Planning Level Cost Estimates for Long-Term Concepts

Long-Term Concept	Concept Description		\$ 150,600,000 \$ 203,700,000		
облюсь		Average		Minimum	Maxmimum
LONG 1	Northbound I-95 Two-Lane On-Ramp and Dumbarton Road Interchange On- & Off-Ramps	\$ 67,300,000	\$	57,300,000	\$ 77,400,000
LONG 2	I-95/I-64 Boulevard Interchange (Exit 78) — Braided Ramps	\$ 177,100,000	\$	150,600,000	\$ 203,700,000
LONG 11	I-95/I-64 Belvidere Street Interchange (Exit 76A) – On- & Off-Ramps	\$ 56,300,000	\$	47,900,000	\$ 64,800,000
LONG 12	I-95 & Broad Street Interchange (Exits 74 & 75) – Long-Range Vision	\$ 524,000,000	\$	445,400,000	\$ 602,600,000
	Grand Total =	\$ 824,700,000	\$	701,200,000	\$ 948,500,000

Assumptions:

- Cost estimates are for an assumed construction year of 2018
- Preliminary Engineering = 14% of major construction items (roadway, drainage, and bridge costs)
- Right of Way (ROW) = 125% of major construction items (roadway, drainage, and bridge costs)
- Construction costs includes Construction Engineering & Inspection (CEI) = 12.5% of major construction items (roadway, drainage, and bridge costs)
- Contingency = 20% of (PE + ROW + Construction)

I-95/I-64 Overlap Study Planning Level Cost Estimates for Long-Term Concepts

			2013 [Dollars				2018 Dollars				
		Preliminary	R/W & Utility			Preliminary		R/W & Utility				
Concept #	Cross Roadway Name	Engineering	Relocation Cost	Construction	<u>Total Cost</u>	Engineering Cos	<u>t </u>	Relocation Cost	Construction Cost	<u>Total Cost</u>		
		Cost Estimate	<u>Estimate</u>	Cost Estimate	<u>Estimate</u>	<u>Estimate</u>		<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
Long 1	Dumbarton Avenue	\$ 2,713,200	\$ 24,225,000	\$ 32,803,500	\$ 59,741,700	\$ 3,054,79	2 5	27,274,925	\$ 36,933,458	\$ 67,263,174		
Long 2	Boulevard	\$ 6,732,439	\$ 72,133,275	\$ 78,384,381	\$ 157,250,095	\$ 7,580,05	2 5	81,214,848	\$ 88,252,968	\$ 177,047,868		
Long 11	Belvidere	\$ 2,346,155	\$ 20,947,813	\$ 26,634,244	\$ 49,928,211	\$ 2,641,53	6	23,585,140	\$ 29,987,493	\$ 56,214,168		
n assumed o	Broad Street	\$ 21,691,768	\$ 193,676,500	\$ 250,032,390	\$ 465,400,658	\$ 24,422,76	0 5	218,060,353	\$ 281,511,445	\$ 523,994,557		
	Total	\$ 33,483,562	\$ 310,982,588	\$ 387,854,515	\$ 732,320,665	\$ 37,699,13	9 5	350,135,266	\$ 436,685,362	\$ 824,519,768		
						Inflation Data		2 400/				

Inflation Rate

2.40%

Planning Level Cost Estimate for Long-Term Concepts

Concept #: Long 1 Exit #: N/A

Description: NB I-95 Two-Lane On-Ramp and Dumbarton Road Interchange On- & Off-Ramps

Description	Quantity	Unit	Unit Cost (\$)	Cost (\$)
Roadway Improvements				(,,
- Cost estimates are for an assumed construction year of 2018	1.5	MILE	\$6,420,000	\$9,630,0
Mainline Widening (2 Lane)		MILE	\$8,635,000	\$0
CD Road (2 Lane)		MILE	\$7,080,000	\$0
CD Road (3 Lane)		MILE	\$9,000,000	\$0
Directional Ramp (1 Lane)	0.5	MILE	\$6,000,000	\$3,000,0
Roundabout (1 Lane)		EA	\$1,250,000	\$0
Roundabout (2 Lanes)		EA	\$2,500,000	\$0
Urban 2 Lanes Undivided (Reconstructed)		MILE	\$5,400,000	\$0
Urban 3 Lanes Undivided (Reconstructed)		MILE	\$7,700,000	\$0
Urban 4 Lanes Undivided (Reconstructed)		MILE	\$13,500,000	\$0
Urban 4 Lanes Divided (Reconstructed)		MILE	\$13,500,000	\$0
Drainage and Bridge			•	
SWM Basins	4	EA	\$250,000	\$1,000,0
Box Culverts	1	LS	\$250,000	\$250,00
Channel Relocation	600	LF	\$250	\$150,00
Bridges	21400	SF	\$250	\$5,350,0
			Sub-Total	\$19,380,0
Right-of Way and Utility Relocation			•	
R/W & Utility Relocation	1	LS	\$24,225,000	\$24,225,0
Environmental Permitting & Mitigation				
Environmental (High, Med, Low)	1	L.S.	\$400,000	\$400,00
Miscellaneous	4	1.6	ć4 400 000	Ć4 400 0
Right Turn Lane on Dumbarton Avenue	2	L.S.	\$1,100,000	\$1,100,0
Traffic Signals	2	L.S.	\$200,000	\$400,00
M3		L.S.		\$0
			Sub-Total	\$45 505 (
			Jun-10tal	ا,دەد,دە
				\$2,713,2
lanning / Design 14%				\$2,713,2
Planning / Design 14% CFI 12.5%				
CEI 12.5%				
				\$9,101,0

Planning Level Cost Estimate for Long-Term Concepts

Concept #: Long 2 Exit #: 78

Description: 1-95/I-64 Boulevard Interchange - Braided Ramps

Drainage and Bridge SWM Basins 1	Cost	Unit Cost	Unit	Quantity	
Roadway Improvements	(\$)	(\$)		,	Description
- Cost estimates are for an assumed construction year of 2018 Mainline Widening (2 Lane) 0.45 MILE \$8,635,000 CD Road (2 Lane) 0.50 MILE \$7,080,000 CD Road (3 Lane) 0.31 MILE \$9,000,000 CD Road (3 Lane) 0.31 MILE \$9,000,000 CD Road (3 Lane) 0.31 MILE \$9,000,000 Roundabout (1 Lane) EA \$1,250,000 Roundabout (2 Lanes) EA \$2,500,000 Urban 2 Lanes Undivided (Reconstructed) 0.50 MILE \$7,700,000 Urban 3 Lanes Undivided (Reconstructed) MILE \$7,700,000 Urban 4 Lanes Undivided (Reconstructed) MILE \$7,700,000 Urban 4 Lanes Divided (Reconstructed) MILE \$13,500,000 Urban 4 Lanes Divided (Reconstructed) MILE \$13,500,000 MILE \$13,500,000 Wile \$13,500,000 Box Culverts LF \$100 Box Culverts \$100 Box	(,,				•
Mainline Widening (2 Lane)	0 \$3,402,60	\$6,420,000	MILE	0.53	
CD Road (2 Lane)	_				·
CD Road (3 Lane) 0.31 MILE \$9,000,000 Directional Ramp (1 Lane) 1.00 MILE \$6,000,000 Roundabout (1 Lane) EA \$1,250,000 Roundabout (2 Lanes) EA \$2,2500,000 Urban 2 Lanes Undivided (Reconstructed) 0.50 MILE \$5,400,000 Urban 3 Lanes Undivided (Reconstructed) 0.1 MILE \$13,500,000 Urban 4 Lanes Undivided (Reconstructed) MILE \$13,500,000 Urban 4 Lanes Divided (Reconstructed) MILE \$13,500,000 Urban 4 Lanes Divided (Reconstructed) MILE \$13,500,000 Urban 4 Lanes Divided (Reconstructed) MILE \$13,500,000 Drainage and Bridge SWM Basins 1					0 ()
Directional Ramp (1 Lane)	_				` '
Roundabout (1 Lane)					
Roundabout (2 Lanes)			EA		
Urban 2 Lanes Undivided (Reconstructed) 0.50 MILE \$5,400,000					, ,
Urban 3 Lanes Undivided (Reconstructed) Urban 4 Lanes Undivided (Reconstructed) Urban 4 Lanes Divided (Reconstructed) Urban 4 Lanes Divided (Reconstructed) Urban 4 Lanes Divided (Reconstructed) Drainage and Bridge SWM Basins Box Culverts Bridges SWB-Tota Right-of Way and Utility Relocation R/W & Utility Relocation Environmental Permitting & Mitigation Environmental (High, Med, Low) Miscellaneous Traffic Signal Rebuild M2 L.S. M3 L.S. Sub-Tota Sub-Tota Planning / Design 14% CCEI 12.5% Contigency 20%			MILE	0.50	
Urban 4 Lanes Undivided (Reconstructed) Urban 4 Lanes Divided (Reconstructed) Urban 4 Lanes Divided (Reconstructed) Drainage and Bridge SWM Basins Bridges SWM Basins Bridges SWM Basins Bridges SF \$250 Sub-Tota Right-of Way and Utility Relocation R/W & Utility Relocation Environmental Permitting & Mitigation Environmental (High, Med, Low) Miscellaneous Traffic Signal Rebuild Miscellaneous Traffic Signal Rebuild Miscellaneous Sub-Tota Sub-Tota Planning / Design 14% CEI 12.5% Contigency 20%					· · ·
Urban 4 Lanes Divided (Reconstructed) Drainage and Bridge SWM Basins 1 EA \$500,000 Box Culverts LF \$100 Bridges 95682 SF \$250 Sub-Tota Right-of Way and Utility Relocation R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Planning / Design 14% CEI 12.5% Contigency 20%				0.1	,
SWM Basins 1		\$13,500,000			
SWM Basins 1	, ,	, -,,			, , , , , , , , , , , , , , , , , , , ,
SWM Basins 1					Drainage and Bridge
Box Culverts Bridges 95682 SF \$250 Sub-Total Right-of Way and Utility Relocation R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) L.S. Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Sub-Total Planning / Design 14% CEI 12.5% Contigency 20%	\$500,00	\$500.000	EA	1	ğ ğ
Right-of Way and Utility Relocation Right-of Way and Utility Relocation R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) L.S. Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Sub-Tota Planning / Design 14% CEI 12.5% Contigency 20%	\$0				
Right-of Way and Utility Relocation R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) L.S. Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Sub-Tota Planning / Design 14% CEI 12.5% Contigency 20%	\$23,920,5			95682	
Right-of Way and Utility Relocation R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) L.S. Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Sub-Total		Sub-Total	<u> </u>	33002	2.114660
R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Sub-Tota Planning / Design 14% CEI 12.5% Contigency 20%	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
R/W & Utility Relocation 1 LS \$72,133,27 Environmental Permitting & Mitigation Environmental (High, Med, Low) Miscellaneous Traffic Signal Rebuild 1 L.S. \$200,000 M2 L.S. M3 L.S. Sub-Tota Planning / Design 14% CEI 12.5% Contigency 20%					Right-of Way and Utility Relocation
Environmental Permitting & Mitigation Environmental (High, Med, Low) Miscellaneous Traffic Signal Rebuild L.S. \$200,000 M2 L.S. M3 L.S. Sub-Tota Planning / Design CEI 12.5% Contigency 20%	75 \$72,133,2	\$72,133,275	LS	1	·
Environmental (High, Med, Low) L.S.	1 , , , , ,	, , , , ,			,
Environmental (High, Med, Low) L.S.					Environmental Permitting & Mitigation
Miscellaneous	\$0		L.S.		
Traffic Signal Rebuild 1					
M2					Miscellaneous
M2	\$200,00	\$200,000	L.S.	1	Traffic Signal Rebuild
Planning / Design 14% CEI 12.5% Contigency 20%	\$0		L.S.		
Planning / Design 14% CEI 12.5% Contigency 20%	\$0		L.S.		M3
Planning / Design 14% CEI 12.5% Contigency 20%	<u> </u>				
Planning / Design 14% CEI 12.5% Contigency 20%	al \$120,422,	Sub-Total			
CEI 12.5% Contigency 20%					
CEI 12.5% Contigency 20%	\$6,732,43				Planning / Design 14%
Contigency 20%	\$6,011,10				
	\$24,084,4				
	. ,,-				· .
Tota					

Planning Level Cost Estimate for Long-Term Concepts

Concept #: Long 11 **Exit #:** 76A

Description: 1-95/I-64 Belvidere Interchange On- and Off-Ramps

Description	Quantity	Unit	Unit Cost (\$)	Cost (\$)
Roadway Improvements				
- Cost estimates are for an assumed construction year of 2018	0.50	MILE	\$6,420,000	\$3,210,000
Mainline Widening (2 Lane)		MILE	\$8,635,000	\$0
CD Road (2 Lane)		MILE	\$7,080,000	\$0
CD Road (3 Lane)		MILE	\$9,000,000	\$0
Directional Ramp (1 Lane)	0.56	MILE	\$6,000,000	\$3,360,000
Roundabout (1 Lane)		EA	\$1,250,000	\$0
Roundabout (2 Lanes)		EA	\$2,500,000	\$0
Urban 2 Lanes Undivided (Reconstructed)		MILE	\$5,400,000	\$0
Urban 3 Lanes Undivided (Reconstructed)		MILE	\$7,700,000	\$0
Urban 4 Lanes Undivided (Reconstructed)		MILE	\$13,500,000	\$0
Urban 4 Lanes Divided (Reconstructed)		MILE	\$13,500,000	\$0
Drainage and Bridge			•	
SWM Basins	1	EA	\$500,000	\$500,000
Box Culverts		LF	\$100	\$0
Bridges	38753	SF	\$250	\$9,688,250
			Sub-Total	\$16,758,25
Right-of Way and Utility Relocation				
R/W & Utility Relocation	1	LS	\$20,947,813	\$20,947,81
·				
Environmental Permitting & Mitigation				
Environmental (High, Med, Low)		L.S.		\$0
Environmental (High, Med, Low)		L.S.		\$0
Environmental (High, Med, Low) Miscellaneous		L.S.		\$0
	1	L.S.	\$200,000	\$0
Miscellaneous	1	-	\$200,000	·
Miscellaneous Traffic Signal Rebuild	1	L.S.	\$200,000	\$200,000
Miscellaneous Traffic Signal Rebuild M2	1	L.S. L.S.	\$200,000	\$200,000
Miscellaneous Traffic Signal Rebuild M2	1	L.S. L.S.		\$200,000 \$0 \$0
Miscellaneous Traffic Signal Rebuild M2	1	L.S. L.S.		\$200,000 \$0 \$0
Miscellaneous Traffic Signal Rebuild M2	1	L.S. L.S.		\$200,000 \$0 \$0 \$37,906,06
Miscellaneous Traffic Signal Rebuild M2 M3	1	L.S. L.S.		\$200,000 \$0 \$0 \$37,906,06
Miscellaneous Traffic Signal Rebuild M2 M3 M3 Planning / Design 14% CEI 12.5%	1	L.S. L.S.		\$200,000 \$0 \$0 \$37,906,06 \$2,346,155 \$2,094,78
Miscellaneous Traffic Signal Rebuild M2 M3 Planning / Design 14% CEI 12.5%	1	L.S. L.S.		\$200,000 \$0 \$0 \$37,906,06 \$2,346,155 \$2,094,783
Miscellaneous Traffic Signal Rebuild M2 M3 M3 Planning / Design 14% CEI 12.5%	1	L.S. L.S.	Sub-Total	\$200,000

Planning Level Cost Estimate for Long-Term Concepts

Concept #: Long 12 Exit #: 74 & 75

Description: 1-95 at Broad Street and I-64 Interchange - Long Range Vision

Description	Quantity	Unit	Unit Cost	Cost
Description Roadway Improvements			(\$)	(\$)
- Cost estimates are for an assumed construction year of 2018	0.63	NALLE	¢6 420 000	\$4,044,600
Mainline Widening (2 Lane)	0.03	MILE	\$6,420,000 \$8,635,000	\$4,044,600
CD Road (2 Lane)	0.45	MILE	\$7,080,000	\$3,186,000
CD Road (2 Lane)	0.43	MILE	\$9,000,000	\$3,780,000
Directional Ramp (1 Lane)	0.42	MILE	\$6,000,000	\$2,160,000
Roundabout (2 Lanes)	2	EA	\$1,250,000	\$2,500,000
City Roundabout (2 Lanes)	2	EA		
, , , ,			\$2,500,000 \$600,000	\$5,000,000
Overlay and re-stripe existing pavement	0.5	MILE		\$300,000
Urban 2 Lanes Undivided (Reconstructed)	0.6	MILE	\$5,400,000	\$3,240,000
Urban 3 Lanes Undivided (Reconstructed)	0.04	MILE	\$7,700,000	\$0
Urban 4 Lanes Undivided (Reconstructed)	0.91	MILE	\$13,500,000	\$12,285,00
Urban 4 Lanes Divided (Reconstructed)	0.8	MILE	\$13,500,000	\$10,800,00
Urban 8 Lanes Divided (Reconstructed)	0.13	MILE	\$19,000,000	\$2,470,000
Replace Traffic Signals	4	L.S.	\$250,000	\$1,000,000
Demolish Existing Roadway	80000	SF	\$5	\$400,000
Provide sidewalk	2.44	MILE	\$240,000	\$585,600
Drainage, Bridge, Walls				
SWM Basins	4	EA	\$250,000	\$1,000,000
Retaining Walls	64000	SF	\$150	\$9,600,000
Bridges	364000	SF	\$250	\$91,000,00
			Sub-Total	\$154,941,20
Right-of Way and Utility Relocation				
R/W & Utility Relocation	1	LS	\$193,676,500	\$193,676,50
·				
Environmental Permitting & Mitigation				
Environmental/Historic	1	L.S.	\$5,000,000	\$5,000,000
·				
Miscellaneous				
				I
				Anna
			Sub-Total	\$353,617,70
Planning/EIS/ Design 14%				\$21,691,76
CEI 12.5%				
				\$19,367,65 \$70,723,54
Contigency 20%				\$70,723,54