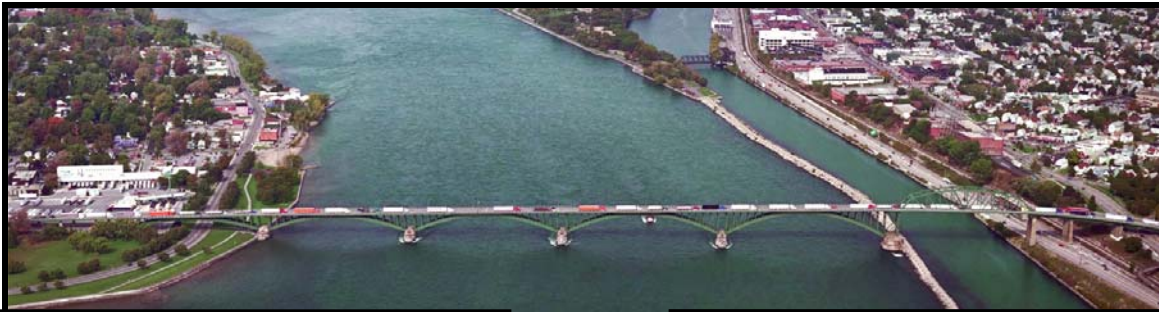


Draft Design Report
Draft Environmental Impact Statement
Draft Section 4(f) Evaluation
Draft Section 6(f) Evaluation
Appendix I – Cost Estimates



Peace Bridge Expansion Project

**Capacity Improvements to the Peace Bridge, Plazas and
Connecting Roadways**

City of Buffalo, Erie County, NY
Town of Fort Erie, Ontario Canada

PIN 5753.58

September 2007



Buffalo and Fort Erie
Public Bridge Authority



U.S. Department of Transportation
Federal Highway Administration

NEW YORK STATE DEPARTMENT OF TRANSPORTATION
Eliot Spitzer, Governor
Astrid C. Glynn, Commissioner



Project Cost Estimate Summary

Plaza Alternatives					
Bridge Concepts		ALT 1B	SBM 13G-R1	SBM 23B-R1	SBM 23B-R2
	1	\$364	\$336	\$325	\$306
	3	\$336	\$307	\$296	\$278
	5	\$318	\$290	\$279	\$260
	6	\$332	\$303	\$293	\$274
	8	\$336	\$307	\$296	\$278
	13	\$364	\$336	\$325	\$306

PLAZA CONCEPTS

Order of Magnitude Cost Estimates

Cost Detail	Designation	ALT 1		ALT 3	
		1B	SBM 13G-R1	SBM 23B-R1	SBM 23B-R2
		(Million)	(Million)	(Million)	(Million)
Construction Costs					
Bridge Conc. 6 & Rehab.					
New Bridge (2006)		\$ 117	\$ 117	\$ 117	\$ 117
Peace Bridge Deck Rehabilitation (2006)		\$ 24	\$ 24	\$ 24	\$ 24
Total Cost of Bridge Conc. 6 & Rehab.		\$ 140	\$ 140	\$ 140	\$ 140
Fort Erie CBP Plaza					
Plaza Site & Buildings (CA\$)		-	\$ 48	\$ 48	\$ 48
Plaza Site & Buildings (US\$)		-	\$ 41	\$ 41	\$ 41
Dept Homeland Security Infrastructure		-	\$ -	\$ -	\$ -
Design and Pricing Contingency (10%)		-	\$ 4	\$ 4	\$ 4
Construction Contingency (5%)		-	\$ 2	\$ 2	\$ 2
Phasing Contingency (5%)		-	\$ 2	\$ 2	\$ 2
Total Cost of Fort Erie CBP Plaza		\$ -	\$ 49	\$ 49	\$ 49
Buffalo CBP Plaza					
Plaza Site & Buildings (US\$)		\$ 50	-	-	-
Dept Homeland Security Infrastructure		\$ -	-	-	-
Mobilization (3%)		\$ 1	-	-	-
MPT (5%)		\$ 2	-	-	-
Estimate/Design Contingency (25%)		\$ 12	-	-	-
Total Cost of Buffalo CBP Plaza		\$ 66	\$ -	\$ -	\$ -
US Connecting Roadways					
Roadways		\$ 5.7	\$ 5.8	\$ 5.4	\$ 4.8
Bridges		\$ 14.2	\$ 7.8	\$ 9.7	\$ 9.7
Retaining Walls		\$ 2.3	\$ 1.8	\$ 0.5	\$ 0.6
Demolition		\$ 1.1	\$ 2.9	\$ 1.6	\$ 1.6
Grading		\$ 0.8	\$ 0.7	\$ 0.4	\$ 0.4
Utilities		\$ 1.3	\$ 1.3	\$ 1.3	\$ 1.3
Staged Construction - Temporary Works		\$ 1.0	\$ 3.1	\$ 0.2	\$ 0.1
Subtotal		\$ 26	\$ 20	\$ 19	\$ 18
Mobilization (3%)		\$ 0.8	\$ 0.6	\$ 0.6	\$ 0.6
MPT (5%)		\$ 1.3	\$ 1.0	\$ 0.9	\$ 0.9
Estimate/Design Contingency (25%)		\$ 6.6	\$ 5.1	\$ 4.7	\$ 4.6
Subtotal		\$ 9	\$ 7	\$ 6	\$ 6
Total Cost of US Connecting Roadways		\$ 35	\$ 30	\$ 25	\$ 25
Subtotal - Construction Cost Estimate		\$ 242	\$ 220	\$ 215	\$ 214
Property Acquisition					
Full Assessed Value		\$ 18	\$ 16	\$ 13	\$ 1
Other Acquisition Costs		\$ 9.2	\$ 8.0	\$ 6.4	\$ 0.4
Supplemental Relocation Plan Costs		\$ 1	\$ 1	\$ 1	\$ 1
Total Cost of Property Acquisition		\$ 29	\$ 25	\$ 20	\$ 2
Grand Total - Construction & Acquisition Costs		\$ 270	\$ 245	\$ 235	\$ 217
Community Enhancement/ Mitigation Contingency		\$ 25	\$ 25	\$ 25	\$ 25
Soft Costs					
Final Design/Permits (7.5%)		\$ 18	\$ 16	\$ 16	\$ 16
Construction Management (7.5%)		\$ 18	\$ 16	\$ 16	\$ 16
Sub Total - Soft Cost Estimate		\$ 36	\$ 33	\$ 32	\$ 32
Grand Total Alternative Cost (rounded)		\$ 332	\$ 303	\$ 293	\$ 274

Note:

Estimate does not include cost of: duty free building and parking; Visitors Center/Gateway and parking; and conversion of existing US plaza area to parkland.

Right of Way Preliminary Design Cost Estimate

	ALT 1	ALT 3		
	1B	SBM 13G-R1	SBM 23B-R1	SBM 23B-R2
United States				
Parcels	120	92	11	6
Full Assessed Value	\$ 18,469,030	\$ 16,067,000	\$ 12,890,230	\$ 897,230
Other Acquisition Costs	\$ 9,234,515	\$ 8,033,500	\$ 6,445,115	\$ 448,615
Supplemental Relocation Plan Costs	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Estimated Acquisition Cost	\$ 28,703,545	\$ 25,100,500	\$ 20,335,345	\$ 2,345,845
Canada				
Parcels	0	0	0	0
Full Assessed Value	\$ -	\$ -	\$ -	\$ -
Other Acquisition Costs	\$ -	\$ -	\$ -	\$ -
Supplemental Relocation Plan Costs	\$ -	\$ -	\$ -	\$ -
Estimated Acquisition Cost	\$ -	\$ -	\$ -	\$ -
Total *	\$ 28,703,545	\$ 25,100,500	\$ 20,335,345	\$ 2,345,845

* All Values in \$US

ALT 1B REV3

Roadway/Plaza Order of Magnitude Cost Estimate

Item	Unit	Unit Cost (US\$)	Length/Area/Number	Total (US\$)
US Plaza(s)				
Retaining Walls				
Plaza Walls (0 to 3m)	m ²	\$400	160	\$64,000
Plaza Walls (over 3m)	m ²	\$700	750	\$525,000
	<i>subtotal</i>			\$589,000
Demolition				
Plaza Site Demolition	ls	\$1,990,779	1	\$1,990,779
Vaults	m ²	\$100	1,500	\$150,000
Plaza	m ²	\$57	45,500	\$2,593,500
Demolition of New Plaza Areas	ls	\$500,000	1	\$500,000
	<i>subtotal</i>			\$5,234,279
Plaza Buildings				
Secondary Non-Commercial	m ²	\$2,440	2,480	\$6,051,374
Secondary Commercial / Inspection Bldg.	m ²	\$2,016	2,250	\$4,535,348
Brokers	m ²	\$2,016	1,960	\$3,950,792
Duty Free	m ²	\$1,392	1,150	\$1,601,296
3-story Parking Facility (410 spaces)	m ²	\$300	19,000	\$5,700,000
Primary Inspection	ea	\$55,000	24	\$1,320,000
VACIS (Building and Equipment)	ea	\$1,500,000	2	\$3,000,000
Special inspection equip. (car lift, crane etc.)	ls	\$500,000	1	\$500,000
Non-Comm Secondary Garage	m ²	\$1,200	550	\$660,000
Salt storage building	m ²	\$452	75	\$33,900
Auto Secondary Inspection Canopy	m ²	\$150	3,700	\$555,000
	<i>subtotal</i>			\$27,907,709
Plaza Areas				
Misc/Curbing/Sidewalk (at grade)	m ²	\$55	1,500	\$82,500
Paving/(at grade) plaza	m ²	\$125	34,452	\$4,306,500
Paving/(at grade) Conc. Parking	m ²	\$95	17,805	\$1,691,475
Paving/(at grade) Asphalt Parking	m ²	\$65	20,119	\$1,307,735
concrete barrier	m	\$100	746	\$74,600
Plaza Exit Ramp Staging & Construction	ls	\$1,150,000	1	\$1,150,000
	<i>subtotal</i>			\$8,612,810
Major Grading				
Clearing & Grubbing / Erosion Control	ls	\$350,000	1	\$350,000
Plaza Excavation and Embankment	m ³	\$5	50,000	\$250,000
Plaza Borrow Fill	m ³	\$6	47,000	\$282,000
	<i>subtotal</i>			\$882,000
Plaza Utility Services				
Drainage	ls	\$800,000	1	\$800,000
Electric Service & Lighting	ls	\$865,500	1	\$865,500
Water, Sewer, Gas & Telephone Service	ls	\$583,000	1	\$583,000
Relocate Watermains	m	\$1,688	800	\$1,350,000
	<i>subtotal</i>			\$3,598,500

Plaza Landscaping				
Plantings	ls	\$450,000	1	\$450,000
Art / Gateway Features (¹ / ₂ % of total)	ls	\$380,000	1	\$380,000
Fencing	m	\$130	1,700	\$221,000
Wall/Screening	m	\$350	500	\$175,000
	<i>subtotal</i>			<u>\$1,226,000</u>
Signs & ITS				
Large signs, DMS and ITS infrastructure	ls	\$1,738,400	1	\$1,738,400
Subtotal				<u>\$49,788,697</u>
Mobilization (3%)	3%			\$1,493,661
MPT / Staging (5%)	5%			\$2,489,435
Estimate/Design Contingency (25%)	25%			\$13,442,948
Total Cost of US Plaza(s)				<u>\$67,214,742</u>
Rounded Total (Millions of Dollars)				\$ 68

*NOTE: Estimate does not include Environmental, R.O.W. Acquisition, Minor Utility Relocations, Large Scale Park Redevelopment.

ALT 1B REV3

Roadway/Plaza Order of Magnitude Cost Estimate

Item	Unit	Unit Cost (US\$)	Length/Area/Number	Total (US\$)
US Connecting Roadways				
Roadways & Ramps				
1-Lane Roadway (std width)				
Ramp C	m	\$800	603	\$482,400
Ramp D	m	\$800	225	\$180,000
Ramp DF	m	\$800	0	\$0
Ramp N	m	\$800	70	\$56,000
Ramp O	m	\$800	268	\$214,400
Local Streets	m	\$800	145	\$116,000
1-Lane Roadway (Wide width)				
Ramp B	m	\$950	197	\$187,150
Ramp C	m	\$950	140	\$133,000
Ramp D	m	\$950	99	\$94,050
Ramp DF	m	\$800	132	\$105,600
Ramp N	m	\$950	620	\$589,000
Ramp P	m	\$950	95	\$90,250
Ramp PN	m	\$950	148	\$140,600
2-Lane Roadway (Std. Width)				
Ramp A	m	\$1,170	573	\$670,410
Ramp D	m	\$1,170	118	\$138,060
Ramp DF	m	\$1,170	154	\$180,180
Ramp N	m	\$1,170	160	\$187,200
Ramp O	m	\$1,170	165	\$193,050
Ramp S	m	\$1,170	357	\$417,690
Local Streets	m	\$1,170	547	\$639,990
2-Lane Roadway (Wide. Width)				
Ramp A	m	\$1,320	240	\$316,800
Ramp N to Ramp DF	m	\$1,320	35	\$46,200
5-Lane Roadway				
Porter Ave.	m	\$2,250	240	\$540,000
subtotal				\$5,718,030
Bridges				
standard overpass (up to 10m high)				
1-Lane Roadway				
Ramp B	m ²	\$1,345	2,558	\$3,439,838
Ramp D (3)	m ²	\$1,345	778	\$1,046,545
Ramp DF	m ²	\$1,345	155	\$208,475
high overpass (over 10m high)				
US Bound Ramp from PPB	m ²	\$1,615	3,480	\$5,620,200
Ca Bound from Ramps A & DF to Truss	m ²	\$1,615	2,400	\$3,876,000
subtotal				\$14,191,057

Retaining Walls - Roadway				
<i>Roadway Walls (0 to 3m)</i>				
Ramp B	m ²	\$400	198	\$79,200
Ramp N	m ²	\$400	1336	\$534,400
Ramp O	m ²	\$400	565	\$226,000
<i>Roadway Walls (over 3m)</i>				
Ramp O	m ²	\$550	423	\$232,650
Ramp C	m ²	\$550	450	\$247,500
Ramp to bridge (Ramp df)	m ²	\$550	104	\$57,200
<i>Roadway Walls (0 to 3m)- curved</i>				
Ramp PN	m ²	\$700	38	\$26,600
Ramp O	m ²	\$700	64	\$44,800
<i>Roadway Walls (over 3m) - curved</i>				
Ramp P	m ²	\$1,000	188	\$188,000
Ramp B	m ²	\$1,000	500	\$500,000
Ramp D	m ²	\$1,000	200	\$200,000
		subtotal		\$2,336,350
Demolition - Roadway				
Demolish Roadway				
Mass/Busti/Ramps/Etc.	m ²	\$12	46000	\$552,000
Demolish Bridge				
US approach	m ²	\$100	2,900	\$290,000
Ramp B	m ²	\$100	2,800	\$280,000
		subtotal		\$1,122,000
Staged Construction				
Stage 1				\$392,239
Stage 2				\$0
Stage 3				\$180,830
Stage 4				\$23,850
Stage 5				\$38,481
Stage 6				\$33,900
Stage 7				\$18,330
Stage 8				\$85,577
Stage 9				\$108,115
Stage 10				\$7,994
Stage 11				\$10,000
Misc staging items				\$134,897
		subtotal		\$1,034,214
Major Grading - Roadway				
Roadway Cut	m ³	\$5	85,000	\$425,000
Roadway Borrow Fill	m ³	\$6	60,000	\$360,000
		subtotal		\$785,000
Utilities	LS	\$1,250,000	1	\$1,250,000
Subtotal				\$25,402,437
Rounded Total (Millions of Dollars)				25.0

*NOTE: Estimate does not include Environmental, R.O.W. Acquisition, Utility Impacts, Park Redevelopment or a Contingency.

**Concept Niagara/Massachusetts (SBM13GR-1)
Roadway/Plaza Order of Magnitude Cost Estimate**

Item	Unit	Unit Cost (US\$)	Length/Area/Number	Total (US\$)
US Connecting Roadways				
Roadways & Ramps				
1-Lane Roadway				
New On Ramp to I-190N (Ramp D)	m	\$800	612	\$489,200
Niagara S to Ramp S (Ramp M)	m	\$800	340	\$272,000
Road to Duty Free	m	\$800	390	\$312,000
I-190 NB On-ramp (Porter to New Bridge) (P)	m	\$800	87	\$69,600
Ramp PN (Porter to end accl. lane)	m	\$800	200	\$160,000
US bound ramp to Niagara St. (K)	m	\$800	240	\$192,000
2-Lane Roadway				
Connector Niagara St. traff cir. To Ramp N (J)	m	\$1,170	265	\$310,050
Ramp N, I-190N to end Ramp PN	m	\$1,170	0	\$0
US Bound Ramp G (to Ramp S)	m	\$1,170	590	\$690,300
Ramp S reconstruction	m	\$1,170	520	\$608,400
Ramp H (Duty Free exit to Ramp J)	m	\$1,170	110	\$128,700
Niagara/Mass Circle	m	\$1,170	155	\$181,350
3-Lane Roadway				
Ca Bound Loop from Dfree to Approach	m	\$1,525	465	\$709,125
Ramp N (Ramp PN gore to Ramp J & begin of H)	m	\$1,525	580	\$884,500
4-Lane Roadway (Niagara St.)				
	m	\$1,890	175	\$330,750
4-Lane Roadway (Porter Ave.)				
	m	\$1,890	240	\$453,600
1-Lane Widening				
	m	\$700		\$0
	<i>subtotal</i>			\$5,791,575
Bridges				
standard overpass (up to 10m high)				
1-Lane Roadway				
Ramp to I-190NB (Ramp D Bridges (4)	m ²	\$1,345	1,825	\$2,454,625
Ramp PN	m ²	\$1,345	0	\$0
2 to 3 -Lane Roadway				
US Bound Ramp from PPB	m ²	\$1,345	1,600	\$2,152,000
Ca Bound from D-Free to Truss	m ²	\$1,345	1,190	\$1,600,550
US Bound Ramp G over Ramp J	m ²	\$1,345	1,215	\$1,634,175
high overpass (over 10m high)				
US Bound Ramp from PPB	m ²	\$1,615	1,233	\$1,991,295
Ca Bound from D-Free to Truss	m ²	\$1,615	1,175	\$1,897,625
	<i>subtotal</i>			\$7,841,350

Retaining Walls - Roadway				
Roadway Walls (0 to 3m)	m ²	\$400	0	\$0
Wall separating Ramps K & J	m ²	\$400	136	\$54,400
Ramp G at Niagara	m ²	\$400	166	\$66,400
<i>Roadway Walls (over 3m)</i>				
Ramp PN	m ²	\$550	90	\$49,500
Ramp P	m ²	\$550	380	\$209,000
Ramp D	m ²	\$550	150	\$82,500
Ramp N	m ²	\$550	650	\$357,500
<i>Roadway Walls (over 3m) - curved</i>				
Ramp from PRBR (Ramp G)	m ²	\$1,000		\$0
Ramp to bridge (Ramp H)	m ²	\$1,000	827	\$827,000
Ramp J	m ²	\$1,000	202	\$202,000
	subtotal			\$1,848,300
Demolition - Roadway				
Demolish Roadway				
Plaza/Mass/Busti	m ²	\$10	89,090	\$890,900
Baird Moore	m ²	\$10	15,000	\$150,000
Demolish Bridge				
US approach	m ²	\$200	3,200	\$640,000
US vaults	m ²	\$100	3,525	\$352,500
Ramp B	m ²	\$200	4,532	\$906,400
	subtotal			\$2,939,800
Stage 1				
No Temporary Work				-
Stage 2				
Tie existing bridge to Ramp NH	m ²	\$1,345	2,140	\$2,878,300
Stage 3				
No Temporary Work				-
Stage 4				
No Temporary Work				-
Stage 5				
Remove Stage 2 Construction	m ²	\$100	2,140	\$214,000
	subtotal			\$3,092,300
Major Grading - Roadway				
Roadway Cut	m ³	\$5	75,000	\$375,000
Roadway Borrow Fill	m ³	\$6	50,000	\$300,000
	subtotal			\$675,000
Utilities	LS	\$1,250,000	1	\$1,250,000
Subtotal				\$20,346,025
Rounded Total (Millions of Dollars)				20.0

*NOTE: Estimate does not include Environmental, R.O.W. Acquisition, Utility Impacts, Park Redevelopment or a Contingency.

Concept Niagara (SBM23B-R1)
Roadway/Plaza Order of Magnitude Cost Estimate

Item	Unit	Unit Cost (US\$)	Length/Area/ Number	Total (US\$)
			Feb. 10 Est.	
			Scaled areas	
US Connecting Roadways				
Roadways & Ramps				
1-Lane Roadway				
Ramp C	m	\$800	310	\$248,000
Ramp D	m	\$800	400	\$320,000
Ramp E	m	\$800	230	\$184,000
Ramp F	m	\$800	280	\$224,000
Ramp N	m	\$800	310	\$248,000
Ramp P	m	\$800	90	\$72,000
Ramp PN	m	\$800	150	\$120,000
Ramp S	m	\$800	400	\$320,000
Busti	m	\$800	150	\$120,000
7th Street	m	\$800	25	\$20,000
2-Lane Roadway				
Ramp A	m	\$1,170	195	\$228,150
Ramp B	m	\$1,170	330	\$386,100
Ramp N	m	\$1,170	210	\$245,700
Ramp PN	m	\$1,170	0	\$0
Busti	m	\$1,170	310	\$362,700
New Hampshire Ramp	m	\$1,170	30	\$35,100
Niagara Roundabout	m	\$1,170	160	\$187,200
3-Lane Roadway				
Ramp A	m	\$1,525	350	\$533,750
Ramp B	m	\$1,525	290	\$442,250
4-Lane Roadway				
Niagara Street	m	\$1,850	180	\$333,000
Porter Avenue	m	\$1,850	240	\$444,000
5-Lane Roadway (Busti)				
subtotal				\$5,422,700
Bridges				
<i>standard overpass (up to 10m high)</i>				
Ramp A (Canada Bound Approach)	m ²	\$1,345	1,200	\$1,614,000
Ramp B over I-190	m ²	\$1,345	2,045	\$2,750,525
Ramp D over RR	m ²	\$1,345	500	\$672,500
Ramp D over Bikeway	m ²	\$1,345	185	\$248,825
Ramp D over Ramp N	m ²	\$1,345	275	\$369,875
Ramp P	m ²	\$1,345	0	\$0
<i>high overpass (over 10m high)</i>				
US bound over I-190 and Ramp N	m ²	\$1,615	3,500	\$5,652,500
subtotal				\$9,694,225

Retaining Walls - Roadway				
Roadway Walls (0 to 3m)	m ²	\$400	0	\$0
<i>Roadway Walls (over 3m)</i>				
Ramp D Wing Walls	m ²	\$550	38	\$21,148
Between Ramp B & I-190	m ²	\$550	451	\$248,050
Ramp B Wing Walls	m ²	\$550	49	\$26,950
<i>Roadway Walls (over 3m) - curved</i>				
Between Ramp B & Ramp A	m ²	\$1,000	227	\$226,800
			subtotal	\$522,948
Demolition - Roadway				
<i>Demolish Roadway</i>				
Plaza/Admin/Mainten/CPB/Parking	m ²	\$10	49,000	\$490,000
Baird Moore	m ²	\$10	5,125	\$51,250
Busti by Duty Free & to Niagara Circle	m ²	\$10	10,000	\$100,000
Ramp N (Front Park)	m ²	\$10	6,900	\$69,000
Ramp PN	m ²	\$10	1,000	\$10,000
Episcopal Home Block	m ²	\$10	20,700	\$207,000
Niagara Circle & Homes	m ²	\$10	16,850	\$168,500
<i>Demolish Bridge</i>				
US approach	m ²	\$100	860	\$86,000
Ramp PN	m ²	\$100	350	\$35,000
US vaults	m ²	\$100	1,500	\$150,000
Ramp B	m ²	\$100	2,325	\$232,500
			subtotal	\$1,599,250
Staged Construction - Temporary Works				
Stage 1				
Temporary connection to ramp B	m	\$800	165	\$132,000
Plaza Striping	m	\$10	270	\$2,700
Stage 2				
No Temporary Work				
Stage 3				
Demo Connection to ramp B (1 Lane)	m ²	\$10	1,010	\$10,100
Plaza Striping	m	\$10	290	\$2,900
Stage 4				
No Temporary Work				
Stage 5				
No Temporary Work				
Stage 6				
Temporary connection DF to Companion Bridge	m	\$800	75	\$60,000
Stage 7				
No Temporary Work				
Stage 8				
Demo Connection DF to Companion Bridge	m ²	\$10	563	\$5,625
			subtotal	\$213,325

Major Grading - Roadway				
Roadway Cut	m ³	\$5	1,500	\$7,500
Roadway Borrow Fill	m ³	\$6	64,000	\$384,000
				<i>subtotal</i>
				\$391,500
Utilities	LS	\$1,250,000	1	\$1,250,000
Subtotal				<u>\$19,093,948</u>
Rounded Total (Millions of Dollars)				19.0

***NOTE:** Estimate does not include Environmental, R.O.W. Acquisition, Utility Impacts, Park Redevelopment, Niagara/Busti circle & gateway road, or a Contingency.

Concept Niagara (SBM23B-R2)
Roadway/Plaza Order of Magnitude Cost Estimate

Item	Unit	Unit Cost (US\$)	Length/Area/ Number	Total (US\$)
US Connecting Roadways				
Roadways & Ramps				
1-Lane Roadway				
Ramp C	m	\$800	310	\$248,000
Ramp D	m	\$800	400	\$320,000
Ramp E	m	\$800	90	\$72,000
Ramp F	m	\$800	200	\$160,000
Ramp N	m	\$800	310	\$248,000
Ramp P	m	\$800	90	\$72,000
Ramp PN	m	\$800	150	\$120,000
Ramp S	m	\$800	400	\$320,000
Busti	m	\$800	150	\$120,000
7th Street	m	\$800	25	\$20,000
2-Lane Roadway				
Ramp A	m	\$1,170	195	\$228,150
Ramp B	m	\$1,170	330	\$386,100
Ramp N	m	\$1,170	210	\$245,700
Ramp PN	m	\$1,170	0	\$0
Busti	m	\$1,170	310	\$362,700
New Hampshire Ramp	m	\$1,170	30	\$35,100
Niagara Roundabout	m	\$1,170	160	\$187,200
3-Lane Roadway				
Ramp A	m	\$1,525	350	\$533,750
Ramp B	m	\$1,525	290	\$442,250
4-Lane Roadway (Niagara)				
	m	\$1,850	180	\$333,000
5-Lane Roadway (Busti)				
	m	\$2,250	155	\$348,750
			subtotal	\$4,802,700
Bridges				
<i>standard overpass (up to 10m high)</i>				
Ramp A (Canada Bound Approach)	m ²	\$1,345	1,200	\$1,614,000
Ramp B over I-190	m ²	\$1,345	2,045	\$2,750,525
Ramp D over RR	m ²	\$1,345	500	\$672,500
Ramp D over Bikeway	m ²	\$1,345	185	\$248,825
Ramp D over Ramp N	m ²	\$1,345	275	\$369,875
Ramp P	m ²	\$1,345	0	\$0
<i>high overpass (over 10m high)</i>				
US bound over I-190 and Ramp N	m ²	\$1,615	3,500	\$5,652,500
			subtotal	\$9,694,225

Retaining Walls - Roadway				
Roadway Walls (0 to 3m)	m ²	\$400	0	\$0
<i>Roadway Walls (over 3m)</i>				
Ramp D Wing Walls	m ²	\$550	38	\$21,148
Between Ramp B & I-190	m ²	\$550	451	\$248,050
Ramp B Wing Walls	m ²	\$550	49	\$26,950
Ramp F to Truck Parking	m ²	\$550	151	\$83,050
<i>Roadway Walls (over 3m) - curved</i>				
Between Ramp B & Ramp A	m ²	\$1,000	227	\$226,800
	subtotal			\$605,998
Demolition - Roadway				
<i>Demolish Roadway</i>				
Plaza/Admin/Mainten/CPB/Parking	m ²	\$10	49,000	\$490,000
Baird Moore	m ²	\$10	5,125	\$51,250
Busti by Duty Free & to Niagara Circle	m ²	\$10	10,000	\$100,000
Ramp N (Front Park)	m ²	\$10	6,900	\$69,000
Ramp PN	m ²	\$10	1,000	\$10,000
Episcopal Home Block	m ²	\$10	20,700	\$207,000
Niagara Circle & Homes	m ²	\$10	16,850	\$168,500
<i>Demolish Bridge</i>				
US approach	m ²	\$100	860	\$86,000
Ramp PN	m ²	\$100	350	\$35,000
US vaults	m ²	\$100	1,500	\$150,000
Ramp B	m ²	\$100	2,325	\$232,500
	subtotal			\$1,599,250
Staged Construction - Temporary Works				
Stage 1				
No Temporary Work				
Stage 2				
Connection to ramp B (1 Lane)	m	\$800	165	\$132,000
Plaza Striping	m	\$10	270	\$2,700
Stage 3				
Demo Connection to ramp B (1 Lane)	m ²	\$10	1,010	\$10,100
Plaza Striping	m	\$10	290	\$2,900
Stage 4				
No Temporary Work				
Stage 5				
No Temporary Work				
	subtotal			\$147,700

Major Grading - Roadway				
Roadway Cut	m ³	\$5	1,500	\$7,500
Roadway Borrow Fill	m ³	\$6	64,000	\$384,000
				<i>subtotal</i>
				\$391,500
Utilities	LS	\$1,250,000	1	\$1,250,000
Subtotal				<u>\$18,491,373</u>
Rounded Total (Millions of Dollars)				18.0

***NOTE:** Estimate does not include Environmental, R.O.W. Acquisition, Utility Impacts, Park Redevelopment, Niagara/Busti circle & gateway road, or a Contingency.

BRIDGE CONCEPTS

Bridge Cost Estimate Summary

Cost Detail	Companion Bridge 1 (Million)	Companion Bridge 3 (Million)	Companion Bridge 5 (Million)	Companion Bridge 6 (Million)	Companion Bridge 8 (Million)	Companion Bridge 13 (Million)
Construction Costs						
New Bridge *	\$ 145	\$ 120	\$ 105	\$ 117	\$ 120	\$ 145
Peace Bridge Rehabilitation (2006\$)	\$ 24	\$ 24	\$ 24	\$ 24	\$ 24	\$ 24
Total Construction Cost	\$ 169	\$ 144	\$ 129	\$ 140	\$ 144	\$ 169
Soft Costs						
Final Design/Permits (7.5%)	\$ 13	\$ 11	\$ 10	\$ 11	\$ 11	\$ 13
Construction Management (7.5%)	\$ 13	\$ 11	\$ 10	\$ 11	\$ 11	\$ 13
Total Soft Costs	\$ 25	\$ 22	\$ 19	\$ 21	\$ 22	\$ 25
Grand Total Cost	\$ 194	\$ 165	\$ 148	\$ 161	\$ 165	\$ 194
Life Cycle Costs (75 years) **						
Existing Bridge	\$ 24	\$ 24	\$ 24	\$ 24	\$ 24	\$ 24
New Bridge	\$ 20	\$ 20	\$ 19	\$ 20	\$ 20	\$ 20
Total Life Cycle Cost	\$ 44	\$ 44	\$ 44	\$ 44	\$ 44	\$ 44
Grand Total Life Cycle Cost (2006\$)	\$ 238	\$ 209	\$ 192	\$ 206	\$ 209	\$ 238

Notes:

* Detailed cost estimate performed on Bridge Concept 6 only

** Life cycle costs include MP&T and soft costs.

Bridge Concept Number 6
Two Tower Cable Stayed Bridge Companion

Item	Unit	Unit Price	Quantity	Item Cost
Main Bridge (709 m)				
Substructure				
Rock socket	EA	\$ 18,375.65	16	\$ 294,010
Concrete in shafts (9 foot dia.)	CM	\$ 1,261.79	1,300	\$ 1,640,333
Reinforcing steel	KG	\$ 2.75	314,400	\$ 864,600
Cofferdams	SM	\$ 1,617.06	1,440	\$ 2,328,562
Tower concrete foundations	CM	\$ 507.75	3,760	\$ 1,909,140
Subtotal - Substructure				\$ 7,036,645
Pylon				
Tower Concrete (CIP)	CM	\$ 3,025.00	3,840	\$ 11,616,000
Reinforcing Steel	KG	\$ 2.75	880,000	\$ 2,420,000
Subtotal - Pylon				\$ 14,036,000
Superstructure				
Floorbeam Steel, Grade 350,plate	KG	\$ 7.52	1,470,000	\$ 11,052,795
Girder Steel,Grade 350,plate	KG	\$ 10.14	1,200,000	\$ 12,169,744
Misc. Steel,Grade 350,plate	KG	\$ 7.52	552,000	\$ 4,150,437
Box Girder Concrete	CM	\$ 4,513.33	3,480	\$ 15,706,400
Reinforcing Steel	KG	\$ 2.75	510,000	\$ 1,402,500
Post-Tensioning	KG	\$ 7.52	72,000	\$ 541,361
Concrete Counterweight	CM	\$ 959.08	1,600	\$ 1,534,533
Composite Deck Concrete	CM	\$ 1,387.85	2,520	\$ 3,497,382
Reinforcing Steel	KG	\$ 2.75	408,000	\$ 1,122,000
Cable stays	KG	\$ 17.09	800,000	\$ 13,670,742
Wearing surface	SM	\$ 110.25	12,780	\$ 1,409,044
Girder bearings	EA	\$ 8,575.30	8	\$ 68,602
Expansion joints	M	\$ 15,313.04	52	\$ 796,278
Concrete parapet	M	\$ 551.27	1,418	\$ 781,700
Pedestrian Railing	M	\$ 735.03	1,418	\$ 1,042,267
Subtotal - Superstructure				\$ 68,945,787
Subtotal - Main Span				\$ 90,018,431
Approach Structure (113 m)				
Wearing surface	SM	\$ 110.25	2,034	\$ 224,256
Concrete parapet	M	\$ 551.27	226	\$ 124,587
Pedestrian Railing	M	\$ 735.03	226	\$ 166,116
Structure	SM	\$ 2,450.09	2,712	\$ 6,644,633
Subtotal - Approach				\$ 7,159,592
Total - Bridge Construction Cost				\$ 97,178,024
Mobilization and Contingencies				\$ 19,435,605
TOTAL COST				\$ 116,700,000

**Bridge Concept Number 6 - Life Cycle Costs
Two Tower Cable Stayed Bridge Companion**

Content	Quantity	Unit	2006 Unit price(\$)	Annuity (2006\$)	Interval (yrs)	Frequency over Life Cycle	Present Value of Future Costs (2006\$)
Main Bridge (709 m)							
Wearing surface repair/replace	13,471	SM	\$ 140.00	\$ 1,885,940	10	7	\$ 3,320,578
Partial Depth deck repair	1,560	SM	\$ 263.00	\$ 410,227	15	5	\$ 441,235
Full Depth deck repair	3,120	SM	\$ 475.00	\$ 1,481,810	30	2	\$ 551,048
Replace barrier/railing	2,836	LM	\$ 650.00	\$ 1,843,400	40	1	\$ 355,781
Replace expansion joint system	44	LM	\$ 15,313.04	\$ 673,774	10	7	\$ 1,186,315
Concrete repair	564	CM	\$ 12,500.00	\$ 7,050,000	30	2	\$ 2,621,718
Maintenance painting	5,319	SM	\$ 125.00	\$ 664,875	10	7	\$ 1,170,647
Complete painting	35,460	SM	\$ 125.00	\$ 4,432,500	25	3	\$ 2,087,518
Steel repair	161,100	KG	\$ 6.60	\$ 1,063,260	20	3	\$ 735,823
Cable Stay wrapping	13,900	LM	\$ 22.00	\$ 305,800	15	5	\$ 328,914
Cable Stay replacement	800	TONNE	\$ 17,088.43	\$ 13,670,742	75	1	\$ 712,941
Replace bearings	8	EA	\$ 15,000.00	\$ 120,000	50	1	\$ 15,936
Seal pier tops	456	SM	\$ 70.00	\$ 31,920	5	15	\$ 125,620
Approach Structure (113 m)							
Wearing surface repair/replace	2,147	SM	\$ 140.00	\$ 300,580	10	7	\$ 529,232
Partial depth deck repair	249	SM	\$ 263.00	\$ 65,382	15	5	\$ 70,324
Deck replacement	2,486	SM	\$ 475.00	\$ 1,180,850	75	1	\$ 61,582
Replace barrier/railing	452	LM	\$ 650.00	\$ 293,800	40	1	\$ 56,704
Replace expansion joint system	44	LM	\$ 2,675.00	\$ 117,700	10	7	\$ 207,235
Replace bearings	24	EA	\$ 9,000.00	\$ 216,000	50	1	\$ 28,684
Pier repair	25	CM	\$ 7,000.00	\$ 178,080	30	2	\$ 66,223
Seal pier tops	216	SM	\$ 70.00	\$ 15,120	5	15	\$ 59,504
General Items							
Cable inspection		LS		\$ 50,000	10	7	\$ 88,035
Underwater inspection		LS		\$ 50,000	5	15	\$ 196,774
Electrical lighting upgrades		LS		\$ 900,000	25	3	\$ 423,861
Biennial inspection		LS		\$ 120,000	2	37	\$ 1,247,202
Maintenance inspection		LS		\$ 120,000	2	38	\$ 1,300,973
Bridge washing		LS		\$ 80,000	1	75	\$ 1,698,783
Clean out drains		LS		\$ 15,000	1	75	\$ 318,522
						SUM	\$ 20,000,000

Existing Peace Bridge - Life Cycle Costs

Content	Quantity	Unit	2006 Unit price(\$)	Annuity (2006\$)	Interval (yrs)	Frequency over Life Cycle	Present Value of Future Costs (2006\$)
Deck Rehabilitation							
Re-Decking	12,275	SM	\$ 1,931.00	\$ 23,703,025	75	1	\$ 1,236,133
Overlay De-lamination Inspection	1	LS	\$ 35,000.00	\$ 35,000	5	15	\$ 137,741
Wearing Surface Replacement	12,275	SM	\$ 140.00	\$ 1,718,500	10	7	\$ 3,025,766
Partial Depth Deck Repairs	1,228	SM	\$ 263.00	\$ 322,833	10	7	\$ 568,412
Full Depth Deck Repair	2,455	SM	\$ 475.00	\$ 1,166,125	10	7	\$ 2,053,199
Replace Expansion Joints	375	LM	\$ 2,675.00	\$ 1,003,125	10	7	\$ 1,766,204
Replace Barriers/Railing	2,300	LM	\$ 650.00	\$ 1,495,000	40	1	\$ 288,539
Structural Steel							
Maintenance Painting	1	LS	\$ 594,000.00	\$ 594,000	5	15	\$ 2,337,670
Complete Repainting	1	LS	\$ 4,400,000.00	\$ 4,400,000	25	3	\$ 2,301,675
Replace Approach Bearings	40	EA	\$ 9,000.00	\$ 360,000	50	1	\$ 47,807
Miscellaneous Metalwork	1	LS	\$ 725,000.00	\$ 725,000	10	7	\$ 1,832,167
Substructure							
Concrete Patching	125	CM	\$ 12,500.00	\$ 1,562,500	10	7	\$ 2,832,583
Re-pointing Substructure Stones	1	LS	\$ 60,000.00	\$ 60,000	10	7	\$ 108,771
Seal Pier Tops	1,080	SM	\$ 70.00	\$ 75,600	5	15	\$ 297,522
General Items							
Underwater Inspection/Scour	1	LS	\$ 50,000.00	\$ 50,000	5	15	\$ 196,774
Electrical/Lighting Upgrades	1	LS	\$ 900,000.00	\$ 900,000	25	3	\$ 470,797
Biennial Inspection	1	LS	\$ 120,000.00	\$ 120,000	2	37	\$ 1,247,202
Maintenance Inspection	1	LS	\$ 120,000.00	\$ 120,000	2	37	\$ 1,300,973
Bridge Washing	1	LS	\$ 80,000.00	\$ 80,000	1	75	\$ 1,698,783
Clean Out Drains	1	LS	\$ 15,000.00	\$ 15,000	1	75	\$ 318,522
SUM							\$ 24,100,000

**Peace Bridge Deck Replacement
Construction Cost Estimate**

ITEM	COST
Temporary Barrier	\$ -
Temporary Lighting	\$ -
Remove, Store, Reinstall Existing Light Poles	\$ 185,000
Remove, Store, Reinstall Existing Bridge Railing	\$ 1,495,000
Existing Deck Demolition	\$ 2,368,266
Steel Repairs	\$ 1,846,649
Drainage System	\$ 175,000
Reinforcing Bars	\$ 2,523,667
Stud Shear Connectors	\$ 81,734
Bridge Joints	\$ 1,040,000
Basic Deck	\$ 4,891,191
Class DP Concrete CIP Closure Pours	\$ -
Clean Steel After Concreting	\$ 76,252
Paint System Repairs	\$ 78,712
Precast Concrete Curb	\$ 440,061
Class DP Concrete Overlay	\$ -
Transverse Sawcut Grooving	\$ 86,091
Maintenance and Protection of Traffic	\$ 224,945
Field Office	\$ 22,138
Subtotal	\$ 15,534,706
Mobilization (4%)	\$ 621,388
Total Construction - No Contingency	\$ 16,156,095
Contingency (20%)	\$ 3,231,219
Total Construction Cost	\$ 19,387,314
Engineering, Design and Coordination (11.5%)	\$ 2,229,541
Construction Support Services (10%)	\$ 1,938,731
Grand Total	\$ 23,600,000