<no event>	10	80	5.0000	4.000	LS	\$ 50,000	\$ 200,000	
Anode Replacement	<no event>	15	80	10.0000	4.000	LS	\$ 20,000	\$ 80,000	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Recoat Transfer Span	<no event>	20	80	15.0000	4.000	LS	\$ 150,000	\$ 600,000	
Bridge Support Float Recoat	<no event>	20	80	15.0000	4.000	LS	\$ 75,000	\$ 300,000	
Mooring Structure	<no event>	40	80	35.0000	4.000	LS	\$ 1,500,000	\$ 6,000,000	
Ferry Replacement	<no event>	40	80	35.0000	3.000	LS	\$ 8,000,000	\$ 24,000,000	
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #3

Agency

Initial Construction

Freight Dock Construction	<no event>	5	5	1.0000	1.000	LS	\$ 5,800,000	\$ 5,800,000	
Passenger Waiting Area	<no event>	5	5	1.0000	1.000	LS	\$ 1,500,000	\$ 1,500,000	

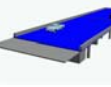
O, M, and R

M&O Freight Dock	<no event>	5	80	1.0000	1.000	LS	\$ 0	\$ 0	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Fendering System Repairs	<no event>	10	80	5.0000	1.000	LS	\$ 50,000	\$ 50,000	
Freight Dock Resurfacing	<no event>	15	80	10.0000	1.000	LS	\$ 400,000	\$ 400,000	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Recoat Transfer Span	<no event>	20	80	15.0000	1.000	LS	\$ 150,000	\$ 150,000	
Bridge Support-Float Recoat	<no event>	20	80	15.0000	1.000	LS	\$ 75,000	\$ 75,000	
Mooring Structure	<no event>	40	80	35.0000	1.000	LS	\$ 1,500,000	\$ 1,500,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #1

Agency

Initial Construction

Construction cost	<no event>	5	5	1.0000	1.000	LS	\$ 69,296,576	\$ 69,296,576	
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O, M, and R

M&O Ferry and Dock	<no event>	5	80	1.0000	1.000	LS	\$ 1,700,000	\$ 1,700,000	
M&O Paved Road	<no event>	5	80	1.0000	10180.000	LS	\$ 4	\$ 43,774	
M&O Gravel Road	<no event>	5	80	1.0000	25554.000	LS	\$ 4	\$ 109,882	
Inspection Above Ground	<no event>	7	80	2.0000	4.000	LS	\$ 40,000	\$ 160,000	
Inspection Underwater	<no event>	10	80	5.0000	4.000	LS	\$ 25,000	\$ 100,000	
Guardrail Paved Road	<no event>	10	80	5.0000	5090.000	LS	\$ 117	\$ 595,530	
Guardrail Gravel Road	<no event>	10	80	5.0000	2555.000	LS	\$ 117	\$ 298,935	
Fendering System Repairs	<no event>	10	80	5.0000	4.000	LS	\$ 50,000	\$ 200,000	
Pavement Replacement Road	<no event>	15	80	10.0000	10180.000	LS	\$ 102	\$ 1,038,360	
Anode Replacement	<no event>	15	80	10.0000	4.000	LS	\$ 20,000	\$ 80,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	5090.000	LS	\$ 5	\$ 25,450	
Signs/Illumination Gravel	<no event>	20	80	15.0000	5111.000	LS	\$ 5	\$ 25,555	
Recoat Transfer Span	<no event>	20	80	15.0000	4.000	LS	\$ 150,000	\$ 600,000	
Bridge Support Float Recoat	<no event>	20	80	15.0000	4.000	LS	\$ 75,000	\$ 300,000	
Mooring Structure	<no event>	40	80	35.0000	4.000	LS	\$ 1,500,000	\$ 6,000,000	
Ferry Replacement	<no event>	40	80	35.0000	3.000	LS	\$ 8,000,000	\$ 24,000,000	



Data: Individual Costs

02/09/2009



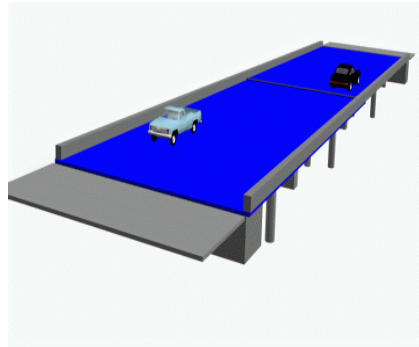
Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Transfer Bridge Replacement	<no event>	15	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.



BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- M and T Alignments

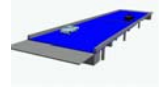
02/11/2009



Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD

Analysis: Summary of Life-Cycle Costs

02/11/2009

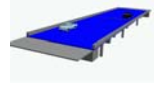


	Name	Base Case	Alternative #1	Alternative #2
	Total Life-Cycle Cost	\$388,208,335	\$442,183,826	\$445,097,447
By Cost Bearer:	Agency Costs	\$388,208,335	\$442,183,826	\$445,097,447
	User Costs	\$ 0	\$ 0	\$ 0
	Third-Party Costs	\$ 0	\$ 0	\$ 0
By Cost Timing:	Initial Construction Costs	\$335,514,454	\$354,766,017	\$369,540,473
	OM&R Costs	\$ 52,693,881	\$ 87,417,809	\$ 75,556,974
	Disposal Costs	\$ 0	\$ 0	\$ 0
By Cost Component:	Elemental Costs	\$388,208,335	\$442,183,826	\$445,097,447
	Non-elemental Costs	\$ 0	\$ 0	\$ 0
	New-Technology	\$ 0	\$ 0	\$ 0



Data: Project Parameters

02/11/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

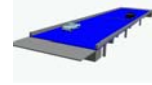
Elements

#1	Bridge
#2	Tunnel
#3	Paved Road
#4	Gravel Road
#5	
#6	Non-elemental
#7	New technology



Data: Alternatives

02/11/2009



M1 (20' to 200')

Lanes on	2	Length of roadway (ft)	1,640.00
	0	Length of bridge (ft)	1,400.00

Alignment M1. Provide a flat low-profile minimal-clearance (20-foot) movable bridge (600-foot vertical lift span) over Tongass Narrows between the existing ferry terminals on Revilla and Gravina islands. Span will open to provide 200 feet of vertical and 550 feet of horizontal navigational clearance.

T1

Lanes on	2	Length of roadway (ft)	25,314.00
	0	Length of bridge (ft)	3,200.00

Alignment T1. Provide a tunnel under Tongass Narrows between Peninsula Point on Revilla Island and Lewis Point on Gravina Island. Connect with a new paved road from Lewis Point portal up the hill to the Seley Road. Upgrade and pave the Seley Road, pave the Lewis Reef Road and Airport Access Road to the KTN passenger terminal. Channel will provide 550 feet of horizontal navigational clearance, and 40 feet of vessel draft at MLLW.

M2 (60' to 200')

Lanes on	2	Length of roadway (ft)	2,720.00
	0	Length of bridge (ft)	1,700.00

Alignment M2. Provide a curvilinear low-clearance (60-foot) movable bridge (600-foot vertical lift span) over Tongass Narrows near the existing ferry terminals on Revilla and Gravina islands. Span will open to provide 200 feet of vertical and 550 feet of horizontal navigational clearance.



Data: Individual Costs

02/11/2009

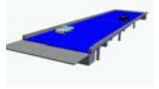


Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$374,700,000	\$374,700,000	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Bridge	<no event>	5	80	1.0000	1.000	LS	\$ 1,050,000	\$ 1,050,000	
M&O Paved Road	<no event>	5	80	1.0000	1640.000	LS	\$ 4	\$ 7,052	
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	10	80	5.0000	1400.000	Length of	\$ 23	\$ 32,200	
Guardrail Paved Road	<no event>	10	80	5.0000	100.000	LS	\$ 117	\$ 11,700	
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Replace Pavement Bridge	<no event>	15	80	10.0000	1400.000	Length of	\$ 102	\$ 142,800	
Replace Pavement Road	<no event>	15	80	10.0000	200.000	LS	\$ 102	\$ 20,400	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Bridge	<no event>	20	80	15.0000	1400.000	Length of	\$ 5	\$ 7,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	100.000	LS	\$ 5	\$ 500	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Bridge Rehabilitation	<no event>	30	80	25.0000	1.000	LS	\$ 5,000,000	\$ 5,000,000	
Bridge Major Rehabilitation	<no event>	55	80	50.0000	1.000	LS	\$ 35,000,000	\$ 35,000,000	

Alternative #2

Data: Individual Costs

02/11/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Agency									
Initial Construction									
Construction Cost	<no event>	5	5	1.0000	1.000	LS	\$412,700,000	\$412,700,000	
O, M, and R									
M&O Bridge	<no event>	5	80	1.0000	1.000	LS	\$ 1,800,000	\$ 1,800,000	M&O=2800/1640
M&O Paved Road	<no event>	5	80	1.0000	2720.000	Length of	\$ 4	\$ 11,696	
M&O Gravel Road	<no event>	5	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Bridge	<no event>	10	80	5.0000	1700.000	Length of	\$ 23	\$ 39,100	
Guardrail Paved Road	<no event>	10	80	5.0000	1360.000	LS	\$ 117	\$ 159,120	
Guardrail Gravel Road	<no event>	10	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Replace Pavement Bridge	<no event>	15	80	10.0000	1700.000	Length of	\$ 102	\$ 173,400	
Replace Pavement Road	<no event>	15	80	10.0000	1020.000	LS	\$ 102	\$ 104,040	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Bridge	<no event>	20	80	15.0000	1700.000	Length of	\$ 5	\$ 8,500	
Signs/Illumination Paved	<no event>	20	80	15.0000	510.000	LS	\$ 5	\$ 2,550	
Signs/Illumination Gravel	<no event>	20	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Bridge Rehabilitation	<no event>	30	80	25.0000	1.000	LS	\$ 5,000,000	\$ 5,000,000	
Bridge Major Rehabilitation	<no event>	55	80	50.0000	1.000	LS	\$ 35,000,000	\$ 35,000,000	
Disposal									
Disposal Cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	

Alternative #1

Agency



Data: Individual Costs

02/11/2009



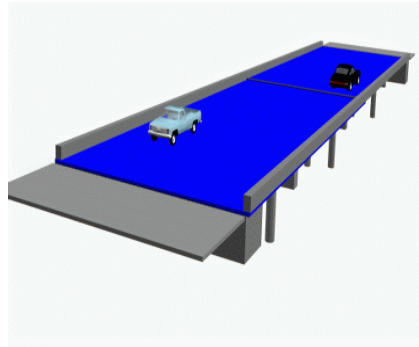
Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Initial Construction									
Construction cost	<no event>	5	5	1.0000	1.000	LS	\$396,200,000	\$396,200,000	.
O, M, and R									
M&O Tunnel	<no event>	5	80	1.0000	1.000	LS	\$ 1,500,000	\$ 1,500,000	
M&O Paved Road	<no event>	5	80	1.0000	23514.000	LS	\$ 4	\$ 101,110	
M&O Gravel Road	<no event>	5	80	1.0000	16714.000	LS	\$ 4	\$ 71,870	
Inspection Above Ground	<no event>	7	80	2.0000	1.000	LS	\$ 40,000	\$ 40,000	
Inspection Underwater	<no event>	10	80	5.0000	1.000	LS	\$ 40,000	\$ 40,000	
Guardrail Paved Road	<no event>	10	80	5.0000	11057.000	LS	\$ 117	\$ 1,293,669	
Guardrail Gravel Road	<no event>	10	80	5.0000	1671.000	LS	\$ 117	\$ 195,507	
Replace Pavement Tunnel	<no event>	15	80	10.0000	3200.000	Length of	\$ 102	\$ 326,400	
Replace Pavement Road	<no event>	15	80	10.0000	22114.000	LS	\$ 102	\$ 2,255,628	
Anode Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 100,000	\$ 100,000	
Joint Gland Replacement	<no event>	15	80	10.0000	1.000	LS	\$ 500,000	\$ 500,000	
Signs/Illumination Tunnel	<no event>	20	80	15.0000	3200.000	Length of	\$ 5	\$ 16,000	
Signs/Illumination Paved	<no event>	20	80	15.0000	11057.000	LS	\$ 5	\$ 55,285	
Signs/Illumination Gravel	<no event>	20	80	15.0000	3343.000	LS	\$ 5	\$ 16,715	
Joint Assembly Replacement	<no event>	30	80	25.0000	1.000	LS	\$ 1,400,000	\$ 1,400,000	
Tunnel Electrical	<no event>	5	80	1.0000	1.000	LS	\$ 550,000	\$ 550,000	
Tunnel Repairs and	<no event>	5	80	1.0000	1.000	LS	\$ 200,000	\$ 200,000	
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.



BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- No-Build (w/o Revenue)

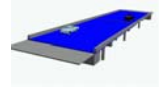
02/09/2009



**Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD**

Analysis: Summary of Life-Cycle Costs

02/09/2009

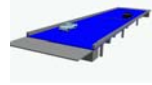


	Name	Base Case
	Total Life-Cycle Cost	\$ 75,566,445
By Cost Bearer:	Agency Costs	\$ 75,566,445
	User Costs	\$ 0
	Third-Party Costs	\$ 0
By Cost Timing:	Initial Construction Costs	\$ 0
	OM&R Costs	\$ 75,566,445
	Disposal Costs	\$ 0
By Cost Component:	Elemental Costs	\$ 75,566,445
	Non-elemental Costs	\$ 0
	New-Technology	\$ 0



Data: Project Parameters

02/09/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

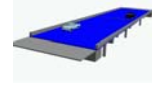
Elements

#1	Ferry
#2	Dock
#3	Gravel Road
#4	
#5	
#6	Non-elemental
#7	New technology



Data: Alternatives

02/09/2009



No-Build (w/o Revenue)

Lanes on	2	Area of deck (ft)	0.00
Lanes under	0	Length of bridge (ft)	0.00

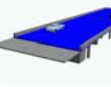
No-Build Alternative. Under the no-build, there will be no improvements to the existing ferry system service. Maintenance will continue at its present level, but no system expansion will be made other than normal repairs and replacements.

Also included will be the continuing normal and routine maintenance of the gravel Gravina Island Highway, Lewis Reef Road and Seley Road accesses to the KGB developable lands on Gravina Island.



Data: Individual Costs

02/09/2009



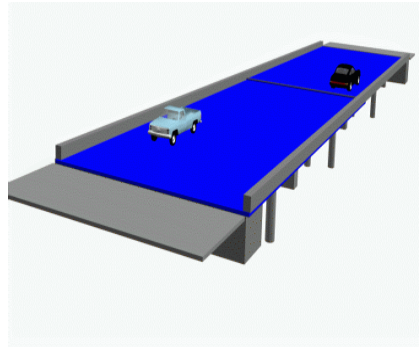
Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	3	3	1.0000	1.000	LS	\$ 0	\$ 0	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Ferry and Dock	<no event>	3	80	1.0000	1.000	LS	\$ 1,800,000	\$ 1,800,000	
M&O Gravel Road	<no event>	3	80	1.0000	34408.000	LS	\$ 4	\$ 147,954	
Inspection Above Ground	<no event>	5	80	2.0000	2.000	LS	\$ 40,000	\$ 80,000	
Inspection Underwater	<no event>	8	80	5.0000	2.000	LS	\$ 25,000	\$ 50,000	
Guardrail Gravel Road	<no event>	8	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Fendering System Repairs	<no event>	8	80	5.0000	2.000	LS	\$ 50,000	\$ 100,000	
Anode Replacement	<no event>	13	80	10.0000	2.000	LS	\$ 20,000	\$ 40,000	
Sign/Illumination	<no event>	18	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Recoat Transfer Span	<no event>	18	80	15.0000	2.000	LS	\$ 150,000	\$ 300,000	
Bridge Support Float Recoat	<no event>	18	80	15.0000	2.000	LS	\$ 75,000	\$ 150,000	
Mooring Structure	<no event>	38	80	35.0000	2.000	LS	\$ 1,500,000	\$ 3,000,000	
Ferry Replacement	<no event>	35	80	35.0000	2.000	LS	\$ 8,000,000	\$ 16,000,000	
Transfer Bridge Replacement	<no event>	78	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	



BridgeLCC 2.0 Reports

Ketchikan Gravina Island Access -- No-Build (w/ Revenue)

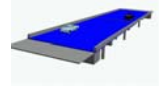
02/09/2009



Building and Fire Research Laboratory
National Institute of Standards and Technology
Gaithersburg, MD

Analysis: Summary of Life-Cycle Costs

02/09/2009

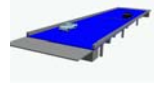


	Name	Base Case
	Total Life-Cycle Cost	\$ 29,500,022
By Cost Bearer:	Agency Costs	\$ 29,500,022
	User Costs	\$ 0
	Third-Party Costs	\$ 0
By Cost Timing:	Initial Construction Costs	\$ 0
	OM&R Costs	\$ 29,500,022
	Disposal Costs	\$ 0
By Cost Component:	Elemental Costs	\$ 29,500,022
	Non-elemental Costs	\$ 0
	New-Technology	\$ 0



Data: Project Parameters

02/09/2009



Study Period

Base Year	2008
Length of period	80
Last Year	2088

Currency

U.S. Dollars (\$)

Interest Rates

Inflation	2.05%
Real Discount	2.80%

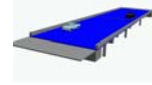
Elements

#1	Ferry
#2	Dock
#3	Gravel Road
#4	
#5	
#6	Non-elemental
#7	New technology



Data: Alternatives

02/09/2009



No-Build (w/Revenue)

Lanes on	2	Area of deck (ft)	0.00
Lanes under	0	Length of bridge (ft)	0.00

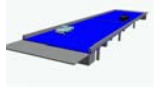
No-Build Alternative. Under the no-build, there will be no improvements to the existing ferry system service. Maintenance will continue at its present level, but no system expansion will be made other than normal repairs and replacements. The maintenance costs reflected herein includes the revenue obtained from ticket sales.

Also included will be the continuing normal and routine maintenance of the gravel Gravina Island Highway, Lewis Reef Road and Seley Road accesses to the KGB developable lands on Gravina Island.



Data: Individual Costs

02/09/2009



Item	Event	Start Year	End Year	Frequency	Qty	Unit of Measure	Unit Cost	Total	Remarks
Base Case									
Agency									
Initial Construction									
Construction cost	<no event>	3	3	1.0000	1.000	LS	\$ 0	\$ 0	.
Disposal									
Disposal cost	<no event>	80	80	1.0000	1.000	LS	\$ 0	\$ 0	.
O, M, and R									
M&O Ferry and Dock	<no event>	3	80	1.0000	1.000	LS	\$ 300,000	\$ 300,000	
M&O Gravel Road	<no event>	3	80	1.0000	34406.000	LS	\$ 4	\$ 147,946	
Inspection Above Ground	<no event>	5	80	2.0000	2.000	LS	\$ 40,000	\$ 80,000	
Inspection Underwater	<no event>	8	80	5.0000	2.000	LS	\$ 25,000	\$ 50,000	
Guardrail Gravel Road	<no event>	8	80	5.0000	3441.000	LS	\$ 117	\$ 402,597	
Fendering System Repairs	<no event>	8	80	5.0000	2.000	LS	\$ 50,000	\$ 100,000	
Anode Replacement	<no event>	13	80	10.0000	2.000	LS	\$ 20,000	\$ 40,000	
Sign/Illumination	<no event>	18	80	15.0000	6882.000	LS	\$ 5	\$ 34,410	
Recoat Transfer Span	<no event>	18	80	15.0000	2.000	LS	\$ 150,000	\$ 300,000	
Bridge Support Float Recoat	<no event>	18	80	15.0000	2.000	LS	\$ 75,000	\$ 150,000	
Mooring Structure	<no event>	38	80	35.0000	2.000	LS	\$ 1,500,000	\$ 3,000,000	
Ferry Replacement	<no event>	35	80	35.0000	2.000	LS	\$ 8,000,000	\$ 16,000,000	
Transfer Bridge Replacement	<no event>	78	80	75.0000	2.000	LS	\$ 2,000,000	\$ 4,000,000	

