

Appendix E:
Conceptual Cost
Estimates

PRE-CONCEPTUAL COST ESTIMATE

Project Number 6320020.04

Calculated by: SRZ Checked by:DJD

Jul-05
Burlington, VT

QCPR Crossing Alternatives - Cost Comparison - Preferred Alternative

Preferred Alternative Total Cost = \$173,000

<u>QCPR and US7 Intersection Segment</u>	<u>quantity</u>	<u>unit</u>	<u>unit price</u>	<u>total</u>
Traffic Signal Improvements				
Pedestrian Signal with LED Countdown Timer	2	ea	2,000	4,000
Visually impaired hardware	2	ea	2,500	5,000
Pedestrian signal pole, includes base	2	ea	800	1,600
Vehicle signal Head (3-Section)	2	ea	2,000	4,000
Span wire mounted sign	1	ea	300	300
Span wire support review and modifications	1	ls	3,000	3,000
Detector with amplifier (in Datillio driveway)	2	ea	1,500	3,000
Traffic signal controller reprogramming	1	ls	1,500	1,500
Pedestrian Push Button, includes hardware, and sign	2	ea	400	800
New conduit/trench (105' + 20').	125	ft	20	2,500
Overlay of Intersection area, 20,000 sf.				
Cold Planing.	2222	sy	2.00	4,444
Bituminous pavement (1" thick), 20,000 sf area * 0.083 ft depth (2.2 tons/CY).	136	ton	80	10,860
Pavement Markings				
Durable block 8 ft crosswalk lengths: 65' + 45.	110	lf	15	1,650
Durable Letter or Symbol.(10 Arrows)	10	ea	70	700
Durable 4" white line.	550	lf	0.75	413
Durable 4" yellow line.	600	lf	0.75	450
Durable 8" white lines (transverse markings 8 feet on center)	200	lf	1.00	200
Durable 24 inch stop bars .	108	lf	6	648
Sidewalk Ramps				
Detectable Warning Surface truncated domes, 4*(2' x 5') + 1*(2' x 8')	6.2	sy	150	933
Remove Concrete Ramps on Northwest and Northeast corners.				
Solid Rock Excavation, 25sf area * 0.5 ft depth (includes sawcutting).	1	cy	50	50
Topsoil, approx. 5ft x 5ft new grass, 0.5ft depth.	1	cy	50	50
Seed, Fertilizer and Mulch	-	n/a	30% topsoil cost	15
New Ramps on Southwestern corner				
Solid Rock Excavation, 200sf area * 0.5 ft depth (includes sawcutting).	4	cy	20	74
Common Excavation, 200 sf area * 1.0 ft depth.	7.4	cy	20	148
Subbase of Dense Crushed Stone,200 sf area * 1.0 ft depth.	7.4	cy	20	148
Fine-Grading Subgrade, 200 sf area.	22.2	sy	1	22
Bituminous pavement (8" thick), 150 sf area * 0.67 ft depth (2.2 tons/CY).	8.2	ton	100	819
Cast in place cement concrete curb	25	lf	30	750
Parking Stop				
6' recycled plastic	3	ea.	150	450
Textured Islands(two : north and south of intersection)				
Solid Rock Excavation, 1100 sf area * 0.83 ft depth (includes sawcutting).	34	cy	15	507
Common Excavation, 1100 sf area * 1.5ft depth.	61	cy	15	917
Subbase of Dense Crushed Stone, 1100 sf area * 0.5ft depth.	20	cy	20	407
Fine-Grading Subgrade, 1100 sf	122.2	sy	1	122
Bituminous pavement, 1100 sf, 0.67ft depth (2.2tons/CY).	60.1	ton	100	6,005
Textured colored concrete, area of 1100 sf * 1.0ft depth.	40.7	cy	200	8,148
Shared Use Path (in front of Datillios)				
Solid Rock Excavation, 1000 sf area * 0.5 ft depth (includes sawcutting).	19	cy	15	278
Common Excavation, 1000 sf * 1.0 ft depth.	37	cy	15	556
Subbase of Dense Crushed Gravel, 1000 sf * 1.0 ft depth.	37	cy	20	741
Bit. pavement, 8' wide path, 5" thick, 600 sf * 0.4 ft depth/27 *2.2tons/CY	19.6	ton	100	1,956
Bit. pavement, 8' wide path, 8" over driveway, 400 sf *0.67 ft depth/27 * 2.2tons/CY	21.8	ton	100	2,184
Extra Bit. pavement, 500 sf, *0.67 ft depth for driveway/27 * 2.2tons/CY	27	ton	81	2,211
Cast in place cement concrete curb	100	lf	30	3,000
Topsoil, approx. 3ft x 50ft new grass, 0.5ft depth.	220	ft	0.50	110
Seed, Fertilizer and Mulch	-	n/a	30% topsoil cost	33
Segment Subtotal				75,700

Lighting .				
Northwest corner luminaire and bracket arm rotated toward QCPR	1	ls	1	500
Northeast corner luminaire and bracket arm relocated to strain pole on SW corner	1	ls	1	1,000
New light pole, foundation, luminaire and bracket arm on northeast corner	1	ls	1	3,000
Cable /conduit in signal conduit trench	100	lf	12	1,200
Power service connection	1	ls	1	1,000
QCPR and US7 Intersection Segment				
			Subtotal \$	82,400
			Miscellaneous (10%) \$	8,240
			Traffic and Safety (15%) \$	12,360
			Subtotal \$	103,000
			Mobilization (8%) \$	8,240
			Subtotal \$	111,240
			Preliminary Engineering (15%) \$	16,686
			Construction Engineering (10%) \$	11,124
			Subtotal \$	139,100
			Contingency (15%) \$	20,865
			Segment Total (rounded) \$	160,000

OPTIONAL ITEMS (NOT SHOWN ON PREFERRED PLAN):				
"No Right Turn on Red" Fiber Optic sign for right-turn out of QCPR with labor included.	1	ea	5,000	5,000
Additional Lighting.				
Bracket Arm.	2	ea.	350	700
Luminaire.	2	ea.	400	800
Breakway Feature for Light Pole	2	ea.	500	1,000
Light Pole and Base.	2	ea.	3,000	6,000
			Optional Segment Items Total (rounded) \$	13,500

<u>Lindenwood Drive Segment Improvements</u>	<u>quantity</u>	<u>unit</u>	<u>unit price</u>	<u>total</u>
Increase the northern radius to 10'.				
Solid Rock Excavation (includes sawcutting pavement/curbing), 120 sf * 1.0 depth.	4	cy	20	89
Common Excavation, 120 sf * 1.0 depth.	4	cy	20	89
Subbase of Dense Crushed Gravel, 120 sf * 1.0 depth.	4	cy	20	89
Fine-Grading Subgrade, 120 sf.	13	sy	1	13
Vertical Granite Curb, southern ramp area. Doesn't include curb for shared path.	35	ft	25	875
Bituminous pavement, 1.0ft wide strip, 0.67ft depth, 50ft long.	2.5	ton	80	199
Increase the southern radius to 15'.				
Solid Rock Excavation (includes sawcutting pavement/curbing), 130 sf * 1ft depth.	5	cy	20	96
Common Excavation, 130 sf * 1ft depth.	5	cy	20	96
Subbase of Dense Crushed Gravel, 130 sf * 1ft depth.	5	cy	20	96
Fine-Grading Subgrade, 130 sf.	14	sy	1	14
Vertical Granite Curb, southern ramp area. Doesn't include curb for shared path.	35	ft	25	875
Bituminous pavement, 1.0ft wide strip, 0.67ft depth, 50ft long.	2.5	ton	80	199
Replace 5" Concrete Sidewalk with new ramp, 40 sf.	4	sy	50	222
Detectable Warning Surface for ramps, truncated domes, 1*(2' x 5').	1.1	sy	150	167
Topsoil, approx. 4ft x 20ft new grass, 0.5ft depth.	1.48	cy	20	30
Seed, Fertilizer and Mulch	-	n/a	30% topsoil cost	9
Pavement Markings				
New durable stop bar	15	lf	6	90
Durable block 8 ft crosswalk lengths: 30	30	ft	20	600
			Subtotal \$	3,800
			Miscellaneous (10%) \$	380
			Traffic and Safety (15%) \$	570
			Subtotal \$	4,750
			Mobilization (8%) \$	380
			Subtotal \$	5,130
			Preliminary Engineering (15%) \$	770
			Construction Engineering (10%) \$	513
			Subtotal \$	6,000
			Contingency (15%) \$	900
			Segment Total (rounded) \$	7,000

<u>Queen City Park Road Segment Improvements</u>	<u>quantity</u>	<u>unit</u>	<u>unit price</u>	<u>total</u>
Durable Thermoplastic 4" yellow striping of QCPR with 11' lanes and 5' bicycle lanes.	1000	ft	0.75	750
Durable Thermoplastic 4" white striping of QCPR with 11' lanes and 5' bicycle lanes.	1000	ft	0.75	750
(2) Detectable Warning Surface for ramps (truncated domes, (2' x 5').	1.3	sy	150	200
Durable block crosswalk pavement marking.				
Pine Street corner with QCPR and shared path, 32'.	32	ft	21	672
Durable Letter or Symbol.				
Bicycle Lane Symbols, 6.	6	ea	71	426
			Subtotal \$	2,800
			Miscellaneous (10%) \$	280
			Traffic and Safety (15%) \$	420
			Subtotal \$	3,500
			Mobilization (8%) \$	280
			Subtotal \$	3,780
			Preliminary Engineering (15%) \$	567
			Construction Engineering (10%) \$	378
			Subtotal \$	5,000
			Contingency (15%) \$	750
			Segment Total (rounded) \$	6,000

PRE-CONCEPTUAL COST ESTIMATE

Project Number 6320020.04

Calculated by: SRZ Checked by:DJD

Jul-05
Burlington, VT

QCPR Crossing Alternatives - Cost Comparison - Northerly Crossing

Northerly Crossing Alternative Total Cost = \$169,000

<u>QCPR and US7 Intersection Segment</u>	<u>quantity</u>	<u>unit</u>	<u>unit price</u>	<u>total</u>
Traffic Signal Improvements				
Pedestrian Signal LED Countdown Timer	2	ea	2,000	4,000
Visually impaired hardware	2	ea	2,500	5,000
Pedestrian signal pole, includes base	2	ea	800	1,600
Span wire mounted sign	1	ea	300	300
Span wire support review and modifications	1	ls	3,000	3,000
Traffic signal controller modifications	1	ls	1,000	1,000
Pedestrian Push Button, includes hardware, and sign	2	ea	400	800
New conduit/trench (60' + 20')	85	ft	20	1,700
Overlay of Intersection area, 20,000 sf.				
Cold Planing.	2222	sy	1.00	2,222
Bituminous pavement (1" thick), 20,000 sf area * 0.083 ft depth (2.2 tons/CY).	135.7	ton	80	10,860
Pavement Markings				
Durable block 8 ft crosswalk lengths: 65' + 45'.	107	lf	15	1,605
Durable Letter or Symbol.(8 Arrows)	8	ea	70	560
Durable 4" white line.	550	lf	0.75	413
Durable 4" yellow line.	600	lf	0.75	450
Durable 8" white lines transverse markings (8 feet on center)	200	lf	1.00	200
Durable 24 inch stop bars .	108	lf	6	648
Sidewalk Ramps				
Detectable Warning Surface truncated domes, 4*(2' x 5') + 1*(2' x 8')	6.2	sy	150	933
Remove Concrete Ramps on Northwest and Northeast corners.				
Solid Rock Excavation, 25sf area * 0.5 ft depth (includes sawcutting).	1	cy	50	50
Topsoil, approx. 5ft x 5ft new grass, 0.5ft depth.	1	cy	50	50
Seed, Fertilizer and Mulch	-	n/a	30% topsoil cost	15
New Ramps on Southwestern corner and northeast corner				
Solid Rock Excavation, 200sf area * 0.5 ft depth (includes sawcutting).	4	cy	20	74.
Common Excavation, 200 sf area * 1.0 ft depth.	7	cy	20	148
Subbase of Dense Crushed Stone,200 sf area * 1.0 ft depth.	7.4	cy	20	148
Fine-Grading Subgrade, 200 sf area.	22.2	sy	1	22
Bituminous pavement (8" thick), 200 sf area * 0.67 ft depth (2.2 tons/CY).	10.9	ton	100	1,092
Cast in place cement concrete curb	35	lf	30	1,050
Vertical Granite Curb, ~20 feet to be replaced.	20	ft	30	600
Parking Stop,				
6' recycled plastic	3	ea.	150	450
Textured Islands(two : north and south of intersection)				
Solid Rock Excavation, 1350 sf area * 0.83 ft depth (includes sawcutting).	42	cy	15	623
Common Excavation, 1350 sf area * 1.5ft depth.	75	cy	15	1,125
Subbase of Dense Crushed Stone, 1350 sf area * 0.5ft depth.	25	cy	20	500
Fine-Grading Subgrade, 1350 sf	150.0	sy	1	150
Bituminous pavement, 1350 sf, 0.67ft depth (2.2tons/CY).	74	ton	100	7,370
Textured colored concrete, area of 1350 sf * 1.0ft depth.	50.0	cy	200	10,000
Shared Use Path (in front of Datillios)				
Solid Rock Excavation, 1000 sf area * 0.5 ft depth (includes sawcutting).	19	cy	15	278
Common Excavation, 1000 sf * 1.0 ft depth.	37	cy	15	556
Subbase of Dense Crushed Gravel, 1000 sf * 1.0 ft depth.	37	cy	20	741
Bit. pavement, 8' wide path, 5" thick, 600 sf * 0.4 ft depth/27 * 2.2tons/CY	20	ton	100	1,956
Bit. pavement, 8' wide path, 8" over driveway, 400 sf * 0.67 ft depth/27 * 2.2tons/CY	22	ton	100	2,184
Extra Bit. pavement, 500 sf, *0.67 ft depth for driveway/27 * 2.2tons/CY	27	ton	81	2,211
Cast in place cement concrete curb	100	lf	30	3,000
Topsoil, approx. 3ft x 50ft new grass, 0.5ft depth.	220	ft	0.50	110
Seed, Fertilizer and Mulch	-	n/a	30% topsoil cost	33
Segment Subtotal			\$	69,800

Northern corner of Dattilio's driveway.

Solid Rock Excavation, 500 sf area * 1.0 ft depth.	19	cy	20	370
Common Excavation., 440 sf area * 1.0 ft depth.	16	cy	20	326
Subbase of Dense Crushed Gravel.	16	cy	20	326
Fine-Grading Subgrade.	49	sy	1	49
Vertical Granite Curb	20	lf	25	500
Bituminous pavement (8" thick), 250 sf area * 0.67 ft depth.	14	ton	80	1,092
Portland Cement Concrete Sidewalk, 8 inch, 100 sf.	11	sy	80	889
Topsoil, approx. 4ft x 80ft new grass, 0.5ft depth = 2.2 cy.	2	cy	35	78
Seed, Fertilizer and Mulch.	-	n/a	30% topsoil cost	23

Lighting .

Northwest corner luminaire and bracket arm rotated toward QCPR	1	ls	1	500
Northeast corner luminaire and bracket arm relocated to strain pole on SW corner	1	ls	1	1,000
New light pole, foundation, luminaire and bracket arm on northeast corner	1	ls	1	3,000
Cable /conduit in signal conduit trench	100	lf	12	1,200
Power service connection	1	ls	1	1,000

Subtotal	\$	80,200
Miscellaneous (10%)	\$	8,020
Traffic and Safety (15%)	\$	12,030
Subtotal	\$	100,250
Mobilization (8%)	\$	8,020
Subtotal	\$	108,270
Preliminary Engineering (15%)	\$	16,241
Construction Engineering (10%)	\$	10,827
Subtotal	\$	135,300
Contingency (15%)	\$	20,295

Segment Total (rounded) \$ 156,000

OPTIONAL ITEMS (NOT SHOWN ON PREFERRED PLAN):

"No Right Turn on Red" Fiber Optic sign for right-turn out of QCPR with labor included.

Additional Lighting.

Bracket Arm.	2	ea.	350	700
Luminaire.	2	ea.	400	800
Breakway Feature for Light Pole	2	ea.	500	1,000
Light Pole and Base.	2	ea.	3,000	6,000
			Subtotal (rounded) \$	13,500

Lindenwood Drive Segment Improvements

	quantity	unit	unit price	total
Increase the northern radius to 10'.				
Solid Rock Excavation (includes sawcutting pavement/curbing), 120 sf * 1.0 depth.	4	cy	20	89
Common Excavation, 120 sf * 1.0 depth.	4	cy	20	89
Subbase of Dense Crushed Gravel, 120 sf * 1.0 depth.	4	cy	20	89
Fine-Grading Subgrade, 120 sf.	13	sy	1	13
Vertical Granite Curb, southern ramp area. Doesn't include curb for shared path.	35	ft	25	875
Bituminous pavement, 1.0ft wide strip, 0.67ft depth, 50ft long.	2.5	ton	80	199
Increase the southern radius to 15'.				
Solid Rock Excavation (includes sawcutting pavement/curbing), 130 sf * 1ft depth.	5	cy	20	96
Common Excavation, 130 sf * 1ft depth.	5	cy	20	96
Subbase of Dense Crushed Gravel, 130 sf * 1ft depth.	5	cy	20	96
Fine-Grading Subgrade, 130 sf.	14	sy	1	14
Vertical Granite Curb, southern ramp area. Doesn't include curb for shared path.	35	ft	25	875
Bituminous pavement, 1.0ft wide strip, 0.67ft depth, 50ft long.	2.5	ton	80	199
Replace 5" Concrete Sidewalk with new ramp, 40 sf.	4	sy	50	222
Detectable Warning Surface for ramps, truncated domes, 1*(2' x 5').	1.1	sy	150	167
Topsoil, approx. 4ft x 20ft new grass, 0.5ft depth.	1.48	cy	20	30
Seed, Fertilizer and Mulch	-	n/a	30% topsoil cost	9
Pavement Markings				
New durable stop bar	15	ft	6	90
Durable block crosswalk pavement marking.				
Crosswalk lengths: 30'.	30	ft	20	600
			Subtotal \$	3,800
			Miscellaneous (10%) \$	380
			Traffic and Safety (15%) \$	570
			Subtotal \$	4,750
			Mobilization (8%) \$	380
			Subtotal \$	5,130
			Preliminary Engineering (15%) \$	770
			Construction Engineering (10%) \$	513
			Subtotal \$	6,000
			Contingency (15%) \$	900
			Segment Total (rounded) \$	7,000

Queen City Park Road Segment Improvements

	quantity	unit	unit price	total
Durable Thermoplastic 4" yellow striping of QCPR with 11' lanes and 5' bicycle lanes.	1000	ft	0.50	500
Durable Thermoplastic 4" white striping of QCPR with 11' lanes and 5' bicycle lanes.	1000	ft	0.50	500
(2) Detectable Warning Surface for ramps (truncated domes, (2' x 5').	1.3	sy	150	200
Durable block crosswalk pavement marking.				
Pine Street corner with QCPR and shared path, 32'.	32	ft	21	672
Durable Letter or Symbol.				
Bicycle Lane Symbols, 6.	6	ea	71	426
"Share the Road" signs.	2	ea	200	400
			Subtotal \$	2,700
			Miscellaneous (10%) \$	270
			Traffic and Safety (15%) \$	405
			Subtotal \$	3,375
			Mobilization (8%) \$	270
			Subtotal \$	3,645
			Preliminary Engineering (15%) \$	547
			Construction Engineering (10%) \$	365
			Subtotal \$	5,000
			Contingency (15%) \$	750
			Total (rounded) \$	6,000