

Appendix A – Cost Estimates

I-91 VIADUCT STUDY

Springfield, Massachusetts



I-91 Viaduct Study – Conceptual Cost Estimate

6/20/2017



MILONE & MACBROOM

massDOT
Massachusetts Department of Transportation

I-91 Viaduct Study - Conceptual Cost Estimate - ALT # 1

Alternative #1 - Sections

Cost

Longmeadow Curve Section

\$212,750,000.00

Bike -Way

\$19,750,000.00

South End Bridge

\$206,250,000.00

Route 5 / 57 Interchange / Route 5 Bridge

\$156,600,000.00

Plainfield Street Improvements

\$76,000,000.00

I-91 / I-291 Interchange

\$413,250,000.00

Frontage Road Improvements - E / W Columbus Avenue

\$159,675,000.00

I-91 Northern Touchdown

\$33,350,000.00

I-91 Downtown Core

\$2,500,000,000.00

\$3,777,625,000.00

SAY

\$3.78 Billion

LONGMEADOW CURVE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXACAVATION	\$27.50	CY	245000	\$6,737,500.00
ORDINARY BORROW	\$27.50	CY	72000	\$1,980,000.00
DRAINAGE	\$10,000,000.00	LS	1	\$10,000,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	694500	\$6,771,375.00
INTERSTATE PAVEMENT	\$11.25	SF	677000	\$7,616,250.00
GRANITE CURB	\$40.00	LF	12000	\$480,000.00
SIDEWALKS	\$65.00	SY	3000	\$195,000.00
SHARED USE PATH	\$45.00	SY	2100	\$94,500.00
MEDIAN BARRIER	\$75.00	LF	11000	\$825,000.00
GUARD RAIL	\$48.00	LF	13000	\$624,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,075,000.00
LANDSCAPING	\$750,000.00	LS	1	\$750,000.00
LIGHTING	\$80.00	LF	30000	\$2,400,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	2	\$500,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT MARKINGS	\$825,000.00	LS	1	\$825,000.00
STRUCTURAL				
BRIDGES (SERB)	\$16,000,000.00	LS	1	\$18,250,000.00
BRIDGES (Peanut)	\$9,500,000.00	LS	1	\$11,000,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	7500	\$21,750,000.00
RETAINING WALLS - LOW	\$1,400.00	FT	5000	\$7,000,000.00
BRIDGE REMOVAL	\$450,000.00	EA	5	\$2,250,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$2,095,512.50
MINOR ITEMS		15%	of Construction	\$15,716,343.75
TTC / TMP		10.00%	of Construction	\$10,477,562.50
CONSTRUCTION STAKING		1%	of Construction	\$1,047,756.25
UTILITY COSTS		6%	of Construction	\$6,286,537.50
MOBILIZATION		3%	of Construction	\$4,211,980.13
<u>TOTAL</u>				\$144,611,317.63
INCIDENTALS		5%	of Construction	\$7,230,565.88
CONTINGENCIES		25%	of Construction	\$36,152,829.41
POLICE DETAIL		5.00%	of Construction	\$7,230,565.88
RIGHT-OF-WAY		(est.)	\$500,000.00	\$500,000.00
RAILROAD FORCE ACCOUNT		2.75%	of Construction	\$3,976,811.23
PRELIMINARY ENGINEERING		8%	of Construction	\$11,568,905.41
PERMITTING		12%	of Design	\$1,388,268.65
				\$212,659,264.09
Say				\$212,750,000.00

BIKE CONNECTION FOREST PARK TO RIVERWALK "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	1000	\$27,500.00
ORDINARY BORROW	\$27.50	CY	500	\$13,750.00
DRAINAGE	\$250,000.00	LS	1	\$250,000.00
PAVEMENT				
SHARED USE PATH	\$45.00	SY	3861	\$173,745.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$40,000.00
LANDSCAPING	\$150,000.00	LS	1	\$150,000.00
LIGHTING	\$80.00	LF	3475	\$278,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$25,000.00	LS	1	\$25,000.00
PAVEMENT MARKINGS	\$50,000.00	LS	1	\$50,000.00
STRUCTURAL				
BRIDGES (PED)	\$155.00	SF	18084	\$2,803,020.00
CANTILEVER (PED)	\$1,400.00	FT	1170	\$1,638,000.00
RETAINING WALLS - LOW	\$1,250.00	FT	831	\$1,038,750.00
TUNNEL (under R.R.)	\$750,000.00	LS	1	\$750,000.00
STRUCTURE CONNECTING SEB	\$2,500,000.00	LS	1	\$2,500,000.00
FIELD OFFICE	\$3,500.00	MO	24	\$84,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$235,435.30
MINOR ITEMS		12%	of Construction	\$1,412,611.80
TTC / TMP		1.00%	of Construction	\$117,717.65
CONSTRUCTION STAKING		1%	of Construction	\$117,717.65
UTILITY COSTS		1%	of Construction	\$117,717.65
MOBILIZATION		3%	of Construction	\$413,188.95
<u>TOTAL</u>				\$14,186,154.00
INCIDENTALS		5%	of Construction	\$709,307.70
CONTINGENCIES		20%	of Construction	\$2,837,230.80
POLICE DETAIL		1.00%	of Construction	\$141,861.54
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		3.00%	of Construction	\$425,584.62
PRELIMINARY ENGINEERING		8%	of Construction	\$1,063,961.55
PERMITTING		12%	of Design	\$127,675.39
				\$19,741,775.60
Say				\$19,750,000.00

SOUTH END BRIDGE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
STRUCTURES				
Southend Bridge Demo	\$92.50	SF	168145	\$15,553,412.50
New Structure (TOTAL)	\$550.00	SF	168145	\$92,479,750.00
OTHER				
CLEARING AND GRUBBING		0.25%	of Construction	\$270,082.91
MINOR ITEMS		15%	of Construction	\$16,204,974.38
UTILITY COSTS		3%	of Construction	\$3,240,994.88
CONSTRUCTION STAKING		1%	of Construction	\$1,080,331.63
TTC / TMP		10.00%	of Construction	\$10,803,316.25
MOBILIZATION		3%	of Construction	\$3,864,886.39
<u>TOTAL</u>				\$143,497,748.92
INCIDENTALS		5%	of Construction	\$7,174,887.45
CONTINGENCIES		25%	of Construction	\$35,874,437.23
POLICE DETAIL		3.50%	of Construction	\$5,022,421.21
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		1.00%	of Construction	\$1,434,977.49
PRELIMINARY ENGINEERING		8%	of Construction	\$11,479,819.91
PERMITTING		12%	of Design	\$1,377,578.39
				\$206,111,870.60
		Say		\$206,250,000.00

Route 5 / 57 Interchange "MID-TERM"

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	157696	\$4,336,648.15
ORDINARY BORROW	\$27.50	CY	52513	\$1,444,103.83
DRAINAGE	\$3,500,000.00	LS	1	\$3,500,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	108393	\$1,056,831.75
INTERSTATE PAVEMENT	\$11.25	SF	452026	\$5,085,292.50
GRANITE CURB	\$40.00	LF	4615	\$184,600.00
SIDEWALKS	\$65.00	SY	691	\$44,922.22
SHARED USE PATH	\$45.00	SY	6472	\$291,250.00
MEDIAN BARRIER	\$75.00	LF	6750	\$506,250.00
GUARD RAIL	\$48.00	LF	8079	\$387,792.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$392,500.00
LANDSCAPING	\$425,000.00	LS		\$425,000.00
LIGHTING	\$80.00	LF	15785	\$1,262,800.00
ITS	\$65.00	LF	15785	\$1,026,025.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,000,000.00	LS	1	\$1,000,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
BRIDGES (Over Westfield River)	\$565.00	SF	59000	\$33,335,000.00
BRIDGE RT 5 (Over local roads)	\$3,600,000.00	LS	1	\$3,600,000.00
BRIDGE RT 5 ramp (Over local roads)	\$1,250,000.00	LS	1	\$1,250,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	2671	\$7,745,900.00
RETAINING WALLS - LOW	\$1,400.00	FT	746	\$1,044,400.00
BRIDGE REMOVAL - general	\$450,000.00	EA	2	\$900,000.00
BRIDGE REMOVAL (over Westfield River)	\$92.50	SF	46800	\$4,329,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		3%	of Construction	\$1,857,507.89
MINOR ITEMS		20%	of Construction	\$14,860,063.09
TTC / TMP		10.00%	of Construction	\$7,430,031.55
CONSTRUCTION STAKING		1%	of Construction	\$743,003.15
UTILITY COSTS		6%	of Construction	\$4,458,018.93
MOBILIZATION		3%	of Construction	\$3,109,468.20
<u>TOTAL</u>				\$106,758,408.26
INCIDENTALS		7%	of Construction	\$7,473,088.58
CONTINGENCIES		25%	of Construction	\$26,689,602.06
POLICE DETAIL		5.00%	of Construction	\$5,337,920.41
RIGHT-OF-WAY		(est.)	\$750,000.00	\$750,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$8,540,672.66
PERMITTING		12%	of Design	\$1,024,880.72
				\$156,574,572.70
Say				\$156,600,000.00

Plainfield Street "MID-TERM"

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	21075	\$579,562.50
ORDINARY BORROW	\$27.50	CY	7024	\$193,168.18
DRAINAGE	\$2,500,000.00	LS	1	\$2,500,000.00
PAVEMENT				
ROADWAY (I) PAVEMENT	\$8.30	SF	18404	\$152,753.20
ROADWAY (II) PAVEMENT	\$9.75	SF	249982	\$2,437,324.50
INTERSTATE PAVEMENT	\$11.25	SF	70346	\$791,392.50
GRANITE CURB	\$40.00	LF	13500	\$540,000.00
SIDEWALKS	\$65.00	SY	3277	\$213,019.44
GUARD RAIL	\$48.00	LF	3436	\$164,928.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$300,000.00
LANDSCAPING	\$500,000.00	LS		\$500,000.00
LIGHTING	\$80.00	LF	7237	\$578,960.00
ITS	\$65.00	LF	7237	\$470,405.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	3	\$750,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$450,000.00	LS	1	\$450,000.00
PAVEMENT MARKINGS	\$95,000.00	LS	1	\$95,000.00
STRUCTURAL				
BRIDGES (Over I-91)	\$400.00	SF	50870	\$20,348,000.00
BRIDGES (R.R.)	\$400.00	SF	11416	\$4,566,400.00
RETAINING WALLS - HIGH	\$2,900.00	FT	212	\$614,800.00
RETAINING WALLS - LOW	\$1,400.00	FT	246	\$344,400.00
BRIDGE REMOVAL - general	\$600,000.00	EA	1	\$600,000.00
FIELD OFFICE	\$3,500.00	MO	42	\$147,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$746,742.27
MINOR ITEMS		20%	of Construction	\$7,467,422.67
TTC / TMP		7.50%	of Construction	\$2,800,283.50
CONSTRUCTION STAKING		1%	of Construction	\$373,371.13
UTILITY COSTS		5%	of Construction	\$1,866,855.67
MOBILIZATION		3%	of Construction	\$1,517,753.66
<u>TOTAL</u>				\$52,109,542.21
INCIDENTALS		5%	of Construction	\$2,605,477.11
CONTINGENCIES		25%	of Construction	\$13,027,385.55
POLICE DETAIL		4.50%	of Construction	\$2,344,929.40
RIGHT-OF-WAY		(est.)	\$300,000.00	\$300,000.00
RAILROAD FORCE ACCOUNT		1.75%	of Construction	\$911,916.99
PRELIMINARY ENGINEERING		8%	of Construction	\$4,168,763.38
PERMITTING		12%	of Design	\$500,251.61
				\$75,968,266.25
Say				\$76,000,000.00

Alternative 1 Ramps I-91 @ I-291 (interchange)**I-91 VIADUCT STUDY**

ITEM	UNIT PRICE	UNIT	QUANTITY	TOTAL
EARTHWORK				
EXCAVATION	\$27.50	CY	109262	\$3,004,711.11
ORDINARY BORROW	\$27.50	CY	46436	\$1,277,002.22
DRAINAGE	\$7,500,000.00	LS	1	\$7,500,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	42320	\$412,620.00
INTERSTATE PAVEMENT	\$11.25	SF	203520	\$2,289,600.00
GRANITE CURB	\$40.00	LF	1489	\$59,560.00
SIDEWALKS	\$65.00	SY	122	\$7,901.11
MEDIAN BARRIER	\$75.00	LF	455	\$34,125.00
GUARD RAIL	\$48.00	LF	8279	\$397,392.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,000,000.00
LANDSCAPING	\$2,500,000.00	LS		\$2,500,000.00
LIGHTING	\$125.00	LF		\$1,984,125.00
ITS	\$65.00	LF	15873	\$1,031,745.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$3,000,000.00	LS	1	\$3,000,000.00
PAVEMENT MARKINGS	\$1,000,000.00	LS	1	\$1,000,000.00
STRUCTURAL				
I-291 SB to I-91 SB	\$535.00	SF	103598	\$55,424,930.00
I-291 SB to I-91 NB	\$510.00	SF	41291	\$21,058,410.00
I-91 NB to I-291 NB	\$510.00	SF	43307	\$22,086,570.00
I-91 SB to I-291 NB	\$510.00	SF	48523	\$24,746,730.00
Bridge Over Main Street	\$310.00	SF	7500	\$2,325,000.00
Bridge Over Dwight Street	\$310.00	SF	3650	\$1,131,500.00
RETAINING WALLS - HIGH	\$2,900.00	FT	2340	\$6,786,000.00
RETAINING WALLS - LOW	\$1,400.00	FT	4089	\$5,724,600.00
BRIDGE REMOVAL	\$115.00	SF	256800	\$29,532,000.00
FIELD OFFICE	\$3,500.00	MO	132	\$462,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$1,950,265.21
MINOR ITEMS		20%	of Construction	\$39,005,304.29
TTC / TMP		12%	of Construction	\$23,403,182.57
CONSTRUCTION STAKING		1%	of Construction	\$1,950,265.21
UTILITY COSTS		6%	of Construction	\$11,701,591.29
MOBILIZATION		3%	of Construction	\$8,191,113.90
TOTAL				\$281,228,243.92
INCIDENTALS		7%	of Construction	\$19,685,977.07
CONTINGENCIES		25%	of Construction	\$70,307,060.98
POLICE DETAIL		3.50%	of Construction	\$9,842,988.54
RIGHT-OF-WAY		(est.)	\$1,250,000.00	\$1,250,000.00
RAILROAD FORCE ACCOUNT		2.00%	of Construction	\$5,624,564.88
PRELIMINARY ENGINEERING		8%	of Construction	\$22,498,259.51
PERMITTING		12%	of Design	\$2,699,791.14
				\$413,136,886.05
Say				\$413,250,000.00

Alternative 1 - East and West Comlubus Avenue Improvements

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	187931	\$5,168,115.74
ORDINARY BORROW	\$27.50	CY	46983	\$1,292,028.94
DRAINAGE	\$5,000,000.00	LS	1	\$5,000,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	1457910	\$14,214,622.50
GRANITE CURB	\$40.00	LF	62975	\$2,519,000.00
SIDEWALKS	\$65.00	SY	28889	\$1,877,785.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$675,000.00
LANDSCAPING	\$1,750,000.00	LS	1	\$1,750,000.00
LIGHTING	\$80.00	LF	28265	\$2,261,200.00
ITS	\$65.00	LF	5623	\$365,495.00
TRAFFIC SIGNALS				
MINOR INTERSECTIONS	\$200,000.00	EA	3	\$600,000.00
MAJOR INTERSECTIONS	\$250,000.00	EA	7	\$1,750,000.00
MAJOR INTERSECTIONS (II)	\$300,000.00	EA	3	\$900,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$500,000.00	LS	1	\$500,000.00
PAVEMENT MARKINGS	\$350,000.00	LS	1	\$350,000.00
STRUCTURAL				
R.R. Bridge over Roadway (Columbus)	\$500.00	SF	57541	\$28,770,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	514	\$719,600.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$689,653.47
MINOR ITEMS		20%	of Construction	\$13,793,069.44
TTC / TMP		12%	of Construction	\$8,275,841.66
CONSTRUCTION STAKING		1%	of Construction	\$689,653.47
UTILITY COSTS		25%	of Construction	\$17,241,336.79
MOBILIZATION		3%	of Construction	\$3,289,647.06
<u>TOTAL</u>				\$112,944,549.07
INCIDENTALS		5%	of Construction	\$5,647,227.45
CONTINGENCIES		20%	of Construction	\$22,588,909.81
POLICE DETAIL		4.00%	of Construction	\$4,517,781.96
RIGHT-OF-WAY		(est.)	\$750,000.00	\$750,000.00
RAILROAD FORCE ACCOUNT		2.75%	of Construction	\$3,105,975.10
PRELIMINARY ENGINEERING		8%	of Construction	\$9,035,563.93
PERMITTING		12%	of Design	\$1,084,267.67
				\$159,674,275.00
Say				\$159,675,000.00

I-91 Northern Touchdown**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	108258	\$2,977,107.03
ORDINARY BORROW	\$27.50	CY	27065	\$744,276.76
DRAINAGE	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT				
INTERSTATE PAVEMENT	\$11.25	SF	492291	\$5,538,273.75
MEDIAN BARRIER	\$75.00	LF	3194	\$239,550.00
GUARD RAIL	\$48.00	LF	6053	\$290,544.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,325,000.00
LANDSCAPING	\$75,000.00	LS	1	\$75,000.00
LIGHTING	\$80.00	LF	7650	\$612,000.00
ITS	\$65.00	LF	7650	\$497,250.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$600,000.00	LS	1	\$600,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
RETAINING WALLS - HIGH	\$2,900.00	FT	175	\$507,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	701	\$981,400.00
FIELD OFFICE	\$3,500.00	MO	60	\$210,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$81,489.51
MINOR ITEMS		20%	of Construction	\$3,259,580.31
TTC / TMP		10%	of Construction	\$1,629,790.15
CONSTRUCTION STAKING		1%	of Construction	\$162,979.02
UTILITY COSTS		5%	of Construction	\$814,895.08
MOBILIZATION		3%	of Construction	\$667,399.07
<u>TOTAL</u>				\$22,914,034.67
INCIDENTALS		7%	of Construction	\$1,603,982.43
CONTINGENCIES		20%	of Construction	\$4,582,806.93
POLICE DETAIL		4.00%	of Construction	\$916,561.39
RIGHT-OF-WAY		(est.)	\$100,000.00	\$1,250,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$1,833,122.77
PERMITTING		12%	of Design	\$219,974.73
				\$33,320,482.92
Say				\$33,350,000.00

Alternative 1 I-91 Tunnel (Downtown Core)**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	696000	\$19,140,000.00
ORDINARY BORROW	\$26.50	CY	330600	\$8,760,900.00
DRAINAGE	\$35,000,000.00	LS	1	\$35,000,000.00
PAVEMENT				
INTERSTATE PAVEMENT	\$11.25	SF	621500	\$6,991,875.00
MEDIAN BARRIER	\$75.00	LF	8700	\$652,500.00
LIGHTING	\$125.00	LF	17400	\$2,175,000.00
ITS	\$65.00	LF	17400	\$1,131,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$5,450,000.00
STRUCTURAL				
ELEVATED HWY C	\$535.00	SF	351000	\$187,785,000.00
TUNNEL	\$120,000,000.00	LA/MI	5.2	\$624,000,000.00
PLAZAS	\$200.00	SY	97500	\$19,500,000.00
PLAZA "D" STRUCTURE	\$535.00	SF	240000	\$128,400,000.00
DEMO				
STRUCTURE (VIADUCT REMOVAL)	\$115.00	SF	567000	\$65,205,000.00
PARKING GARAGE REMOVAL	\$1.00	LS	10000000	\$10,000,000.00
FIELD OFFICE	\$3,500.00	MO	144	\$504,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$11,146,952.75
MINOR ITEMS		25%	of Construction	\$278,673,818.75
TTC / TMP		17%	of Construction	\$189,498,196.75
CONSTRUCTION STAKING		1%	of Construction	\$11,146,952.75
UTILITY COSTS		6%	of Construction	\$61,308,240.13
MOBILIZATION		3%	of Construction	\$49,994,083.08
<u>TOTAL</u>				\$1,716,463,519.21
INCIDENTALS		7%	of Construction	\$120,152,446.34
CONTINGENCIES		25%	of Construction	\$429,115,879.80
POLICE DETAIL		2.00%	of Construction	\$34,329,270.38
RIGHT-OF-WAY		(est.)	\$2,500,000.00	\$2,500,000.00
RAILROAD FORCE ACCOUNT		2.25%	of Construction	\$38,620,429.18
PRELIMINARY ENGINEERING		8%	of Construction	\$137,317,081.54
PERMITTING		12%	of Design	\$16,478,049.78
				\$2,494,976,676.24
Say				\$2,500,000,000.00

I-91 Viaduct Study - Conceptual Cost Estimate - ALT # 2

Alternative #2 - Sections

Cost

Longmeadow Curve Section

\$212,750,000.00

Bike -Way

\$19,750,000.00

South End Bridge

\$206,250,000.00

Route 5 / 57 Interchange / Route 5 Bridge

\$156,600,000.00

Plainfield Street Improvements

\$76,000,000.00

I-91 / I-291 Interchange

\$407,500,000.00

Frontage Road Improvements - E / W Columbus Avenue

\$155,550,000.00

I-91 Northern Touchdown

\$33,350,000.00

I-91 Downtown Core

\$2,475,000,000.00

\$3,742,750,000.00

SAY

\$3.74 Billion

LONGMEADOW CURVE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXACAVATION	\$27.50	CY	245000	\$6,737,500.00
ORDINARY BORROW	\$27.50	CY	72000	\$1,980,000.00
DRAINAGE	\$10,000,000.00	LS	1	\$10,000,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	694500	\$6,771,375.00
INTERSTATE PAVEMENT	\$11.25	SF	677000	\$7,616,250.00
GRANITE CURB	\$40.00	LF	12000	\$480,000.00
SIDEWALKS	\$65.00	SY	3000	\$195,000.00
SHARED USE PATH	\$45.00	SY	2100	\$94,500.00
MEDIAN BARRIER	\$75.00	LF	11000	\$825,000.00
GUARD RAIL	\$48.00	LF	13000	\$624,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,075,000.00
LANDSCAPING	\$750,000.00	LS	1	\$750,000.00
LIGHTING	\$80.00	LF	30000	\$2,400,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	2	\$500,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT MARKINGS	\$825,000.00	LS	1	\$825,000.00
STRUCTURAL				
BRIDGES (SERB)	\$16,000,000.00	LS	1	\$18,250,000.00
BRIDGES (Peanut)	\$9,500,000.00	LS	1	\$11,000,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	7500	\$21,750,000.00
RETAINING WALLS - LOW	\$1,400.00	FT	5000	\$7,000,000.00
BRIDGE REMOVAL	\$450,000.00	EA	5	\$2,250,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$2,095,512.50
MINOR ITEMS		15%	of Construction	\$15,716,343.75
TTC / TMP		10.00%	of Construction	\$10,477,562.50
CONSTRUCTION STAKING		1%	of Construction	\$1,047,756.25
UTILITY COSTS		6%	of Construction	\$6,286,537.50
MOBILIZATION		3%	of Construction	\$4,211,980.13
<u>TOTAL</u>				\$144,611,317.63
INCIDENTALS		5%	of Construction	\$7,230,565.88
CONTINGENCIES		25%	of Construction	\$36,152,829.41
POLICE DETAIL		5.00%	of Construction	\$7,230,565.88
RIGHT-OF-WAY		(est.)	\$500,000.00	\$500,000.00
RAILROAD FORCE ACCOUNT		2.75%	of Construction	\$3,976,811.23
PRELIMINARY ENGINEERING		8%	of Construction	\$11,568,905.41
PERMITTING		12%	of Design	\$1,388,268.65
				\$212,659,264.09
Say				\$212,750,000.00

BIKE CONNECTION FOREST PARK TO RIVERWALK "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	1000	\$27,500.00
ORDINARY BORROW	\$27.50	CY	500	\$13,750.00
DRAINAGE	\$250,000.00	LS	1	\$250,000.00
PAVEMENT				
SHARED USE PATH	\$45.00	SY	3861	\$173,745.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$40,000.00
LANDSCAPING	\$150,000.00	LS	1	\$150,000.00
LIGHTING	\$80.00	LF	3475	\$278,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$25,000.00	LS	1	\$25,000.00
PAVEMENT MARKINGS	\$50,000.00	LS	1	\$50,000.00
STRUCTURAL				
BRIDGES (PED)	\$155.00	SF	18084	\$2,803,020.00
CANTILEVER (PED)	\$1,400.00	FT	1170	\$1,638,000.00
RETAINING WALLS - LOW	\$1,250.00	FT	831	\$1,038,750.00
TUNNEL (under R.R.)	\$750,000.00	LS	1	\$750,000.00
STRUCTURE CONNECTING SEB	\$2,500,000.00	LS	1	\$2,500,000.00
FIELD OFFICE	\$3,500.00	MO	24	\$84,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$235,435.30
MINOR ITEMS		12%	of Construction	\$1,412,611.80
TTC / TMP		1.00%	of Construction	\$117,717.65
CONSTRUCTION STAKING		1%	of Construction	\$117,717.65
UTILITY COSTS		1%	of Construction	\$117,717.65
MOBILIZATION		3%	of Construction	\$413,188.95
<u>TOTAL</u>				\$14,186,154.00
INCIDENTALS		5%	of Construction	\$709,307.70
CONTINGENCIES		20%	of Construction	\$2,837,230.80
POLICE DETAIL		1.00%	of Construction	\$141,861.54
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		3.00%	of Construction	\$425,584.62
PRELIMINARY ENGINEERING		8%	of Construction	\$1,063,961.55
PERMITTING		12%	of Design	\$127,675.39
				\$19,741,775.60
Say				\$19,750,000.00

SOUTH END BRIDGE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
STRUCTURES				
Southend Bridge Demo	\$92.50	SF	168145	\$15,553,412.50
New Structure (TOTAL)	\$550.00	SF	168145	\$92,479,750.00
OTHER				
CLEARING AND GRUBBING		0.25%	of Construction	\$270,082.91
MINOR ITEMS		15%	of Construction	\$16,204,974.38
UTILITY COSTS		3%	of Construction	\$3,240,994.88
CONSTRUCTION STAKING		1%	of Construction	\$1,080,331.63
TTC / TMP		10.00%	of Construction	\$10,803,316.25
MOBILIZATION		3%	of Construction	\$3,864,886.39
<u>TOTAL</u>				\$143,497,748.92
INCIDENTALS		5%	of Construction	\$7,174,887.45
CONTINGENCIES		25%	of Construction	\$35,874,437.23
POLICE DETAIL		3.50%	of Construction	\$5,022,421.21
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		1.00%	of Construction	\$1,434,977.49
PRELIMINARY ENGINEERING		8%	of Construction	\$11,479,819.91
PERMITTING		12%	of Design	\$1,377,578.39
				\$206,111,870.60
		Say		\$206,250,000.00

Route 5 / 57 Interchange "MID-TERM"

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	157696	\$4,336,648.15
ORDINARY BORROW	\$27.50	CY	52513	\$1,444,103.83
DRAINAGE	\$3,500,000.00	LS	1	\$3,500,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	108393	\$1,056,831.75
INTERSTATE PAVEMENT	\$11.25	SF	452026	\$5,085,292.50
GRANITE CURB	\$40.00	LF	4615	\$184,600.00
SIDEWALKS	\$65.00	SY	691	\$44,922.22
SHARED USE PATH	\$45.00	SY	6472	\$291,250.00
MEDIAN BARRIER	\$75.00	LF	6750	\$506,250.00
GUARD RAIL	\$48.00	LF	8079	\$387,792.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$392,500.00
LANDSCAPING	\$425,000.00	LS	1	\$425,000.00
LIGHTING	\$80.00	LF	15785	\$1,262,800.00
ITS	\$65.00	LF	15785	\$1,026,025.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,000,000.00	LS	1	\$1,000,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
BRIDGES (Over Westfield River)	\$565.00	SF	59000	\$33,335,000.00
BRIDGE RT 5 (Over local roads)	\$3,600,000.00	LS	1	\$3,600,000.00
BRIDGE RT 5 ramp (Over local roads)	\$1,250,000.00	LS	1	\$1,250,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	2671	\$7,745,900.00
RETAINING WALLS - LOW	\$1,400.00	FT	746	\$1,044,400.00
BRIDGE REMOVAL - general	\$450,000.00	EA	2	\$900,000.00
BRIDGE REMOVAL (over Westfield River)	\$92.50	SF	46800	\$4,329,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		3%	of Construction	\$1,857,507.89
MINOR ITEMS		20%	of Construction	\$14,860,063.09
TTC / TMP		10.00%	of Construction	\$7,430,031.55
CONSTRUCTION STAKING		1%	of Construction	\$743,003.15
UTILITY COSTS		6%	of Construction	\$4,458,018.93
MOBILIZATION		3%	of Construction	\$3,109,468.20
<u>TOTAL</u>				\$106,758,408.26
INCIDENTALS		7%	of Construction	\$7,473,088.58
CONTINGENCIES		25%	of Construction	\$26,689,602.06
POLICE DETAIL		5.00%	of Construction	\$5,337,920.41
RIGHT-OF-WAY		(est.)	\$750,000.00	\$750,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$8,540,672.66
PERMITTING		12%	of Design	\$1,024,880.72
				\$156,574,572.70
Say				\$156,600,000.00

Plainfield Street "MID-TERM"

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	21075	\$579,562.50
ORDINARY BORROW	\$27.50	CY	7024	\$193,168.18
DRAINAGE	\$2,500,000.00	LS	1	\$2,500,000.00
PAVEMENT				
ROADWAY (I) PAVEMENT	\$8.30	SF	18404	\$152,753.20
ROADWAY (II) PAVEMENT	\$9.75	SF	249982	\$2,437,324.50
INTERSTATE PAVEMENT	\$11.25	SF	70346	\$791,392.50
GRANITE CURB	\$40.00	LF	13500	\$540,000.00
SIDEWALKS	\$65.00	SY	3277	\$213,019.44
GUARD RAIL	\$48.00	LF	3436	\$164,928.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$300,000.00
LANDSCAPING	\$500,000.00	LS		\$500,000.00
LIGHTING	\$80.00	LF	7237	\$578,960.00
ITS	\$65.00	LF	7237	\$470,405.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	3	\$750,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$450,000.00	LS	1	\$450,000.00
PAVEMENT MARKINGS	\$95,000.00	LS	1	\$95,000.00
STRUCTURAL				
BRIDGES (Over I-91)	\$400.00	SF	50870	\$20,348,000.00
BRIDGES (R.R.)	\$400.00	SF	11416	\$4,566,400.00
RETAINING WALLS - HIGH	\$2,900.00	FT	212	\$614,800.00
RETAINING WALLS - LOW	\$1,400.00	FT	246	\$344,400.00
BRIDGE REMOVAL - general	\$600,000.00	EA	1	\$600,000.00
FIELD OFFICE	\$3,500.00	MO	42	\$147,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$746,742.27
MINOR ITEMS		20%	of Construction	\$7,467,422.67
TTC / TMP		7.50%	of Construction	\$2,800,283.50
CONSTRUCTION STAKING		1%	of Construction	\$373,371.13
UTILITY COSTS		5%	of Construction	\$1,866,855.67
MOBILIZATION		3%	of Construction	\$1,517,753.66
<u>TOTAL</u>				\$52,109,542.21
INCIDENTALS		5%	of Construction	\$2,605,477.11
CONTINGENCIES		25%	of Construction	\$13,027,385.55
POLICE DETAIL		4.50%	of Construction	\$2,344,929.40
RIGHT-OF-WAY		(est.)	\$300,000.00	\$300,000.00
RAILROAD FORCE ACCOUNT		1.75%	of Construction	\$911,916.99
PRELIMINARY ENGINEERING		8%	of Construction	\$4,168,763.38
PERMITTING		12%	of Design	\$500,251.61
				\$75,968,266.25
Say				\$76,000,000.00

Alternative 2 Ramps I-91 @ I-291 (interchange)**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	82192	\$2,260,268.80
ORDINARY BORROW	\$27.50	CY	27370	\$752,669.51
DRAINAGE	\$7,000,000.00	LS	1	\$7,000,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	42320	\$412,620.00
INTERSTATE PAVEMENT	\$11.25	SF	159423	\$1,793,508.75
GRANITE CURB	\$40.00	LF	1489	\$59,560.00
SIDEWALKS	\$65.00	SY	122	\$7,901.11
MEDIAN BARRIER	\$75.00	LF	480	\$36,000.00
GUARD RAIL	\$48.00	LF	8000	\$384,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$940,000.00
LANDSCAPING	\$2,400,000.00	LS		\$2,400,000.00
LIGHTING	\$125.00	LF	14100	\$1,762,500.00
ITS	\$65.00	LF	14100	\$916,500.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$2,750,000.00	LS	1	\$2,750,000.00
PAVEMENT MARKINGS	\$875,000.00	LS	1	\$875,000.00
STRUCTURAL				
I-291 SB to I-91 SB	\$535.00	SF	113402	\$60,670,070.00
I-291 SB to I-91 NB	\$510.00	SF	41291	\$21,058,410.00
I-91 NB to I-291 NB	\$510.00	SF	43307	\$22,086,570.00
I-91 SB to I-291 NB	\$510.00	SF	48523	\$24,746,730.00
Bridge Over Main Street	\$310.00	SF	7500	\$2,325,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	1555	\$4,509,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	3199	\$4,478,600.00
BRIDGE REMOVAL	\$115.00	SF	256800	\$29,532,000.00
FIELD OFFICE	\$3,500.00	MO	100	\$350,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$1,923,574.08
MINOR ITEMS		20%	of Construction	\$38,471,481.63
TTC / TMP		12%	of Construction	\$23,082,888.98
CONSTRUCTION STAKING		1%	of Construction	\$1,923,574.08
UTILITY COSTS		6%	of Construction	\$11,541,444.49
MOBILIZATION		3%	of Construction	\$8,079,011.14
<u>TOTAL</u>				\$277,379,382.58
INCIDENTALS		7%	of Construction	\$19,416,556.78
CONTINGENCIES		25%	of Construction	\$69,344,845.64
POLICE DETAIL		3.50%	of Construction	\$9,708,278.39
RIGHT-OF-WAY		(est.)	\$1,250,000.00	\$1,250,000.00
RAILROAD FORCE ACCOUNT		2.00%	of Construction	\$5,547,587.65
PRELIMINARY ENGINEERING		8%	of Construction	\$22,190,350.61
PERMITTING		12%	of Design	\$2,662,842.07
				\$407,499,843.72
Say				\$407,500,000.00

Alternative 2 - East and West Comlubus Avenue Improvements

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	202026	\$5,555,724.42
ORDINARY BORROW	\$27.50	CY	50507	\$1,388,931.11
DRAINAGE	\$5,000,000.00	LS	1	\$5,000,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	1567253	\$15,280,719.19
GRANITE CURB	\$40.00	LF	27926	\$1,117,022.40
SIDEWALKS	\$65.00	SY	29089	\$1,890,793.13
EROSION CONTROL	10	%	Drainage and Landscaping	\$650,000.00
LANDSCAPING	\$1,500,000.00	LS	1	\$1,500,000.00
LIGHTING	\$80.00	LF	25857	\$2,068,560.00
ITS	\$65.00	LF	5171	\$336,141.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	3	\$750,000.00
MAJOR INTERSECTIONS (II)	\$300,000.00	EA	2	\$600,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$500,000.00	LS	1	\$500,000.00
PAVEMENT MARKINGS	\$425,000.00	LS	1	\$425,000.00
STRUCTURAL				
R.R. Bridge over Roadway (Columbus)	\$500.00	SF	57541	\$28,770,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	500	\$700,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$667,853.91
MINOR ITEMS		20%	of Construction	\$13,357,078.25
TTC / TMP		12%	of Construction	\$8,014,246.95
CONSTRUCTION STAKING		1%	of Construction	\$667,853.91
UTILITY COSTS		25%	of Construction	\$16,696,347.81
MOBILIZATION		3%	of Construction	\$3,185,663.16
<u>TOTAL</u>				\$109,374,435.23
INCIDENTALS		5%	of Construction	\$5,468,721.76
CONTINGENCIES		20%	of Construction	\$21,874,887.05
POLICE DETAIL		4.00%	of Construction	\$4,374,977.41
RIGHT-OF-WAY		(est.)	\$1,000,000.00	\$1,000,000.00
RAILROAD FORCE ACCOUNT		3.25%	of Construction	\$3,554,669.15
PRELIMINARY ENGINEERING		8%	of Construction	\$8,749,954.82
PERMITTING		12%	of Design	\$1,049,994.58
				\$155,447,639.99
Say				\$155,550,000.00

I-91 Northern Touchdown**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	108258	\$2,977,107.03
ORDINARY BORROW	\$27.50	CY	27065	\$744,276.76
DRAINAGE	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT				
INTERSTATE PAVEMENT	\$11.25	SF	492291	\$5,538,273.75
MEDIAN BARRIER	\$75.00	LF	3194	\$239,550.00
GUARD RAIL	\$48.00	LF	6053	\$290,544.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,325,000.00
LANDSCAPING	\$75,000.00	LS	1	\$75,000.00
LIGHTING	\$80.00	LF	7650	\$612,000.00
ITS	\$65.00	LF	7650	\$497,250.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$600,000.00	LS	1	\$600,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
RETAINING WALLS - HIGH	\$2,900.00	FT	175	\$507,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	701	\$981,400.00
FIELD OFFICE	\$3,500.00	MO	60	\$210,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$81,489.51
MINOR ITEMS		20%	of Construction	\$3,259,580.31
TTC / TMP		10%	of Construction	\$1,629,790.15
CONSTRUCTION STAKING		1%	of Construction	\$162,979.02
UTILITY COSTS		5%	of Construction	\$814,895.08
MOBILIZATION		3%	of Construction	\$667,399.07
<u>TOTAL</u>				\$22,914,034.67
INCIDENTALS		7%	of Construction	\$1,603,982.43
CONTINGENCIES		20%	of Construction	\$4,582,806.93
POLICE DETAIL		4.00%	of Construction	\$916,561.39
RIGHT-OF-WAY		(est.)	\$100,000.00	\$1,250,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$1,833,122.77
PERMITTING		12%	of Design	\$219,974.73
				\$33,320,482.92
Say				\$33,350,000.00

Alternative 2 I-91 Tunnel (Downtown Core)**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	696000	\$19,140,000.00
ORDINARY BORROW	\$26.50	CY	330600	\$8,760,900.00
DRAINAGE	\$30,000,000.00	LS	1	\$30,000,000.00
PAVEMENT				
INTERSTATE PAVEMENT	\$11.25	SF	621500	\$6,991,875.00
MEDIAN BARRIER	\$75.00	LF	8900	\$667,500.00
LIGHTING	\$125.00	LF	17600	\$2,200,000.00
ITS	\$65.00	LF	16400	\$1,066,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$4,544,440.00
STRUCTURAL				
ELEVATED HWY C	\$535.00	SF	378000	\$202,230,000.00
TUNNEL	\$120,000,000.00	LA/MI	5.2	\$624,000,000.00
PLAZA 'A'	\$200.00	SY	55000	\$11,000,000.00
PLAZA 'B'	\$200.00	SY	22222	\$4,444,400.00
PLAZA "B" STRUCTURE	\$535.00	SF	200000	\$107,000,000.00
DEMO				
STRUCTURE (VIADUCT REMOVAL)	\$115.00	SF	567000	\$65,205,000.00
PARKING GARAGE REMOVAL	\$10,000,000.00	LS	1	\$10,000,000.00
FIELD OFFICE	\$3,500.00	MO	144	\$504,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$10,977,541.15
MINOR ITEMS		25%	of Construction	\$274,438,528.75
TTC / TMP		17%	of Construction	\$186,618,199.55
CONSTRUCTION STAKING		1%	of Construction	\$10,977,541.15
UTILITY COSTS		6%	of Construction	\$60,376,476.33
MOBILIZATION		3%	of Construction	\$49,234,272.06
<u>TOTAL</u>				\$1,690,376,673.98
INCIDENTALS		7%	of Construction	\$118,326,367.18
CONTINGENCIES		25%	of Construction	\$422,594,168.50
POLICE DETAIL		2.00%	of Construction	\$33,807,533.48
RIGHT-OF-WAY		(est.)	\$2,500,000.00	\$2,500,000.00
RAILROAD FORCE ACCOUNT		2.50%	of Construction	\$42,259,416.85
PRELIMINARY ENGINEERING		8%	of Construction	\$135,230,133.92
PERMITTING		12%	of Design	\$16,227,616.07
				\$2,461,321,909.98
Say				\$2,475,000,000.00

I-91 Viaduct Study - Conceptual Cost Estimate - ALT # 3

Alternative #3 - Sections

Cost

Longmeadow Curve Section

\$212,750,000.00

Bike -Way

\$19,750,000.00

South End Bridge

\$206,250,000.00

Route 5 / 57 Interchange / Route 5 Bridge

\$156,600,000.00

Plainfield Street Improvements

\$76,000,000.00

I-91 / I-291 Interchange

\$424,350,000.00

Frontage Road Improvements - E / W Columbus Avenue

\$158,450,000.00

I-91 Northern Touchdown

\$33,350,000.00

I-91 Downtown Core

\$1,850,000,000.00

\$3,137,500,000.00

SAY

\$3.14 Billion

LONGMEADOW CURVE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXACAVATION	\$27.50	CY	245000	\$6,737,500.00
ORDINARY BORROW	\$27.50	CY	72000	\$1,980,000.00
DRAINAGE	\$10,000,000.00	LS	1	\$10,000,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	694500	\$6,771,375.00
INTERSTATE PAVEMENT	\$11.25	SF	677000	\$7,616,250.00
GRANITE CURB	\$40.00	LF	12000	\$480,000.00
SIDEWALKS	\$65.00	SY	3000	\$195,000.00
SHARED USE PATH	\$45.00	SY	2100	\$94,500.00
MEDIAN BARRIER	\$75.00	LF	11000	\$825,000.00
GUARD RAIL	\$48.00	LF	13000	\$624,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,075,000.00
LANDSCAPING	\$750,000.00	LS	1	\$750,000.00
LIGHTING	\$80.00	LF	30000	\$2,400,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	2	\$500,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT MARKINGS	\$825,000.00	LS	1	\$825,000.00
STRUCTURAL				
BRIDGES (SERB)	\$16,000,000.00	LS	1	\$18,250,000.00
BRIDGES (Peanut)	\$9,500,000.00	LS	1	\$11,000,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	7500	\$21,750,000.00
RETAINING WALLS - LOW	\$1,400.00	FT	5000	\$7,000,000.00
BRIDGE REMOVAL	\$450,000.00	EA	5	\$2,250,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$2,095,512.50
MINOR ITEMS		15%	of Construction	\$15,716,343.75
TTC / TMP		10.00%	of Construction	\$10,477,562.50
CONSTRUCTION STAKING		1%	of Construction	\$1,047,756.25
UTILITY COSTS		6%	of Construction	\$6,286,537.50
MOBILIZATION		3%	of Construction	\$4,211,980.13
<u>TOTAL</u>				\$144,611,317.63
INCIDENTALS		5%	of Construction	\$7,230,565.88
CONTINGENCIES		25%	of Construction	\$36,152,829.41
POLICE DETAIL		5.00%	of Construction	\$7,230,565.88
RIGHT-OF-WAY		(est.)	\$500,000.00	\$500,000.00
RAILROAD FORCE ACCOUNT		2.75%	of Construction	\$3,976,811.23
PRELIMINARY ENGINEERING		8%	of Construction	\$11,568,905.41
PERMITTING		12%	of Design	\$1,388,268.65
				\$212,659,264.09
Say				\$212,750,000.00

BIKE CONNECTION FOREST PARK TO RIVERWALK "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	1000	\$27,500.00
ORDINARY BORROW	\$27.50	CY	500	\$13,750.00
DRAINAGE	\$250,000.00	LS	1	\$250,000.00
PAVEMENT				
SHARED USE PATH	\$45.00	SY	3861	\$173,745.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$40,000.00
LANDSCAPING	\$150,000.00	LS	1	\$150,000.00
LIGHTING	\$80.00	LF	3475	\$278,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$25,000.00	LS	1	\$25,000.00
PAVEMENT MARKINGS	\$50,000.00	LS	1	\$50,000.00
STRUCTURAL				
BRIDGES (PED)	\$155.00	SF	18084	\$2,803,020.00
CANTILEVER (PED)	\$1,400.00	FT	1170	\$1,638,000.00
RETAINING WALLS - LOW	\$1,250.00	FT	831	\$1,038,750.00
TUNNEL (under R.R.)	\$750,000.00	LS	1	\$750,000.00
STRUCTURE CONNECTING SEB	\$2,500,000.00	LS	1	\$2,500,000.00
FIELD OFFICE	\$3,500.00	MO	24	\$84,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$235,435.30
MINOR ITEMS		12%	of Construction	\$1,412,611.80
TTC / TMP		1.00%	of Construction	\$117,717.65
CONSTRUCTION STAKING		1%	of Construction	\$117,717.65
UTILITY COSTS		1%	of Construction	\$117,717.65
MOBILIZATION		3%	of Construction	\$413,188.95
<u>TOTAL</u>				\$14,186,154.00
INCIDENTALS		5%	of Construction	\$709,307.70
CONTINGENCIES		20%	of Construction	\$2,837,230.80
POLICE DETAIL		1.00%	of Construction	\$141,861.54
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		3.00%	of Construction	\$425,584.62
PRELIMINARY ENGINEERING		8%	of Construction	\$1,063,961.55
PERMITTING		12%	of Design	\$127,675.39
				\$19,741,775.60
Say				\$19,750,000.00

SOUTH END BRIDGE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
STRUCTURES				
Southend Bridge Demo	\$92.50	SF	168145	\$15,553,412.50
New Structure (TOTAL)	\$550.00	SF	168145	\$92,479,750.00
OTHER				
CLEARING AND GRUBBING		0.25%	of Construction	\$270,082.91
MINOR ITEMS		15%	of Construction	\$16,204,974.38
UTILITY COSTS		3%	of Construction	\$3,240,994.88
CONSTRUCTION STAKING		1%	of Construction	\$1,080,331.63
TTC / TMP		10.00%	of Construction	\$10,803,316.25
MOBILIZATION		3%	of Construction	\$3,864,886.39
<u>TOTAL</u>				\$143,497,748.92
INCIDENTALS		5%	of Construction	\$7,174,887.45
CONTINGENCIES		25%	of Construction	\$35,874,437.23
POLICE DETAIL		3.50%	of Construction	\$5,022,421.21
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		1.00%	of Construction	\$1,434,977.49
PRELIMINARY ENGINEERING		8%	of Construction	\$11,479,819.91
PERMITTING		12%	of Design	\$1,377,578.39
				\$206,111,870.60
		Say		\$206,250,000.00

Route 5 / 57 Interchange "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	157696	\$4,336,648.15
ORDINARY BORROW	\$27.50	CY	52513	\$1,444,103.83
DRAINAGE	\$3,500,000.00	LS	1	\$3,500,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	108393	\$1,056,831.75
INTERSTATE PAVEMENT	\$11.25	SF	452026	\$5,085,292.50
GRANITE CURB	\$40.00	LF	4615	\$184,600.00
SIDEWALKS	\$65.00	SY	691	\$44,922.22
SHARED USE PATH	\$45.00	SY	6472	\$291,250.00
MEDIAN BARRIER	\$75.00	LF	6750	\$506,250.00
GUARD RAIL	\$48.00	LF	8079	\$387,792.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$392,500.00
LANDSCAPING	\$425,000.00	LS	1	\$425,000.00
LIGHTING	\$80.00	LF	15785	\$1,262,800.00
ITS	\$65.00	LF	15785	\$1,026,025.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,000,000.00	LS	1	\$1,000,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
BRIDGES (Over Westfield River)	\$565.00	SF	59000	\$33,335,000.00
BRIDGE RT 5 (Over local roads)	\$3,600,000.00	LS	1	\$3,600,000.00
BRIDGE RT 5 ramp (Over local roads)	\$1,250,000.00	LS	1	\$1,250,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	2671	\$7,745,900.00
RETAINING WALLS - LOW	\$1,400.00	FT	746	\$1,044,400.00
BRIDGE REMOVAL - general	\$450,000.00	EA	2	\$900,000.00
BRIDGE REMOVAL (over Westfield River)	\$92.50	SF	46800	\$4,329,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		3%	of Construction	\$1,857,507.89
MINOR ITEMS		20%	of Construction	\$14,860,063.09
TTC / TMP		10.00%	of Construction	\$7,430,031.55
CONSTRUCTION STAKING		1%	of Construction	\$743,003.15
UTILITY COSTS		6%	of Construction	\$4,458,018.93
MOBILIZATION		3%	of Construction	\$3,109,468.20
<u>TOTAL</u>				\$106,758,408.26
INCIDENTALS		7%	of Construction	\$7,473,088.58
CONTINGENCIES		25%	of Construction	\$26,689,602.06
POLICE DETAIL		5.00%	of Construction	\$5,337,920.41
RIGHT-OF-WAY		(est.)	\$750,000.00	\$750,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$8,540,672.66
PERMITTING		12%	of Design	\$1,024,880.72
				\$156,574,572.70
Say				\$156,600,000.00

Plainfield Street "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	21075	\$579,562.50
ORDINARY BORROW	\$27.50	CY	7024	\$193,168.18
DRAINAGE	\$2,500,000.00	LS	1	\$2,500,000.00
PAVEMENT				
ROADWAY (I) PAVEMENT	\$8.30	SF	18404	\$152,753.20
ROADWAY (II) PAVEMENT	\$9.75	SF	249982	\$2,437,324.50
INTERSTATE PAVEMENT	\$11.25	SF	70346	\$791,392.50
GRANITE CURB	\$40.00	LF	13500	\$540,000.00
SIDEWALKS	\$65.00	SY	3277	\$213,019.44
GUARD RAIL	\$48.00	LF	3436	\$164,928.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$300,000.00
LANDSCAPING	\$500,000.00	LS		\$500,000.00
LIGHTING	\$80.00	LF	7237	\$578,960.00
ITS	\$65.00	LF	7237	\$470,405.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	3	\$750,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$450,000.00	LS	1	\$450,000.00
PAVEMENT MARKINGS	\$95,000.00	LS	1	\$95,000.00
STRUCTURAL				
BRIDGES (Over I-91)	\$400.00	SF	50870	\$20,348,000.00
BRIDGES (R.R.)	\$400.00	SF	11416	\$4,566,400.00
RETAINING WALLS - HIGH	\$2,900.00	FT	212	\$614,800.00
RETAINING WALLS - LOW	\$1,400.00	FT	246	\$344,400.00
BRIDGE REMOVAL - general	\$600,000.00	EA	1	\$600,000.00
FIELD OFFICE	\$3,500.00	MO	42	\$147,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$746,742.27
MINOR ITEMS		20%	of Construction	\$7,467,422.67
TTC / TMP		7.50%	of Construction	\$2,800,283.50
CONSTRUCTION STAKING		1%	of Construction	\$373,371.13
UTILITY COSTS		5%	of Construction	\$1,866,855.67
MOBILIZATION		3%	of Construction	\$1,517,753.66
<u>TOTAL</u>				\$52,109,542.21
INCIDENTALS		5%	of Construction	\$2,605,477.11
CONTINGENCIES		25%	of Construction	\$13,027,385.55
POLICE DETAIL		4.50%	of Construction	\$2,344,929.40
RIGHT-OF-WAY		(est.)	\$300,000.00	\$300,000.00
RAILROAD FORCE ACCOUNT		1.75%	of Construction	\$911,916.99
PRELIMINARY ENGINEERING		8%	of Construction	\$4,168,763.38
PERMITTING		12%	of Design	\$500,251.61
				\$75,968,266.25
Say				\$76,000,000.00

Alternative 3 Ramps I-91 @ I-291 (interchange)**I-91 VIADUCT STUDY**

ITEM	UNIT PRICE	UNIT	QUANTITY	TOTAL
EARTHWORK				
EXCAVATION	\$27.50	CY	125303	\$3,445,830.99
ORDINARY BORROW	\$27.50	CY	59519	\$1,636,769.72
DRAINAGE	\$7,500,000.00	LS	1	\$7,500,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	49712	\$484,692.00
INTERSTATE PAVEMENT	\$11.25	SF	203520	\$2,289,600.00
GRANITE CURB	\$40.00	LF	1489	\$59,560.00
SIDEWALKS	\$65.00	SY	122	\$7,901.11
MEDIAN BARRIER	\$75.00	LF	455	\$34,125.00
GUARD RAIL	\$48.00	LF	8279	\$397,392.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,000,000.00
LANDSCAPING	\$2,500,000.00	LS		\$2,500,000.00
LIGHTING	\$125.00	LF		\$2,011,750.00
ITS	\$65.00	LF	16094	\$1,046,110.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$3,000,000.00	LS	1	\$3,000,000.00
PAVEMENT MARKINGS	\$1,000,000.00	LS	1	\$1,000,000.00
STRUCTURAL				
I-291 SB to I-91 SB	\$535.00	SF	103598	\$55,424,930.00
I-291 SB to I-91 NB	\$510.00	SF	50020	\$25,510,200.00
I-91 NB to I-291 NB	\$510.00	SF	43307	\$22,086,570.00
I-91 SB to I-291 NB	\$510.00	SF	48523	\$24,746,730.00
Bridge Over Main Street	\$310.00	SF	7500	\$2,325,000.00
Bridge Over Dwight Street	\$310.00	SF	3650	\$1,131,500.00
RETAINING WALLS - HIGH	\$2,900.00	FT	2332	\$6,762,800.00
RETAINING WALLS - LOW	\$1,400.00	FT	4058	\$5,681,200.00
BRIDGE REMOVAL	\$115.00	SF	256800	\$29,532,000.00
FIELD OFFICE	\$3,500.00	MO	132	\$462,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$2,003,266.61
MINOR ITEMS		20%	of Construction	\$40,065,332.17
TTC / TMP		12%	of Construction	\$24,039,199.30
CONSTRUCTION STAKING		1%	of Construction	\$2,003,266.61
UTILITY COSTS		6%	of Construction	\$12,019,599.65
MOBILIZATION		3%	of Construction	\$8,413,719.75
TOTAL				\$288,871,044.91
INCIDENTALS		7%	of Construction	\$20,220,973.14
CONTINGENCIES		25%	of Construction	\$72,217,761.23
POLICE DETAIL		3.50%	of Construction	\$10,110,486.57
RIGHT-OF-WAY		(est.)	\$1,250,000.00	\$1,250,000.00
RAILROAD FORCE ACCOUNT		2.00%	of Construction	\$5,777,420.90
PRELIMINARY ENGINEERING		8%	of Construction	\$23,109,683.59
PERMITTING		12%	of Design	\$2,773,162.03
				\$424,330,532.38
Say				\$424,350,000.00

Alternative 2 - East and West Comlubus Avenue Improvements

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	202026	\$5,555,724.42
ORDINARY BORROW	\$27.50	CY	50507	\$1,388,931.11
DRAINAGE	\$5,000,000.00	LS	1	\$5,000,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	1567253	\$15,280,719.19
GRANITE CURB	\$40.00	LF	27926	\$1,117,022.40
SIDEWALKS	\$65.00	SY	29089	\$1,890,793.13
EROSION CONTROL	10	%	Drainage and Landscaping	\$650,000.00
LANDSCAPING	\$1,500,000.00	LS	1	\$1,500,000.00
LIGHTING	\$80.00	LF	25857	\$2,068,560.00
ITS	\$65.00	LF	5171	\$336,141.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	3	\$750,000.00
MAJOR INTERSECTIONS (II)	\$300,000.00	EA	2	\$600,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$500,000.00	LS	1	\$500,000.00
PAVEMENT MARKINGS	\$425,000.00	LS	1	\$425,000.00
STRUCTURAL				
R.R. Bridge over Roadway (Columbus)	\$500.00	SF	57541	\$28,770,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	500	\$700,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$667,853.91
MINOR ITEMS		20%	of Construction	\$13,357,078.25
TTC / TMP		12%	of Construction	\$8,014,246.95
CONSTRUCTION STAKING		1%	of Construction	\$667,853.91
UTILITY COSTS		25%	of Construction	\$16,696,347.81
MOBILIZATION		3%	of Construction	\$3,185,663.16
<u>TOTAL</u>				\$109,374,435.23
INCIDENTALS		5%	of Construction	\$5,468,721.76
CONTINGENCIES		20%	of Construction	\$21,874,887.05
POLICE DETAIL		4.00%	of Construction	\$4,374,977.41
RIGHT-OF-WAY		(est.)	\$1,000,000.00	\$1,000,000.00
RAILROAD FORCE ACCOUNT		3.25%	of Construction	\$3,554,669.15
PRELIMINARY ENGINEERING		8%	of Construction	\$8,749,954.82
PERMITTING		12%	of Design	\$1,049,994.58
				\$155,447,639.99
Say				\$155,550,000.00

I-91 Northern Touchdown**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	108258	\$2,977,107.03
ORDINARY BORROW	\$27.50	CY	27065	\$744,276.76
DRAINAGE	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT				
INTERSTATE PAVEMENT	\$11.25	SF	492291	\$5,538,273.75
MEDIAN BARRIER	\$75.00	LF	3194	\$239,550.00
GUARD RAIL	\$48.00	LF	6053	\$290,544.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,325,000.00
LANDSCAPING	\$75,000.00	LS	1	\$75,000.00
LIGHTING	\$80.00	LF	7650	\$612,000.00
ITS	\$65.00	LF	7650	\$497,250.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$600,000.00	LS	1	\$600,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
RETAINING WALLS - HIGH	\$2,900.00	FT	175	\$507,500.00
RETAINING WALLS - LOW	\$1,400.00	FT	701	\$981,400.00
FIELD OFFICE	\$3,500.00	MO	60	\$210,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$81,489.51
MINOR ITEMS		20%	of Construction	\$3,259,580.31
TTC / TMP		10%	of Construction	\$1,629,790.15
CONSTRUCTION STAKING		1%	of Construction	\$162,979.02
UTILITY COSTS		5%	of Construction	\$814,895.08
MOBILIZATION		3%	of Construction	\$667,399.07
<u>TOTAL</u>				\$22,914,034.67
INCIDENTALS		7%	of Construction	\$1,603,982.43
CONTINGENCIES		20%	of Construction	\$4,582,806.93
POLICE DETAIL		4.00%	of Construction	\$916,561.39
RIGHT-OF-WAY		(est.)	\$100,000.00	\$1,250,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$1,833,122.77
PERMITTING		12%	of Design	\$219,974.73
				\$33,320,482.92
Say				\$33,350,000.00

Alternative 3 I-91 Tunnel (Downtown Core)**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	299993	\$8,249,793.75
ORDINARY BORROW	\$26.50	CY	90007	\$2,385,178.89
DRAINAGE	\$17,500,000.00	LS	1	\$17,500,000.00
PAVEMENT				
MEDIAN BARRIER	\$75.00	LF	10000	\$750,000.00
LIGHTING	\$125.00	LF	10000	\$1,250,000.00
ITS	\$65.00	LF	10000	\$650,000.00
LANDSCAPING	\$4,500,000.00	LS	1	\$4,500,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$2,200,000.00
STRUCTURAL				
NEW VIADUCT	\$535.00	SF	1350000	\$722,250,000.00
PLAZA "B" STRUCTURE UNDER VIADUCT	\$200.00	SY	100000	\$20,000,000.00
DEMO				
STRUCTURE (VIADUCT REMOVAL)	\$115.00	SF	567000	\$65,205,000.00
PARKING GARAGE REMOVAL	\$5,000,000.00	LS	1	\$5,000,000.00
FIELD OFFICE	\$3,500.00	MO	144	\$504,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$8,504,439.73
MINOR ITEMS		25%	of Construction	\$212,610,993.16
TTC / TMP		17%	of Construction	\$144,575,475.35
CONSTRUCTION STAKING		1%	of Construction	\$8,504,439.73
UTILITY COSTS		6%	of Construction	\$46,774,418.50
MOBILIZATION		3%	of Construction	\$38,142,412.17
<u>TOTAL</u>				\$1,309,556,151.27
INCIDENTALS		7%	of Construction	\$91,668,930.59
CONTINGENCIES		25%	of Construction	\$327,389,037.82
POLICE DETAIL		2.00%	of Construction	\$26,191,123.03
RIGHT-OF-WAY		(est.)	\$2,500,000.00	\$2,500,000.00
RAILROAD FORCE ACCOUNT		1.50%	of Construction	\$19,643,342.27
PRELIMINARY ENGINEERING		8%	of Construction	\$104,764,492.10
PERMITTING		12%	of Design	\$12,571,739.05
				\$1,894,284,816.13
Say				\$1,895,000,000.00

I-91 Viaduct Study -Enhanced No-Build - Conceptual Cost

Cost

Longmeadow Curve Section

\$212,750,000.00

Bike -Way

\$19,750,000.00

South End Bridge

\$206,250,000.00

Route 5 / 57 Interchange / Route 5 Bridge

\$156,600,000.00

Plainfield Street Improvements

\$76,000,000.00

I-291 SB to I-91 SB Ramp

\$152,000,000.00

Viaduct Rehabilitation

\$750,000,000.00

SAY

\$1,573,350,000.00

LONGMEADOW CURVE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXACAVATION	\$27.50	CY	245000	\$6,737,500.00
ORDINARY BORROW	\$27.50	CY	72000	\$1,980,000.00
DRAINAGE	\$10,000,000.00	LS	1	\$10,000,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	694500	\$6,771,375.00
INTERSTATE PAVEMENT	\$11.25	SF	677000	\$7,616,250.00
GRANITE CURB	\$40.00	LF	12000	\$480,000.00
SIDEWALKS	\$65.00	SY	3000	\$195,000.00
SHARED USE PATH	\$45.00	SY	2100	\$94,500.00
MEDIAN BARRIER	\$75.00	LF	11000	\$825,000.00
GUARD RAIL	\$48.00	LF	13000	\$624,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$1,075,000.00
LANDSCAPING	\$750,000.00	LS	1	\$750,000.00
LIGHTING	\$80.00	LF	30000	\$2,400,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	2	\$500,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,250,000.00	LS	1	\$1,250,000.00
PAVEMENT MARKINGS	\$825,000.00	LS	1	\$825,000.00
STRUCTURAL				
BRIDGES (SERB)	\$16,000,000.00	LS	1	\$18,250,000.00
BRIDGES (Peanut)	\$9,500,000.00	LS	1	\$11,000,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	7500	\$21,750,000.00
RETAINING WALLS - LOW	\$1,400.00	FT	5000	\$7,000,000.00
BRIDGE REMOVAL	\$450,000.00	EA	5	\$2,250,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$2,095,512.50
MINOR ITEMS		15%	of Construction	\$15,716,343.75
TTC / TMP		10.00%	of Construction	\$10,477,562.50
CONSTRUCTION STAKING		1%	of Construction	\$1,047,756.25
UTILITY COSTS		6%	of Construction	\$6,286,537.50
MOBILIZATION		3%	of Construction	\$4,211,980.13
<u>TOTAL</u>				\$144,611,317.63
INCIDENTALS		5%	of Construction	\$7,230,565.88
CONTINGENCIES		25%	of Construction	\$36,152,829.41
POLICE DETAIL		5.00%	of Construction	\$7,230,565.88
RIGHT-OF-WAY		(est.)	\$500,000.00	\$500,000.00
RAILROAD FORCE ACCOUNT		2.75%	of Construction	\$3,976,811.23
PRELIMINARY ENGINEERING		8%	of Construction	\$11,568,905.41
PERMITTING		12%	of Design	\$1,388,268.65
				\$212,659,264.09
Say				\$212,750,000.00

BIKE CONNECTION FOREST PARK TO RIVERWALK "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	1000	\$27,500.00
ORDINARY BORROW	\$27.50	CY	500	\$13,750.00
DRAINAGE	\$250,000.00	LS	1	\$250,000.00
PAVEMENT				
SHARED USE PATH	\$45.00	SY	3861	\$173,745.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$40,000.00
LANDSCAPING	\$150,000.00	LS	1	\$150,000.00
LIGHTING	\$80.00	LF	3475	\$278,000.00
ITS	\$65.00	LF	30000	\$1,950,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$25,000.00	LS	1	\$25,000.00
PAVEMENT MARKINGS	\$50,000.00	LS	1	\$50,000.00
STRUCTURAL				
BRIDGES (PED)	\$155.00	SF	18084	\$2,803,020.00
CANTILEVER (PED)	\$1,400.00	FT	1170	\$1,638,000.00
RETAINING WALLS - LOW	\$1,250.00	FT	831	\$1,038,750.00
TUNNEL (under R.R.)	\$750,000.00	LS	1	\$750,000.00
STRUCTURE CONNECTING SEB	\$2,500,000.00	LS	1	\$2,500,000.00
FIELD OFFICE	\$3,500.00	MO	24	\$84,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$235,435.30
MINOR ITEMS		12%	of Construction	\$1,412,611.80
TTC / TMP		1.00%	of Construction	\$117,717.65
CONSTRUCTION STAKING		1%	of Construction	\$117,717.65
UTILITY COSTS		1%	of Construction	\$117,717.65
MOBILIZATION		3%	of Construction	\$413,188.95
<u>TOTAL</u>				\$14,186,154.00
INCIDENTALS		5%	of Construction	\$709,307.70
CONTINGENCIES		20%	of Construction	\$2,837,230.80
POLICE DETAIL		1.00%	of Construction	\$141,861.54
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		3.00%	of Construction	\$425,584.62
PRELIMINARY ENGINEERING		8%	of Construction	\$1,063,961.55
PERMITTING		12%	of Design	\$127,675.39
				\$19,741,775.60
Say				\$19,750,000.00

SOUTH END BRIDGE "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
STRUCTURES				
Southend Bridge Demo	\$92.50	SF	168145	\$15,553,412.50
New Structure (TOTAL)	\$550.00	SF	168145	\$92,479,750.00
OTHER				
CLEARING AND GRUBBING		0.25%	of Construction	\$270,082.91
MINOR ITEMS		15%	of Construction	\$16,204,974.38
UTILITY COSTS		3%	of Construction	\$3,240,994.88
CONSTRUCTION STAKING		1%	of Construction	\$1,080,331.63
TTC / TMP		10.00%	of Construction	\$10,803,316.25
MOBILIZATION		3%	of Construction	\$3,864,886.39
<u>TOTAL</u>				\$143,497,748.92
INCIDENTALS		5%	of Construction	\$7,174,887.45
CONTINGENCIES		25%	of Construction	\$35,874,437.23
POLICE DETAIL		3.50%	of Construction	\$5,022,421.21
RIGHT-OF-WAY		(est.)	\$250,000.00	\$250,000.00
RAILROAD FORCE ACCOUNT		1.00%	of Construction	\$1,434,977.49
PRELIMINARY ENGINEERING		8%	of Construction	\$11,479,819.91
PERMITTING		12%	of Design	\$1,377,578.39
				\$206,111,870.60
		Say		\$206,250,000.00

Route 5 / 57 Interchange "MID-TERM"**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	157696	\$4,336,648.15
ORDINARY BORROW	\$27.50	CY	52513	\$1,444,103.83
DRAINAGE	\$3,500,000.00	LS	1	\$3,500,000.00
PAVEMENT				
ROADWAY PAVEMENT	\$9.75	SF	108393	\$1,056,831.75
INTERSTATE PAVEMENT	\$11.25	SF	452026	\$5,085,292.50
GRANITE CURB	\$40.00	LF	4615	\$184,600.00
SIDEWALKS	\$65.00	SY	691	\$44,922.22
SHARED USE PATH	\$45.00	SY	6472	\$291,250.00
MEDIAN BARRIER	\$75.00	LF	6750	\$506,250.00
GUARD RAIL	\$48.00	LF	8079	\$387,792.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$392,500.00
LANDSCAPING	\$425,000.00	LS	1	\$425,000.00
LIGHTING	\$80.00	LF	15785	\$1,262,800.00
ITS	\$65.00	LF	15785	\$1,026,025.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MINOR INTERSECTIONS	\$200,000.00	EA	1	\$200,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$1,000,000.00	LS	1	\$1,000,000.00
PAVEMENT MARKINGS	\$450,000.00	LS	1	\$450,000.00
STRUCTURAL				
BRIDGES (Over Westfield River)	\$565.00	SF	59000	\$33,335,000.00
BRIDGE RT 5 (Over local roads)	\$3,600,000.00	LS	1	\$3,600,000.00
BRIDGE RT 5 ramp (Over local roads)	\$1,250,000.00	LS	1	\$1,250,000.00
RETAINING WALLS - HIGH	\$2,900.00	FT	2671	\$7,745,900.00
RETAINING WALLS - LOW	\$1,400.00	FT	746	\$1,044,400.00
BRIDGE REMOVAL - general	\$450,000.00	EA	2	\$900,000.00
BRIDGE REMOVAL (over Westfield River)	\$92.50	SF	46800	\$4,329,000.00
FIELD OFFICE	\$3,500.00	MO	72	\$252,000.00
OTHER				
CLEARING AND GRUBBING		3%	of Construction	\$1,857,507.89
MINOR ITEMS		20%	of Construction	\$14,860,063.09
TTC / TMP		10.00%	of Construction	\$7,430,031.55
CONSTRUCTION STAKING		1%	of Construction	\$743,003.15
UTILITY COSTS		6%	of Construction	\$4,458,018.93
MOBILIZATION		3%	of Construction	\$3,109,468.20
<u>TOTAL</u>				\$106,758,408.26
INCIDENTALS		7%	of Construction	\$7,473,088.58
CONTINGENCIES		25%	of Construction	\$26,689,602.06
POLICE DETAIL		5.00%	of Construction	\$5,337,920.41
RIGHT-OF-WAY		(est.)	\$750,000.00	\$750,000.00
PRELIMINARY ENGINEERING		8%	of Construction	\$8,540,672.66
PERMITTING		12%	of Design	\$1,024,880.72
				\$156,574,572.70
Say				\$156,600,000.00

Plainfield Street "MID-TERM"

I-91 VIADUCT STUDY

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	21075	\$579,562.50
ORDINARY BORROW	\$27.50	CY	7024	\$193,168.18
DRAINAGE	\$2,500,000.00	LS	1	\$2,500,000.00
PAVEMENT				
ROADWAY (I) PAVEMENT	\$8.30	SF	18404	\$152,753.20
ROADWAY (II) PAVEMENT	\$9.75	SF	249982	\$2,437,324.50
INTERSTATE PAVEMENT	\$11.25	SF	70346	\$791,392.50
GRANITE CURB	\$40.00	LF	13500	\$540,000.00
SIDEWALKS	\$65.00	SY	3277	\$213,019.44
GUARD RAIL	\$48.00	LF	3436	\$164,928.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$300,000.00
LANDSCAPING	\$500,000.00	LS		\$500,000.00
LIGHTING	\$80.00	LF	7237	\$578,960.00
ITS	\$65.00	LF	7237	\$470,405.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	3	\$750,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$450,000.00	LS	1	\$450,000.00
PAVEMENT MARKINGS	\$95,000.00	LS	1	\$95,000.00
STRUCTURAL				
BRIDGES (Over I-91)	\$400.00	SF	50870	\$20,348,000.00
BRIDGES (R.R.)	\$400.00	SF	11416	\$4,566,400.00
RETAINING WALLS - HIGH	\$2,900.00	FT	212	\$614,800.00
RETAINING WALLS - LOW	\$1,400.00	FT	246	\$344,400.00
BRIDGE REMOVAL - general	\$600,000.00	EA	1	\$600,000.00
FIELD OFFICE	\$3,500.00	MO	42	\$147,000.00
OTHER				
CLEARING AND GRUBBING		2%	of Construction	\$746,742.27
MINOR ITEMS		20%	of Construction	\$7,467,422.67
TTC / TMP		7.50%	of Construction	\$2,800,283.50
CONSTRUCTION STAKING		1%	of Construction	\$373,371.13
UTILITY COSTS		5%	of Construction	\$1,866,855.67
MOBILIZATION		3%	of Construction	\$1,517,753.66
<u>TOTAL</u>				\$52,109,542.21
INCIDENTALS		5%	of Construction	\$2,605,477.11
CONTINGENCIES		25%	of Construction	\$13,027,385.55
POLICE DETAIL		4.50%	of Construction	\$2,344,929.40
RIGHT-OF-WAY		(est.)	\$300,000.00	\$300,000.00
RAILROAD FORCE ACCOUNT		1.75%	of Construction	\$911,916.99
PRELIMINARY ENGINEERING		8%	of Construction	\$4,168,763.38
PERMITTING		12%	of Design	\$500,251.61
				\$75,968,266.25
Say				\$76,000,000.00

Alternative 1 Ramps I-91 @ I-291 (interchange)**I-91 VIADUCT STUDY**

<u>ITEM</u>	<u>UNIT PRICE</u>	<u>UNIT</u>	<u>QUANTITY</u>	<u>TOTAL</u>
EARTHWORK				
EXCAVATION	\$27.50	CY	25000	\$687,500.00
ORDINARY BORROW	\$27.50	CY	20000	\$550,000.00
DRAINAGE	\$2,500,000.00	LS	1	\$2,500,000.00
PAVEMENT				
ROADWAY (II) PAVEMENT	\$9.75	SF	32000	\$312,000.00
INTERSTATE PAVEMENT	\$11.25	SF	128000	\$1,440,000.00
GRANITE CURB	\$40.00	LF	1000	\$40,000.00
SIDEWALKS	\$65.00	SY	122	\$7,901.11
MEDIAN BARRIER	\$75.00	LF	250	\$18,750.00
GUARD RAIL	\$48.00	LF	1000	\$48,000.00
EROSION CONTROL	10	%	Drainage and Landscaping	\$500,000.00
LANDSCAPING	\$2,500,000.00	LS		\$2,500,000.00
LIGHTING	\$125.00	LF	3800	\$475,000.00
ITS	\$65.00	LF	3800	\$247,000.00
TRAFFIC SIGNALS				
MAJOR INTERSECTIONS	\$250,000.00	EA	1	\$250,000.00
MAINTENANCE OF TRAFFIC				
SIGNING	\$250,000.00	LS	1	\$250,000.00
PAVEMENT MARKINGS	\$100,000.00	LS	1	\$100,000.00
STRUCTURAL				
I-291 SB to I-91 SB	\$535.00	SF	103598	\$55,424,930.00
RETAINING WALLS - HIGH	\$2,900.00	FT	800	\$2,320,000.00
RETAINING WALLS - LOW	\$1,400.00	FT	1200	\$1,680,000.00
BRIDGE REMOVAL	\$115.00	SF	80000	\$9,200,000.00
FIELD OFFICE	\$3,500.00	MO	48	\$168,000.00
OTHER				
CLEARING AND GRUBBING		1%	of Construction	\$787,190.81
MINOR ITEMS		15%	of Construction	\$11,807,862.17
TTC / TMP		8%	of Construction	\$6,297,526.49
CONSTRUCTION STAKING		1%	of Construction	\$787,190.81
UTILITY COSTS		3%	of Construction	\$2,361,572.43
MOBILIZATION		3%	of Construction	\$3,022,812.71
<u>TOTAL</u>				\$103,783,236.54
INCIDENTALS		7%	of Construction	\$7,264,826.56
CONTINGENCIES		25%	of Construction	\$25,945,809.13
POLICE DETAIL		3.50%	of Construction	\$3,632,413.28
RIGHT-OF-WAY		(est.)	\$100,000.00	\$100,000.00
RAILROAD FORCE ACCOUNT		1.50%	of Construction	\$1,556,748.55
PRELIMINARY ENGINEERING		8%	of Construction	\$8,302,658.92
PERMITTING		5%	of Design	\$996,319.07
				\$151,582,012.05
Say				\$152,000,000.00

I-91 Viaduct Study - Viaduct Rehabilitation No-Build

Contract Cost Deck Replacement**	2015	\$148,000,000.00
30% Increase for Ramps K,N	2015	\$192,400,000.00
Contract Cost Deck Replacement	2040	\$402,842,873.67

** - Inflation 3% per year

Piers	288	
Cost Per Linear Foot replace/repair	\$2,400.00	
Average Depth	50	
Pier Rehabilitation	\$34,560,000.00	
Pier Rehabilitation	2040	\$68,207,149.82

OTHER (Pier Rehab)

CLEARING AND GRUBBING	1%	of Construction	\$682,071.50
MINOR ITEMS	10%	of Construction	\$6,820,714.98
TTC / TMP	5%	of Construction	\$3,410,357.49
CONSTRUCTION STAKING	1%	of Construction	\$682,071.50
UTILITY COSTS	4%	of Construction	\$2,728,285.99
MOBILIZATION	3%	of Construction	\$2,046,214.49

Pier Rehab Total \$84,576,865.78

Project Total \$487,419,739.45

INCIDENTALS	10%	of Construction	\$48,741,973.94
CONTINGENCIES	20%	of Construction	\$97,483,947.89
POLICE DETAIL	5.00%	of Construction	\$24,370,986.97
RIGHT-OF-WAY	(est.)	\$200,000.00	\$200,000.00
RAILROAD FORCE ACCOUNT	0.50%	of Construction	\$2,437,098.70
PRELIMINARY ENGINEERING	5%	of Construction	\$24,370,986.97
PERMITTING	2%	of Design	\$9,748,394.79

\$694,773,128.71

Say \$695,000,000.00

I-91 Viaduct Study - Life Cycle Cost

	<u>Years</u>	<u>Annual Maintenance **</u>			
	2017	\$500,000.00			
	2018	\$515,000.00			
	2019	\$530,450.00			
	2020	\$546,363.50			
	2021	\$562,754.41			
	2022	\$579,637.04			
	2023	\$597,026.15			
	2024	\$614,936.93			
	2025	\$633,385.04			
	2026	\$652,386.59			
	2027	\$671,958.19			
	2028	\$692,116.94			
	2029	\$712,880.44			
	2030	\$734,266.86			
	2031	\$756,294.86			
	2032	\$778,983.71			
	2033	\$802,353.22			
	2034	\$826,423.82			
	2035	\$851,216.53			
	2036	\$876,753.03			
	2037	\$903,055.62			
	2038	\$930,147.29			
	2039	\$958,051.70			
<u>Build Year</u>	2040	\$986,793.26	<u>2017 - 2040 NO-Build</u>		
	2041	\$1,016,397.05	\$17,213,235.11	<u>Annual Maintenance - ALTS 1 - 2 **</u>	<u>Annual Maintenance - ALTS 3 **</u>
	2042	\$1,046,888.96		\$1,750,000.00	\$750,000.00
	2043	\$1,078,295.63		\$1,802,500.00	\$772,500.00
	2044	\$1,110,644.50		\$1,856,575.00	\$795,675.00
	2045	\$1,143,963.84		\$1,912,272.25	\$819,545.25
	2046	\$1,178,282.75		\$1,969,640.42	\$844,131.61
	2047	\$1,213,631.24		\$2,028,729.63	\$869,455.56
	2048	\$1,250,040.17		\$2,089,591.52	\$895,539.22
	2049	\$1,287,541.38		\$2,152,279.26	\$922,405.40
	2050	\$1,326,167.62		\$2,216,847.64	\$950,077.56
	2051	\$1,365,952.65		\$2,283,353.07	\$978,579.89
	2052	\$1,406,931.23		\$2,351,853.66	\$1,007,937.28
	2053	\$1,449,139.16		\$2,422,409.27	\$1,038,175.40
	2054	\$1,492,613.34		\$2,495,081.55	\$1,069,320.67
	2055	\$1,537,391.74		\$2,569,934.00	\$1,101,400.29
	2056	\$1,583,513.49		\$2,647,032.02	\$1,134,442.29
	2057	\$1,631,018.90		\$2,726,442.98	\$1,168,475.56
	2058	\$1,679,949.46		\$2,808,236.27	\$1,203,529.83
	2059	\$1,730,347.95		\$2,892,483.36	\$1,239,635.72
	2060	\$1,782,258.39		\$2,979,257.86	\$1,276,824.80
	2061	\$1,835,726.14		\$3,068,635.59	\$1,315,129.54
	2062	\$1,890,797.92		\$3,160,694.66	\$1,354,583.43
	2063	\$1,947,521.86		\$3,255,515.50	\$1,395,220.93
	2064	\$2,005,947.51	<u>No -Build Reconstruction 2065</u>	\$3,353,180.97	\$1,437,077.56
	2065	\$2,066,125.94	\$800,000,000.00	\$3,453,776.39	\$1,480,189.88
	2066	\$2,128,109.72		\$3,557,389.69	\$1,524,595.58
	2067	\$2,191,953.01		\$3,664,111.38	\$1,570,333.45
	2068	\$2,257,711.60		\$3,774,034.72	\$1,617,443.45
	2069	\$2,325,442.95		\$3,887,255.76	\$1,665,966.75
	2070	\$2,395,206.24		\$4,003,873.43	\$1,715,945.76
	2071	\$2,467,062.42		\$4,123,989.64	\$1,767,424.13
	2072	\$2,541,074.30		\$4,247,709.32	\$1,820,446.85
	2073	\$2,617,306.52		\$4,375,140.60	\$1,875,060.26
	2074	\$2,695,825.72		\$4,506,394.82	\$1,931,312.07
	2075	\$2,776,700.49		\$4,641,586.67	\$1,989,251.43
				\$4,780,834.27	\$2,048,928.97
	<u>No-Build Annual Main.</u>	\$78,666,716.89		\$105,808,643.17	\$45,346,561.36

TOTAL LIFE CYCLE 2075		
<u>No-Build</u>	\$695,000,000.00	\$1,573,666,716.89
<u>ALT #1</u>	\$3,780,000,000.00	\$3,903,021,878.28
<u>ALT #2</u>	\$3,740,000,000.00	\$3,863,021,878.28
<u>ALT #3</u>	\$3,140,000,000.00	\$3,202,559,796.47

**** - Inflation 3% per year**