
PRELIMINARY ENGINEERING TECHNICAL REPORT
APPENDIX D
COST ESTIMATE BACK-UP

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/17/2007
Town	Essex Jct. & Williston	Length	3.5 miles
County	Chittenden	Pavement Width	56' Typical
Road	Alternative 2	Shoulder Width	NA
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	VT 2A Corridor				
203.15	Common Excavation	CY	236000	\$12.00	\$2,832,000
203.16	Solid Rock Excavation	CY	5000	\$20.00	\$100,000
301.35	Subbase of Dense Graded Crushed Stone	CY	132000	\$20.00	\$2,640,000
203.31	Sand Borrow	CY	66000	\$15.00	\$990,000
490.30	Superpave Bituminous Concrete Pavement	TON	81000	\$75.00	\$6,075,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	37100	\$15.00	\$556,500
616.20	Granite Slope Edging	LF	1500	\$18.00	\$27,000
	Multi-use Trail	LF	13600	\$35.00	\$476,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	4600	\$38.00	\$174,800
	Stormwater Management Area	EACH	9	\$50,000.00	\$450,000
	Utilities				
	Water System Modifications	LS	1		\$1,150,000
	Sewer System Modifications	LS	1		\$50,000
	Gas System Modifications	LS	1		\$400,000
	Overhead Wiring	LS	1		\$1,100,000
	Traffic Signals	EACH	9	\$140,000.00	\$1,260,000
	Lighting	EACH	125	\$1,000.00	\$125,000
	Retaining Walls	LF	2650	\$175.00	\$463,750
621.20	Steel Beam Guardrail, Galvanized	LF	4500	\$20.00	\$90,000
	Roadway Sub Total				\$18,960,050
	Mobilization - 5% of Sub Total	LS			\$948,003
	Drainage - 15% of Sub Total	LS			\$2,844,008
	Landscaping - 3% of Sub Total	LS			\$568,802
	Signage - 1% of Sub Total	LS			\$189,601
	Traffic Control - 10% of Sub Total	LS			\$1,896,005
	Miscellaneous - 10% of Sub Total	LS			\$1,896,005
	Route 2A Roadway Total				\$27,302,472

Rounding:

\$27,300,000

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/17/2007
Town	Essex Jct. & Williston	Length	3.5 miles
County	Chittenden	Pavement Width	56' Typical
Road	Alternative 3	Shoulder Width	NA
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	VT 2A Corridor				
203.15	Common Excavation	CY	226000	\$12.00	\$2,712,000
203.16	Solid Rock Excavation	CY	5000	\$20.00	\$100,000
301.35	Subbase of Dense Graded Crushed Stone	CY	126000	\$20.00	\$2,520,000
203.31	Sand Borrow	CY	63000	\$15.00	\$945,000
490.30	Superpave Bituminous Concrete Pavement	TON	77000	\$75.00	\$5,775,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	39100	\$15.00	\$586,500
616.20	Granite Slope Edging	LF	11900	\$18.00	\$214,200
	Multi-use Trail	LF	18800	\$35.00	\$658,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	6100	\$38.00	\$231,800
	Stormwater Management Area	EACH	9	\$50,000.00	\$450,000
	Utilities				
	Water System Modifications	LS	1		\$1,150,000
	Sewer System Modifications	LS	1		\$50,000
	Gas System Modifications	LS	1		\$400,000
	Overhead Wiring	LS	1		\$1,100,000
	Traffic Signals	EACH	0	\$140,000.00	\$0
	Lighting	EACH	125	\$1,000.00	\$125,000
	Retaining Walls	LF	2650	\$175.00	\$463,750
621.20	Steel Beam Guardrail, Galvanized	LF	4800	\$20.00	\$96,000
	Roadway Sub Total				\$17,577,250
	Mobilization - 5% of Sub Total	LS			\$878,863
	Drainage - 15% of Sub Total	LS			\$2,636,588
	Landscaping - 4% of Sub Total	LS			\$703,090
	Signage - 1% of Sub Total	LS			\$175,773
	Traffic Control - 10% of Sub Total	LS			\$1,757,725
	Miscellaneous - 10% of Sub Total	LS			\$1,757,725
	Route 2A Roadway Total				\$25,487,013

Rounding:

\$25,500,000

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Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 16	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	<u>Circ-Corridor</u>				
203.15	Common Excavation	CY	1860000	\$5.00	\$9,300,000
203.16	Solid Rock Excavation	CY	37500	\$20.00	\$750,000
301.35	Subbase of Dense Graded Crushed Stone	CY	210000	\$20.00	\$4,200,000
203.31	Sand Borrow	CY	201000	\$12.00	\$2,412,000
490.30	Superpave Bituminous Concrete Pavement	TON	118000	\$60.00	\$7,080,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	1200	\$18.00	\$21,600
616.20	Granite Slope Edging	LF	1600	\$18.00	\$28,800
	Multi-use Trail	LF	5120	\$35.00	\$179,200
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	9	\$40,000.00	\$360,000
	Utilities	LS	1	\$250,000.00	\$250,000
	Traffic Signals	EACH	3	\$140,000.00	\$420,000
	Lighting	EACH	50	\$2,500.00	\$125,000
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF	15200	\$20.00	\$304,000
621.45	Concrete Median Barrier	LF	1200	\$70.00	\$84,000
	Roadway Subtotal				\$25,514,600
	Mobilization - 5% of Sub Total	LS			\$1,275,730
	Drainage - 15% of Sub Total	LS			\$3,827,190
	Landscaping - 2% of Sub Total	LS			\$510,292
	Signage - 1% of Sub Total	LS			\$255,146
	Traffic Control - 5% of Sub Total	LS			\$1,275,730
	Miscellaneous - 10% of Sub Total	LS			\$2,551,460
	AB Roadway Total				\$35,210,148

Rounding: \$35,200,000

**VT 2A Spot Improvements
\$1,300,000**

**Alternative 16a TOTAL
\$36,500,000**

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Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 16B - Added Cost for Ramps	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	Circ-Corridor				
203.15	Common Excavation	C	4500	\$5.00	\$22,500
203.16	Solid Rock Excavation	C	100	\$20.00	\$2,000
301.35	Subbase of Dense Graded Crushed Stone	C	14000	\$20.00	\$280,000
203.31	Sand Borrow	C	14000	\$12.00	\$168,000
490.30	Superpave Bituminous Concrete Pavement	TO	7000	\$60.00	\$420,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	0	\$18.00	\$0
	Multi-use Trail	LF	0	\$30.00	\$0
618.10	Portland Cement Concrete Sidewalk, 5 inch	S	0	\$38.00	\$0
	Stormwater Management	EACH	0	\$40,000.00	\$0
	Utilities				\$0
	Traffic Signals	EACH	2	\$140,000.00	\$280,000
	Lighting	EACH		\$2,500.00	\$0
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF		\$20.00	\$0
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway				\$1,172,500
	Mobilization - 5% of Sub Total	LS			\$58,625
	Drainage - 15% of Sub Total	LS			\$175,875
	Landscaping - 2% of Sub Total	LS			\$23,450
	Signage - 1% of Sub Total	LS			\$11,725
	Traffic Control - 5% of Sub Total	LS			\$58,625
	Miscellaneous - 10% of Sub Total	LS			\$117,250
	AB Roadway Total Added Cost				\$1,618,050

Rounding:	\$1,600,000
Alt. 16a	\$35,200,000
VT 2A Spot Improvements	\$1,300,000
Alternative 16b TOTAL	\$38,100,000

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Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 16C - Cost Differential	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	Circ-Corridor				
203.15	Common Excavation	CY	152000	\$5.00	\$760,000
203.16	Solid Rock Excavation	CY	3050	\$20.00	\$61,000
301.35	Subbase of Dense Graded Crushed Stone	CY	15000	\$20.00	\$300,000
203.31	Sand Borrow	CY	15000	\$12.00	\$180,000
490.30	Superpave Bituminous Concrete Pavement	TON	9600	\$60.00	\$576,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	0	\$18.00	\$0
	Multi-use Trail	LF	1800	\$30.00	\$54,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	0	\$40,000.00	\$0
	Utilities				\$0
	Traffic Signals	EACH	3	\$140,000.00	\$420,000
	Lighting	EACH		\$2,500.00	\$0
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF		\$20.00	\$0
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway Subtotal				\$2,351,000
	Mobilization - 5% of Sub Total	LS			\$117,550
	Drainage - 15% of Sub Total	LS			\$352,650
	Landscaping - 2% of Sub Total	LS			\$47,020
	Signage - 1% of Sub Total	LS			\$23,510
	Traffic Control - 10% of Sub Total	LS			\$235,100
	Miscellaneous - 10% of Sub Total	LS			\$235,100
	AB Roadway Total				\$3,361,930
	Deduct Redmond Rd Interchange Bit Pavement	TON	13000	-\$60.00	-\$780,000
	Deduct Redmond Rd Interchange Subbase	CY	-25000	-\$20.00	\$500,000
	Deduct Redmond Rd Interchange Sand Borrow	CY	-25000	\$12.00	-\$300,000
	Deduct Redmond Rd Interchange Common Exc	CY	-340000	\$5.00	-\$1,700,000

Alt 16 Total Deduction for Redmond Road Interchange = -\$2,280,000

Alternative 16a	\$35,200,000
Deduct for Redmond Road	- \$2,300,000
VT 2A Spot Improvements	\$1,600,000

Alternative 16c TOTAL**\$33,600,000****Louis Berger Group****Draft EIS Construction Cost Estimate - Roadway**

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 17	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	Circ-Corridor				
203.15	Common Excavation	CY	1220000	\$5.00	\$6,100,000
203.16	Solid Rock Excavation	CY	24500	\$20.00	\$490,000
301.35	Subbase of Dense Graded Crushed Stone	CY	170000	\$20.00	\$3,400,000
203.31	Sand Borrow	CY	165000	\$12.00	\$1,980,000
490.30	Superpave Bituminous Concrete Pavement	TON	97000	\$60.00	\$5,820,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	40500	\$18.00	\$729,000
	Multi-use Trail	LF	5200	\$35.00	\$182,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	9	\$40,000.00	\$360,000
	Utilities				\$0
	Traffic Signals	EACH	3	\$140,000.00	\$420,000
	Lighting	EACH	40	\$2,500.00	\$100,000
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF	12200	\$20.00	\$244,000
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway Subtotal				\$19,825,000
	Mobilization - 5% of Sub Total	LS			\$991,250
	Drainage - 15% of Sub Total	LS			\$2,973,750
	Landscaping - 2% of Sub Total	LS			\$396,500
	Signage - 1% of Sub Total	LS			\$198,250
	Traffic Control - 5% of Sub Total	LS			\$991,250
	Miscellaneous - 10% of Sub Total	LS			\$1,982,500
	AB Roadway Total				\$27,358,500

Rounding: \$27,400,000

VT 2A Spot Improvements \$1,600,000

Alternative 17 TOTAL \$29,000,000

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 18, 19 & 23 - Circ Street	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	<u>Circ-Corridor</u>				
203.15	Common Excavation	CY	455000	\$5.00	\$2,275,000
203.16	Solid Rock Excavation	CY	9000	\$20.00	\$180,000
301.35	Subbase of Dense Graded Crushed Stone	CY	68000	\$20.00	\$1,360,000
203.31	Sand Borrow	CY	62500	\$12.00	\$750,000
490.30	Superpave Bituminous Concrete Pavement	TON	27100	\$60.00	\$1,626,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	5475	\$18.00	\$98,550
	Multi-use Trail	LF	8520	\$35.00	\$298,200
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	5	\$40,000.00	\$200,000
	Utilities				\$0
	Traffic Signals	EACH	2	\$140,000.00	\$280,000
	Lighting	EACH	70	\$2,500.00	\$175,000
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF	7000	\$20.00	\$140,000
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway Subtotal				\$7,382,750
	Mobilization - 5% of Sub Total	LS			\$369,138
	Drainage - 15% of Sub Total	LS			\$1,107,413
	Landscaping - 2% of Sub Total	LS			\$147,655
	Signage - 1% of Sub Total	LS			\$73,828
	Traffic Control - 5% of Sub Total	LS			\$369,138
	Miscellaneous - 10% of Sub Total	LS			\$738,275
	AB Roadway Total				\$10,188,195

Rounding – Circ Sheet

\$10,200,000

Alternative 18: Circ Street	\$10,200,000		
Alt. 2	\$27,300,000		
TOTAL		= \$37,500,000	
Alternative 19: Circ Street	\$10,200,000		
Alt 3:	\$25,500,000		
TOTAL		= \$35,700,000	
Alternative 23: Circ Street	\$10,200,000		
Alt 22:	\$19,300,000		
TOTAL		= \$29,500,000	

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Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/17/2007
Town	Essex Jct. & Williston	Length	3.5 miles
County	Chittenden	Pavement Width	56' Typical
Road	Alternative 22	Shoulder Width	NA
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	VT 2A Corridor				
203.15	Common Excavation	CY	142000	\$12.00	\$1,704,000
203.16	Solid Rock Excavation	CY	3000	\$20.00	\$60,000
301.35	Subbase of Dense Graded Crushed Stone	CY	79000	\$20.00	\$1,580,000
203.31	Sand Borrow	CY	40000	\$15.00	\$600,000
490.30	Superpave Bituminous Concrete Pavement	TON	66000	\$75.00	\$4,950,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	29000	\$15.00	\$435,000
616.20	Granite Slope Edging	LF	16700	\$18.00	\$300,600
	Multi-use Trail	LF	12100	\$35.00	\$423,500
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	2900	\$38.00	\$110,200
	Stormwater Management Area	EACH	6	\$50,000.00	\$300,000
	Utilities				
	Water System Modifications	LS	1		\$750,000
	Sewer System Modifications	LS	1		\$50,000
	Gas System Modifications	LS	1		\$300,000
	Overhead Wiring	LS	1		\$800,000
	Traffic Signals	EACH	2	\$140,000.00	\$280,000
	Lighting	EACH	90	\$1,000.00	\$90,000
	Retaining Walls	LF	2650	\$175.00	\$463,750
621.20	Steel Beam Guardrail, Galvanized	LF	4500	\$20.00	\$90,000
	Roadway Sub Total				\$13,287,050
	Mobilization - 5% of Sub Total	LS			\$664,353
	Drainage - 15% of Sub Total	LS			\$1,993,058
	Landscaping - 4% of Sub Total	LS			\$531,482
	Signage - 1% of Sub Total	LS			\$132,871
	Traffic Control - 10% of Sub Total	LS			\$1,328,705
	Miscellaneous - 10% of Sub Total	LS			\$1,328,705
	Route 2A Roadway Total				\$19,266,223

Rounding:

\$19,300,000

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Draft EIS Construction Cost Estimate - Structures Summary

Project	Essex-Williston EIS	Date	2/7/2007
Town	Essex Jct. & Williston	Project #	CM 1475
County	Chittenden		

Structure Description	Alt 2 LS	Alt 3 LS	Alt 22 LS	Alt 16 LS	Alt 17 LS	Alt 18 LS	Alt 19 LS	Alt 23 LS
VT 2A Corridor								
I-89 over Route 2A	\$3,110,000	\$0	\$3,110,000	\$0	\$0	\$3,110,000	\$0	\$0
Route 2A over Allen Brook	\$1,600,000	\$1,600,000	\$1,400,000	\$0	\$0	\$1,600,000	\$1,600,000	\$1,400,000
Route 2A over Winooski River	\$1,520,000	\$1,520,000	\$0	\$0	\$0	\$1,520,000	\$1,520,000	\$0
Circ AB Corridor								
Circ over I-89	\$0	\$0	\$0	\$3,620,000	\$4,450,000	\$4,450,000	\$4,450,000	\$4,450,000
US 2 over Circ	\$0	\$0	\$0	\$1,950,000	\$0	\$0	\$0	\$0
Circ over Allen Brook	\$0	\$0	\$0	\$890,000	\$740,000	\$0	\$0	\$0
Multi Use Trail over Circ	\$0	\$0	\$0	\$1,240,000	\$1,240,000	\$0	\$0	\$0
Circ over Mountain View Road	\$0	\$0	\$0	\$3,375,000	\$0	\$0	\$0	\$0
Circ over Redmond Road Connector	\$0	\$0	\$0	\$3,970,000	\$0	\$0	\$0	\$0
Circ over Redmond Creek	\$0	\$0	\$0	\$1,360,000	\$1,280,000	\$0	\$0	\$0
Circ over Landfill Access Road	\$0	\$0	\$0	\$680,000	\$580,000	\$0	\$0	\$0
Circ over Winooski River	\$0	\$0	\$0	\$14,000,000	\$12,300,000	\$0	\$0	\$0
Structure Totals:	\$6,230,000	\$3,120,000	\$4,510,000	\$31,085,000	\$20,590,000	\$10,680,000	\$7,570,000	\$5,850,000
Round:	\$6,200,000	\$3,100,000	\$4,500,000	\$31,000,000	\$20,600,000	\$10,700,000	\$7,600,000	\$5,900,000

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Draft EIS Construction Cost Estimate - Roadway

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Town	Essex Jct. & Williston	Length	3.5 miles
County	Chittenden	Pavement Width	56' Typical
Road	Alternative 2	Shoulder Width	NA
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	VT 2A Corridor				
203.15	Common Excavation	CY	236000	\$12.00	\$2,832,000
203.16	Solid Rock Excavation	CY	5000	\$20.00	\$100,000
301.35	Subbase of Dense Graded Crushed Stone	CY	132000	\$20.00	\$2,640,000
203.31	Sand Borrow	CY	66000	\$15.00	\$990,000
490.30	Superpave Bituminous Concrete Pavement	TON	81000	\$75.00	\$6,075,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	37100	\$15.00	\$556,500
616.20	Granite Slope Edging	LF	1500	\$18.00	\$27,000
	Multi-use Trail	LF	13600	\$35.00	\$476,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	4600	\$38.00	\$174,800
	Stormwater Management Area	EACH	9	\$50,000.00	\$450,000
	Utilities				
	Water System Modifications	LS	1		\$1,150,000
	Sewer System Modifications	LS	1		\$50,000
	Gas System Modifications	LS	1		\$400,000
	Overhead Wiring	LS	1		\$1,100,000
	Traffic Signals	EACH	9	\$140,000.00	\$1,260,000
	Lighting	EACH	125	\$1,000.00	\$125,000
	Retaining Walls	LF	2650	\$175.00	\$463,750
621.20	Steel Beam Guardrail, Galvanized	LF	4500	\$20.00	\$90,000
	Roadway Sub Total				\$18,960,050
	Mobilization - 5% of Sub Total	LS			\$948,003
	Drainage - 15% of Sub Total	LS			\$2,844,008
	Landscaping - 3% of Sub Total	LS			\$568,802
	Signage - 1% of Sub Total	LS			\$189,601
	Traffic Control - 10% of Sub Total	LS			\$1,896,005
	Miscellaneous - 10% of Sub Total	LS			\$1,896,005
	Route 2A Roadway Total				\$27,302,472

Rounding:

\$27,300,000

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/17/2007
Town	Essex Jct. & Williston	Length	3.5 miles
County	Chittenden	Pavement Width	56' Typical
Road	Alternative 3	Shoulder Width	NA
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	VT 2A Corridor				
203.15	Common Excavation	CY	226000	\$12.00	\$2,712,000
203.16	Solid Rock Excavation	CY	5000	\$20.00	\$100,000
301.35	Subbase of Dense Graded Crushed Stone	CY	126000	\$20.00	\$2,520,000
203.31	Sand Borrow	CY	63000	\$15.00	\$945,000
490.30	Superpave Bituminous Concrete Pavement	TON	77000	\$75.00	\$5,775,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	39100	\$15.00	\$586,500
616.20	Granite Slope Edging	LF	11900	\$18.00	\$214,200
	Multi-use Trail	LF	18800	\$35.00	\$658,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	6100	\$38.00	\$231,800
	Stormwater Management Area	EACH	9	\$50,000.00	\$450,000
	Utilities				
	Water System Modifications	LS	1		\$1,150,000
	Sewer System Modifications	LS	1		\$50,000
	Gas System Modifications	LS	1		\$400,000
	Overhead Wiring	LS	1		\$1,100,000
	Traffic Signals	EACH	0	\$140,000.00	\$0
	Lighting	EACH	125	\$1,000.00	\$125,000
	Retaining Walls	LF	2650	\$175.00	\$463,750
621.20	Steel Beam Guardrail, Galvanized	LF	4800	\$20.00	\$96,000
	Roadway Sub Total				\$17,577,250
	Mobilization - 5% of Sub Total	LS			\$878,863
	Drainage - 15% of Sub Total	LS			\$2,636,588
	Landscaping - 4% of Sub Total	LS			\$703,090
	Signage - 1% of Sub Total	LS			\$175,773
	Traffic Control - 10% of Sub Total	LS			\$1,757,725
	Miscellaneous - 10% of Sub Total	LS			\$1,757,725
	Route 2A Roadway Total				\$25,487,013

Rounding:

\$25,500,000

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 16	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	<u>Circ-Corridor</u>				
203.15	Common Excavation	CY	1860000	\$5.00	\$9,300,000
203.16	Solid Rock Excavation	CY	37500	\$20.00	\$750,000
301.35	Subbase of Dense Graded Crushed Stone	CY	210000	\$20.00	\$4,200,000
203.31	Sand Borrow	CY	201000	\$12.00	\$2,412,000
490.30	Superpave Bituminous Concrete Pavement	TON	118000	\$60.00	\$7,080,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	1200	\$18.00	\$21,600
616.20	Granite Slope Edging	LF	1600	\$18.00	\$28,800
	Multi-use Trail	LF	5120	\$35.00	\$179,200
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	9	\$40,000.00	\$360,000
	Utilities	LS	1	\$250,000.00	\$250,000
	Traffic Signals	EACH	3	\$140,000.00	\$420,000
	Lighting	EACH	50	\$2,500.00	\$125,000
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF	15200	\$20.00	\$304,000
621.45	Concrete Median Barrier	LF	1200	\$70.00	\$84,000
	Roadway Subtotal				\$25,514,600
	Mobilization - 5% of Sub Total	LS			\$1,275,730
	Drainage - 15% of Sub Total	LS			\$3,827,190
	Landscaping - 2% of Sub Total	LS			\$510,292
	Signage - 1% of Sub Total	LS			\$255,146
	Traffic Control - 5% of Sub Total	LS			\$1,275,730
	Miscellaneous - 10% of Sub Total	LS			\$2,551,460
	AB Roadway Total				\$35,210,148

Rounding: \$35,200,000

**VT 2A Spot Improvements
\$1,300,000**

**Alternative 16a TOTAL
\$36,500,000**

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 16B - Added Cost for Ramps	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	Circ-Corridor				
203.15	Common Excavation	C	4500	\$5.00	\$22,500
203.16	Solid Rock Excavation	C	100	\$20.00	\$2,000
301.35	Subbase of Dense Graded Crushed Stone	C	14000	\$20.00	\$280,000
203.31	Sand Borrow	C	14000	\$12.00	\$168,000
490.30	Superpave Bituminous Concrete Pavement	TO	7000	\$60.00	\$420,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	0	\$18.00	\$0
	Multi-use Trail	LF	0	\$30.00	\$0
618.10	Portland Cement Concrete Sidewalk, 5 inch	S	0	\$38.00	\$0
	Stormwater Management	EACH	0	\$40,000.00	\$0
	Utilities				\$0
	Traffic Signals	EACH	2	\$140,000.00	\$280,000
	Lighting	EACH		\$2,500.00	\$0
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF		\$20.00	\$0
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway				\$1,172,500
	Mobilization - 5% of Sub Total	LS			\$58,625
	Drainage - 15% of Sub Total	LS			\$175,875
	Landscaping - 2% of Sub Total	LS			\$23,450
	Signage - 1% of Sub Total	LS			\$11,725
	Traffic Control - 5% of Sub Total	LS			\$58,625
	Miscellaneous - 10% of Sub Total	LS			\$117,250
	AB Roadway Total Added Cost				\$1,618,050

Rounding:	\$1,600,000
Alt. 16a	\$35,200,000
VT 2A Spot Improvements	\$1,300,000
Alternative 16b TOTAL	\$38,100,000

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 16C - Cost Differential	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	Circ-Corridor				
203.15	Common Excavation	CY	152000	\$5.00	\$760,000
203.16	Solid Rock Excavation	CY	3050	\$20.00	\$61,000
301.35	Subbase of Dense Graded Crushed Stone	CY	15000	\$20.00	\$300,000
203.31	Sand Borrow	CY	15000	\$12.00	\$180,000
490.30	Superpave Bituminous Concrete Pavement	TON	9600	\$60.00	\$576,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	0	\$18.00	\$0
	Multi-use Trail	LF	1800	\$30.00	\$54,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	0	\$40,000.00	\$0
	Utilities				\$0
	Traffic Signals	EACH	3	\$140,000.00	\$420,000
	Lighting	EACH		\$2,500.00	\$0
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF		\$20.00	\$0
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway Subtotal				\$2,351,000
	Mobilization - 5% of Sub Total	LS			\$117,550
	Drainage - 15% of Sub Total	LS			\$352,650
	Landscaping - 2% of Sub Total	LS			\$47,020
	Signage - 1% of Sub Total	LS			\$23,510
	Traffic Control - 10% of Sub Total	LS			\$235,100
	Miscellaneous - 10% of Sub Total	LS			\$235,100
	AB Roadway Total				\$3,361,930
	Deduct Redmond Rd Interchange Bit Pavement	TON	13000	-\$60.00	-\$780,000
	Deduct Redmond Rd Interchange Subbase	CY	-25000	-\$20.00	\$500,000
	Deduct Redmond Rd Interchange Sand Borrow	CY	-25000	\$12.00	-\$300,000
	Deduct Redmond Rd Interchange Common Exc	CY	-340000	\$5.00	-\$1,700,000

Alt 16 Total Deduction for Redmond Road Interchange = -\$2,280,000

Alternative 16a	\$35,200,000
Deduct for Redmond Road	- \$2,300,000
VT 2A Spot Improvements	\$1,600,000

Alternative 16c TOTAL**\$33,600,000****Louis Berger Group****Draft EIS Construction Cost Estimate - Roadway**

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 17	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	Circ-Corridor				
203.15	Common Excavation	CY	1220000	\$5.00	\$6,100,000
203.16	Solid Rock Excavation	CY	24500	\$20.00	\$490,000
301.35	Subbase of Dense Graded Crushed Stone	CY	170000	\$20.00	\$3,400,000
203.31	Sand Borrow	CY	165000	\$12.00	\$1,980,000
490.30	Superpave Bituminous Concrete Pavement	TON	97000	\$60.00	\$5,820,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	40500	\$18.00	\$729,000
	Multi-use Trail	LF	5200	\$35.00	\$182,000
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	9	\$40,000.00	\$360,000
	Utilities				\$0
	Traffic Signals	EACH	3	\$140,000.00	\$420,000
	Lighting	EACH	40	\$2,500.00	\$100,000
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF	12200	\$20.00	\$244,000
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway Subtotal				\$19,825,000
	Mobilization - 5% of Sub Total	LS			\$991,250
	Drainage - 15% of Sub Total	LS			\$2,973,750
	Landscaping - 2% of Sub Total	LS			\$396,500
	Signage - 1% of Sub Total	LS			\$198,250
	Traffic Control - 5% of Sub Total	LS			\$991,250
	Miscellaneous - 10% of Sub Total	LS			\$1,982,500
	AB Roadway Total				\$27,358,500

Rounding: \$27,400,000

VT 2A Spot Improvements \$1,600,000

Alternative 17 TOTAL \$29,000,000

Louis Berger Group

Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/22/2007
Town	Essex Jct. & Williston	Length	
County	Chittenden	Pavement Width	
Road	Alternative 18, 19 & 23 - Circ Street	Shoulder Width	
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	<u>Circ-Corridor</u>				
203.15	Common Excavation	CY	455000	\$5.00	\$2,275,000
203.16	Solid Rock Excavation	CY	9000	\$20.00	\$180,000
301.35	Subbase of Dense Graded Crushed Stone	CY	68000	\$20.00	\$1,360,000
203.31	Sand Borrow	CY	62500	\$12.00	\$750,000
490.30	Superpave Bituminous Concrete Pavement	TON	27100	\$60.00	\$1,626,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	0	\$18.00	\$0
616.20	Granite Slope Edging	LF	5475	\$18.00	\$98,550
	Multi-use Trail	LF	8520	\$35.00	\$298,200
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	0	\$38.00	\$0
	Stormwater Management	EACH	5	\$40,000.00	\$200,000
	Utilities				\$0
	Traffic Signals	EACH	2	\$140,000.00	\$280,000
	Lighting	EACH	70	\$2,500.00	\$175,000
	Retaining Walls	LF		\$150.00	\$0
621.20	Steel Beam Guardrail, Galvanized	LF	7000	\$20.00	\$140,000
621.45	Concrete Median Barrier	LF	0	\$70.00	\$0
	Roadway Subtotal				\$7,382,750
	Mobilization - 5% of Sub Total	LS			\$369,138
	Drainage - 15% of Sub Total	LS			\$1,107,413
	Landscaping - 2% of Sub Total	LS			\$147,655
	Signage - 1% of Sub Total	LS			\$73,828
	Traffic Control - 5% of Sub Total	LS			\$369,138
	Miscellaneous - 10% of Sub Total	LS			\$738,275
	AB Roadway Total				\$10,188,195

Rounding – Circ Sheet

\$10,200,000

Alternative 18: Circ Street	\$10,200,000		
Alt. 2	\$27,300,000		
TOTAL			= \$37,500,000
Alternative 19: Circ Street	\$10,200,000		
Alt 3:	\$25,500,000		
TOTAL			= \$35,700,000
Alternative 23: Circ Street	\$10,200,000		
Alt 22:	\$19,300,000		
TOTAL			= \$29,500,000

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Draft EIS Construction Cost Estimate - Roadway

Project	Essex-Williston EIS	Date	1/17/2007
Town	Essex Jct. & Williston	Length	3.5 miles
County	Chittenden	Pavement Width	56' Typical
Road	Alternative 22	Shoulder Width	NA
		Project #	

Item No.	Item Description	Unit	Quantity	Price	Amount
	VT 2A Corridor				
203.15	Common Excavation	CY	142000	\$12.00	\$1,704,000
203.16	Solid Rock Excavation	CY	3000	\$20.00	\$60,000
301.35	Subbase of Dense Graded Crushed Stone	CY	79000	\$20.00	\$1,580,000
203.31	Sand Borrow	CY	40000	\$15.00	\$600,000
490.30	Superpave Bituminous Concrete Pavement	TON	66000	\$75.00	\$4,950,000
616.28	Cast-In-Place Concrete Curb, Type B	LF	29000	\$15.00	\$435,000
616.20	Granite Slope Edging	LF	16700	\$18.00	\$300,600
	Multi-use Trail	LF	12100	\$35.00	\$423,500
618.10	Portland Cement Concrete Sidewalk, 5 inch	SY	2900	\$38.00	\$110,200
	Stormwater Management Area	EACH	6	\$50,000.00	\$300,000
	Utilities				
	Water System Modifications	LS	1		\$750,000
	Sewer System Modifications	LS	1		\$50,000
	Gas System Modifications	LS	1		\$300,000
	Overhead Wiring	LS	1		\$800,000
	Traffic Signals	EACH	2	\$140,000.00	\$280,000
	Lighting	EACH	90	\$1,000.00	\$90,000
	Retaining Walls	LF	2650	\$175.00	\$463,750
621.20	Steel Beam Guardrail, Galvanized	LF	4500	\$20.00	\$90,000
	Roadway Sub Total				\$13,287,050
	Mobilization - 5% of Sub Total	LS			\$664,353
	Drainage - 15% of Sub Total	LS			\$1,993,058
	Landscaping - 4% of Sub Total	LS			\$531,482
	Signage - 1% of Sub Total	LS			\$132,871
	Traffic Control - 10% of Sub Total	LS			\$1,328,705
	Miscellaneous - 10% of Sub Total	LS			\$1,328,705
	Route 2A Roadway Total				\$19,266,223

Rounding:

\$19,300,000

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Draft EIS Construction Cost Estimate - Structures Summary

Project	Essex-Williston EIS	Date	2/7/2007
Town	Essex Jct. & Williston	Project #	CM 1475
County	Chittenden		

Structure Description	Alt 2 LS	Alt 3 LS	Alt 22 LS	Alt 16 LS	Alt 17 LS	Alt 18 LS	Alt 19 LS	Alt 23 LS
VT 2A Corridor								
I-89 over Route 2A	\$3,110,000	\$0	\$3,110,000	\$0	\$0	\$3,110,000	\$0	\$0
Route 2A over Allen Brook	\$1,600,000	\$1,600,000	\$1,400,000	\$0	\$0	\$1,600,000	\$1,600,000	\$1,400,000
Route 2A over Winooski River	\$1,520,000	\$1,520,000	\$0	\$0	\$0	\$1,520,000	\$1,520,000	\$0
Circ AB Corridor								
Circ over I-89	\$0	\$0	\$0	\$3,620,000	\$4,450,000	\$4,450,000	\$4,450,000	\$4,450,000
US 2 over Circ	\$0	\$0	\$0	\$1,950,000	\$0	\$0	\$0	\$0
Circ over Allen Brook	\$0	\$0	\$0	\$890,000	\$740,000	\$0	\$0	\$0
Multi Use Trail over Circ	\$0	\$0	\$0	\$1,240,000	\$1,240,000	\$0	\$0	\$0
Circ over Mountain View Road	\$0	\$0	\$0	\$3,375,000	\$0	\$0	\$0	\$0
Circ over Redmond Road Connector	\$0	\$0	\$0	\$3,970,000	\$0	\$0	\$0	\$0
Circ over Redmond Creek	\$0	\$0	\$0	\$1,360,000	\$1,280,000	\$0	\$0	\$0
Circ over Landfill Access Road	\$0	\$0	\$0	\$680,000	\$580,000	\$0	\$0	\$0
Circ over Winooski River	\$0	\$0	\$0	\$14,000,000	\$12,300,000	\$0	\$0	\$0
Structure Totals:	\$6,230,000	\$3,120,000	\$4,510,000	\$31,085,000	\$20,590,000	\$10,680,000	\$7,570,000	\$5,850,000
Round:	\$6,200,000	\$3,100,000	\$4,500,000	\$31,000,000	\$20,600,000	\$10,700,000	\$7,600,000	\$5,900,000