



TECHNICAL MEMORANDUM

TO: Matthew Langhorst, Assistant City Engineer - City of Glenwood Springs

FROM: Mike Fowler, PE - SGM Project Manager

DATE: April 12, 2018

RE: **South Midland Avenue Reconstruction Project
Preliminary Design Level Construction Cost Estimates – Item 5**

Purpose of Memorandum

This memorandum presents a summary of the construction cost estimates that have been prepared in response to the City Council requests. These estimates are identified as Items 5a. through 5h. for the following elements of the project:

- 5a. Roundabout at the intersection with 4 Mile Road (CR-117) and Airport Road
- 5b. Intersection improvements at 3 Mile Road (CR-127)
- 5c. Intersection improvements at Old Cardiff Bridge Road (CR-156)
- 5d. Intersection improvements at Hager Lane
- 5e. Stormwater improvements for the following areas of the project:
 - i. 4 Mile Roundabout to 3 Mile Creek
 - ii. 3 Mile Creek Culvert/Bridge
 - iii. 3 Mile Creek to Low Point (Station 48+27) at existing inlets between the Park West intersections
 - iv. From Low Point (Station 48+27) to High Point (Station 37+08) approximately 360 feet north of intersection with Old Cardiff Bridge Road
 - v. From High Point (Station 37+08) to City-owned parcel (Station 9+00) located approximately 460 feet south of intersection with Hager Lane
- 5f. Reconstruction of Midland Avenue from 4 Mile Road to Old Cardiff Bridge Road (approximately 2,340 linear feet from Station 63+72 to Station 40+28); excluding intersection improvements at CR-127 and CR-156, and excluding Roundabout
- 5g. Reconstruction of Midland Avenue from Cardiff Bridge Road to north end of Haycock property (approximately 480 linear feet from Station 40+28 to Station 35+50); excluding intersection improvements at CR-156
- 5h. Reconstruction of Midland Avenue from north end of Haycock property to north terminus of project (approximately 3,460 linear feet from Station 35+50 to Station 0+86); excluding intersection improvements at Hager Lane

Basis of Estimates

These estimates are based on the quantities of items identified in the preliminary-level plans. These items are summarized in the plans (sheets 8-23). Unit prices were developed using CDOT cost data (annual averages) and bid results from similar projects in Glenwood Springs and the surrounding region. Unit prices were applied uniformly to all estimates.

The preliminary engineering has been advanced to an approximate 30% design level and includes the development of quantities for major items such as roadway, retaining walls, stormwater drainage, sidewalks and intersection. Other items such as rockfall mitigation are accounted for, but are based on design concepts and similar projects. Miscellaneous items such as erosion control and traffic control include significant cost items, but will be further developed through final design. An overall contingency factor of 15% has been applied to all cost estimates to account for additional items that will be developed and quantified during final design.

Each breakout item has been estimated as if it is a stand-alone project. For example, item 5a includes all of the quantities identified in the tabulations and associated soft costs as if the new roundabout was being constructed independently from the base project. This approach attempts to capture the increase in overall soft costs (e.g. traffic control) if the project was to be constructed in segments instead of the entire base project. The following table summarizes the assumed construction durations for the individual items and the overall base project. These durations are conceptual and not based on actual construction schedules.

Item	Assumed Construction Duration	
	Months	Project Days
5a. Roundabout	4	90
5b. CR-127 Intersection	1	20
5c. CR-156 Intersection	1.5	30
5d. Hager Lane Intersection	1.5	30
5e. N/A	-	-
5f. Midland – Roundabout to CR-156	3	60
5g. CR-156 to Haycock	1.5	30
5h. Haycock to North terminus	6	130
Total Items 5a. through 5h.	18.5	390
Full Reconstruction Base Project	10	215

Summary of Estimates

The following table summarizes the estimated construction project costs for each item. Detailed cost summaries and unit cost sheets are included in the attachments.

Item	Estimated Cost
5a. Roundabout	\$ 1,500,000
5b. CR-127 Intersection	\$ 450,000
5c. CR-156 Intersection	\$ 250,000
5d. Hager Lane Intersection	\$ 300,000
5e. Stormwater Improvements	
i. Roundabout to 3 Mile Creek	\$ 265,000
ii. 3 Mile Creek Culvert/Bridge	\$ 5,000
iii. 3 Mile Creek to Low Point	\$ 75,000
iv. Low Point to High Point	\$ 40,000
v. High Point to City Parcel	\$ 375,000
5f. Midland – Roundabout to CR-156	\$ 2,000,000
5g. CR-156 to Haycock	\$ 850,000
5h. Haycock to North terminus	\$ 5,150,000
Total Items 5a. through 5h. (excluding 5e.)	\$ 10,500,000
Full Reconstruction Base Project	\$ 9,400,000

Attachments:

EOPC Summaries and Unit Price Analyses for Items 5a. through 5h
EOPC Summary and Unit Price Analysis for current Base Project design

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Roundabout Costs
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 69,500	6.1%
Earthwork (Excavation, Embankment)	\$ 143,000	12.6%
Erosion Control	\$ 36,000	3.2%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 571,000	50.1%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ 5,500	0.5%
Drainage (Pipes, Inlets, Manholes)	\$ 112,000	9.8%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ -	0.0%
Rockfall Mitigation (Mesh above Walls)	\$ -	0.0%
Traffic Control during Construction	\$ 179,500	15.8%
Signing and Striping	\$ 22,500	2.0%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 1,139,000 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 171,000	15.0%
Mobilization	\$ 68,500	6.0%
Lighting	\$ 23,500	2.1%
Utilities (Electrical)	\$ 2,500	0.2%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 11,500	1.0%
Construction Management (Inspection & Testing)	\$ 57,000	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 334,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$1,473,000
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE	
						UNIT COST	EXTENDED COST
REM	1	201-00000	CLEARING AND GRUBBING	LS	1	\$ 5,000.00	\$ 5,000.00
REM	2	202-00008	TREE TRIMMING	HR	5	\$ 200.00	\$ 1,000.00
REM	3	202-00010	REMOVAL OF TREE	EACH	5	\$ 500.00	\$ 2,500.00
REM	6	202-00035	REMOVAL OF PIPE	LF	131	\$ 25.00	\$ 3,270.00
REM	8	202-00200	REMOVAL OF SIDEWALK	SY	418	\$ 20.00	\$ 8,350.22
REM	11	202-00210	REMOVAL OF CONCRETE PAVEMENT	SY	1067	\$ 25.00	\$ 26,680.56
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	2010	\$ 10.00	\$ 20,104.44
REM	14	202-00810	REMOVAL OF GROUND SIGN	EACH	5	\$ 150.00	\$ 750.00
REM	16	202-01000	REMOVAL OF FENCE	LF	219	\$ 3.00	\$ 657.00
REM	19	202-05026	SAWING ASPHALT MATERIAL (6 INCH)	LF	46	\$ 5.00	\$ 230.50
EW	20	203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	4763	\$ 30.00	\$ 142,902.00
UTIL	22	203-01597	POTHOLING	HR	10	\$ 225.00	\$ 2,250.00
EC	28	207-00205	TOPSOIL	CY	200	\$ 25.00	\$ 5,000.00
EC	29	207-00210	STOCKPILE TOPSOIL	CY	200	\$ 10.00	\$ 2,000.00
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	1000	\$ 5.00	\$ 5,000.00
EC	33	208-00045	CONCRETE WASHOUT STRUCTURE	EACH	1	\$ 2,500.00	\$ 2,500.00
EC	34	208-00051	STORM DRAIN INLET PROTECTION (TYPE I)	LF	12	\$ 20.00	\$ 240.00
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	1	\$ 2,000.00	\$ 2,000.00
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	90	\$ 200.00	\$ 18,000.00
REM	41	210-04010	ADJUST MANHOLE	EACH	1	\$ 1,000.00	\$ 1,000.00
EC	44	212-00006	SEEDING (NATIVE)	ACRE	0.75	\$ 1,000.00	\$ 750.00
EC	45	213-00004	MULCHING (WEED FREE STRAW)	ACRE	0.75	\$ 1,000.00	\$ 750.00
SURF	48	304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	255	\$ 30.00	\$ 7,654.50
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	1614	\$ 40.00	\$ 64,554.00
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	261	\$ 120.00	\$ 31,374.00
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	95	\$ 2.00	\$ 189.00
SURF	54	412-00850	CONCRETE PAVEMENT (8-1/2 INCH)	SY	2167	\$ 120.00	\$ 260,040.00
SURF	55	412-00851	CONCRETE PAVEMENT (8-1/2 INCH) (SPECIAL)	SY	290	\$ 130.00	\$ 37,700.00
DRA	63	603-30018	18 INCH STEEL END SECTION	EACH	2	\$ 350.00	\$ 700.00
DRA	65	603-30030	30 INCH STEEL END SECTION	EACH	1	\$ 600.00	\$ 600.00
DRA	67	603-50018	18 INCH PLASTIC PIPE	LF	235	\$ 100.00	\$ 23,500.00
DRA	68	603-50024	24 INCH PLASTIC PIPE	LF	188	\$ 100.00	\$ 18,800.00
DRA	69	603-50030	30 INCH PLASTIC PIPE	LF	174	\$ 150.00	\$ 26,100.00
DRA	71	604-00305	INLET TYPE C (5 FOOT)	EACH	1	\$ 4,500.00	\$ 4,500.00
DRA	77	604-19205	INLET TYPE R L 10 (5 FOOT)	EACH	1	\$ 8,000.00	\$ 8,000.00
DRA	78	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	5	\$ 4,000.00	\$ 20,000.00
DRA	79	604-25011	VANE GRATE INLET SPECIAL (10 FOOT)	EACH	2	\$ 5,000.00	\$ 10,000.00
RDWY	88	607-53160	FENCE CHAIN LINK (60 INCH)	LF	220	\$ 25.00	\$ 5,500.00
SURF	93	608-00000	CONCRETE SIDEWALK	SY	504	\$ 60.00	\$ 30,240.00
SURF	95	608-00010	CONCRETE CURB RAMP	SY	67	\$ 150.00	\$ 10,050.00
SURF	96	608-00015	DETECTABLE WARNINGS	SF	80	\$ 60.00	\$ 4,800.00
SURF	97	609-20010	CURB TYPE 2 (SECTION B)	LF	229	\$ 40.00	\$ 9,160.00
SURF	98	609-20011	CURB TYPE 2 (SECTION M)	LF	295	\$ 40.00	\$ 11,800.00
SURF	99	609-21020	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	1549	\$ 35.00	\$ 54,215.00
SURF	102	610-00020	MEDIAN COVER MATERIAL (PATTERNED CONCRETE)	SF	4898	\$ 10.00	\$ 48,980.00
LIGHT	111	613-01202	2 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	400	\$ 2.50	\$ 1,000.00
LIGHT	112	613-30300	LIGHT STANDARD ALUMINUM (30 FOOT)	EACH	5	\$ 3,000.00	\$ 15,000.00
LIGHT	113	613-40010	LIGHT STANDARD FOUNDATION	EACH	5	\$ 1,500.00	\$ 7,500.00
MISC	119	625-00000	CONSTRUCTION SURVEYING	LS	1	\$ -	\$ -
MOB	120	626-00000	MOBILIZATION	LS	1	\$ -	\$ -
SS	121	627-00008	MODIFIED EPOXY PAVEMENT MARKING	GAL	15	\$ 150.00	\$ 2,250.00
SS	122	627-30305	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (WORD- SYMBOL)	SF	500	\$ 20.00	\$ 10,000.00
SS	123	627-30310	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (XWALK-STOP LINE)	SF	500	\$ 20.00	\$ 10,000.00
TC	124	630-00000	FLAGGING	HR	2160	\$ 30.00	\$ 64,800.00
TC	125	630-00007	TRAFFIC CONTROL INSPECTION	DAY	36	\$ 400.00	\$ 14,400.00
TC	126	630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	90	\$ 950.00	\$ 85,500.00
TC	128	630-80355	PORTABLE MESSAGE SIGN PANEL	EACH	3	\$ 5,000.00	\$ 15,000.00
TOTAL COST						\$ 1,164,841.22	\$ 1,164,841.22

UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA							
REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010
\$ 10,000.00	\$ 17,250.00		\$ 90,000.00			\$ 10,900.00	\$ 15,498.00	\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99
\$ 1,210.00	\$ 266.00	\$ 368.69			\$ 310.00	\$ 783.00		\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69
\$ 21.00	\$ 17.00	\$ 12.12			\$ 10.75	\$ 57.56		\$ 362.12	\$ 359.85	\$ 366.20	\$ -	\$ 270.73	\$ 354.89	\$ 185.09	\$ 200.00
	\$ 15.13	\$ 9.09				\$ 17.12		\$ 23.27	\$ 27.28	\$ 28.50	\$ -	\$ 16.55	\$ 17.16	\$ 16.83	\$ 15.27
\$ 24.75						\$ 15.12		\$ 19.71	\$ 13.18	\$ 13.54	\$ -	\$ 8.74	\$ 13.29	\$ 8.37	\$ 7.18
\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00		\$ 18.50	\$ 11.23		\$ 26.13	\$ 10.77	\$ 13.21	\$ -	\$ 5.55	\$ 4.94	\$ 5.96	\$ 9.20
\$ 130.00	\$ 116.50	\$ 255.10	\$ 105.39			\$ 48.60		\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34
\$ -		\$ 6.80			\$ 2.85	\$ 8.80		\$ 95.85	\$ 84.45	\$ 84	\$ -	\$ 61.76	\$ 45.60	\$ 102.24	\$ 77.36
			\$ 2.56		\$ 5.50			\$ 1.09	\$ 1.60	\$ 1.53	\$ -	\$ 1.09	\$ 0.58	\$ 0.74	\$ 0.46
\$ 31.35		\$ 21.21	\$ 54.87		\$ 28.60	\$ 29.80		\$ 1.46	\$ 3.52	\$ 2.62	\$ -	\$ 3.51	\$ 2.06	\$ 2.48	\$ 1.92
\$ 211.00	\$ 197.50	\$ 237.37	\$ 230.77		\$ 176.63	\$ 239.76		\$ 37.13	\$ 10.12	\$ 16.72	\$ -	\$ 9.45	\$ 8.37	\$ 6.38	\$ 9.31
\$ 27.00	\$ 8.75			\$ 52.58	\$ 49.50	\$ 80.46		\$ 216.37	\$ 233.60	\$ 217.36	\$ -	\$ 208.31	\$ 145.15	\$ 177.98	\$ 157.89
	\$ 9.43							\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95
	\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 13.00	\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29
\$ 1,160.00	\$ 1,650.00	\$ 2,083.26	\$ 1,492.66	\$ 2,123.33	\$ 650.00	\$ 10,265.64		\$ 5.00	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68
	\$ 18.50	\$ 3.39				\$ 4.32		\$ 2,656.73	\$ 1,247.60	\$ 1,553.04	\$ -	\$ 781.96	\$ 761.80	\$ 781.81	\$ 605.82
\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57			\$ 1,063.80		\$ 13.76	\$ 8.48	\$ 7.38	\$ -	\$ 5.05	\$ 8.01	\$ 4.40	\$ 6.46
								\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39
\$ 885.00	\$ 1,757.50				\$ 600.00	\$ 612.36		\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A
\$ 7,620.00	\$ 1,932.50	\$ 462.36	\$ 997.57	\$ 5,572.00	\$ 4,052.86	\$ 1,036.80		\$ 859.55	\$ 594.38	\$ 795.07	\$ -	\$ 497.45	\$ 467.20	\$ 549.28	\$ 419.43
	\$ 1,875.00							\$ 999.04	\$ 771.76	\$ 729.73	\$ -	\$ 639.29	\$ 552.93	\$ 619.00	\$ 454.07
\$ 36.00								\$ 593.71	\$ 785.12	\$ 508.66	\$ -	\$ 483.85	\$ 620.00	\$ 893.54	\$ 573.21
\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 24.49	\$ 26.75	\$ 20.43	\$ -	\$ 20.09	\$ 24.32	\$ 15.23	\$ 16.17
\$ 166.00						\$ 108.87		\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29
								\$ 76.93	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41
								\$ 1.74	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07
								\$ -	\$ 88.32	N/A	\$ -	\$ 37.50	\$ 27.00	\$ 35.74	N/A
								N/A	N/A	N/A	\$ -	N/A	N/A	N/A	N/A
						\$ 333.00		\$ 327.87	\$ 675.74	\$ 380.21	\$ -	\$ 353.02	\$ 267.56	\$ 338.13	\$ 270.03
	\$ 72.00				\$ 49.59			\$ 590.28	\$ 950.00	\$ 677.63	\$ -	\$ 592.04	\$ 697.25	\$ 780.83	\$ 621.76
	\$ 83.20				\$ 64.20			\$ 200.00	\$ 85.00	\$ 98.00	\$ -	\$ 81.72	\$ 36.82	\$ 63.06	\$ 48.24
								\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00
								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 504.54	N/A
		\$ 3,252.53			\$ 4,115.00	\$ 5,292.00		\$ 7,980.00	\$ 3,372.87	\$ 4,183.61	\$ -	\$ 3,004.95	\$ 2,364.34	\$ 2,256.06	\$ 2,494.26
								\$ 7,833.33	\$ 7,255.00	\$ 6,469.00	\$ -	\$ 5,409.74	\$ 4,655.83	\$ 5,276.84	\$ 4,351.17
	\$ 4,109.00					\$ 4,865.40		N/A	\$ 7,709.45	\$ 4,865.40	\$ -	N/A	N/A	\$ 5,600.00	N/A
								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 5,471.43	\$ 15,543.85
								N/A	\$ 75.00	N/A	\$ -	N/A	N/A	\$ 40.82	N/A
\$ 60.00	\$ 56.10					\$ 65.78	\$ 57.63	\$ 49.83	\$ 54.86	\$ 33.98	\$ -	\$ 35.47	\$ 36.34	\$ 21.58	\$ 29.02
\$ 95.25		\$ 147.97			\$ 124.25	\$ 244.84		\$ 186.00	\$ 140.87	\$ 139.04	\$ -	\$ 108.45	\$ 90.99	\$ 92.04	\$ 79.60
\$ 57.10	\$ 63.00	\$ 65.51			\$ 76.74	\$ 62.75		\$ 114.80	\$ 57.77	\$ 74.82	\$ -	\$ 45.34	\$ 51.67	\$ 36.03	\$ 44.81
		\$ 18.64				\$ 34.62		\$ 36.93	\$ 28.47	\$ 26.82	\$ -	\$ 20.36	\$ 25.81	\$ 25.78	\$ 17.19
								N/A	\$ 40.00	\$ 23.50	\$ -	N/A	\$ 29.05	N/A	N/A
	\$ 40.00	\$ 23.72				\$ 38.85		\$ 33.50	\$ 25.00	\$ 22.08	\$ -	\$ 16.69	\$ 16.05	\$ 13.18	\$ 13.21
\$ 7.50						\$ 13.20		\$ 8.58	\$ 9.01	\$ 10.11	\$ -	\$ 6.57	\$ 6.26	\$ 5.65	\$ 4.10
	\$ 13.00							N/A	\$ 19.75	N/A	\$ -	N/A	\$ 16.51	N/A	N/A
								N/A	\$ 1,800.00	\$ 2,500.00	\$ -	\$ 4,225.00	N/A	N/A	\$ 1,730.00
	\$ 2,599.00	\$ 1,249.90				\$ 1,175.11		\$ 1,365.96	\$ 1,544.98	\$ 1,331.06	\$ -	\$ 1,496.12	\$ 1,014.94	\$ 922.41	\$ 851.96
\$ 49,500.00	\$ 36,600.00	\$ 208,569.10	\$ 82,979.16			\$ 326,953.94		\$ 84,611.86	\$ 67,628.43	\$ 43,692.59	\$ -	\$ 32,852.17	\$ 28,504.30	\$ 29,330.49	\$ 24,724.61
\$ 332,625.00	\$ 660,000.00		\$ 621,623.00	\$ 558,796.67	\$ 74,616.38	\$ 136,862.12	\$ 171,438.00	\$ 208,							

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - 3 Mile Rd (CR-127) Intersection Improvements
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 17,500	5.2%
Earthwork (Excavation, Embankment)	\$ 72,500	21.4%
Erosion Control	\$ 12,000	3.5%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 35,500	10.5%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ -	0.0%
Drainage (Pipes, Inlets, Manholes)	\$ 19,000	5.6%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ 149,500	44.0%
Rockfall Mitigation (Mesh above Walls)	\$ -	0.0%
Traffic Control during Construction	\$ 32,000	9.4%
Signing and Striping	\$ 1,500	0.4%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 339,500 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 51,000	15.0%
Mobilization	\$ 20,500	6.0%
Lighting	\$ -	0.0%
Utilities (Electrical)	\$ 3,000	0.9%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 3,500	1.0%
Construction Management (Inspection & Testing)	\$ 17,000	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 95,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$434,500
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA								
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010	
REM	1	201-00000	CLEARING AND GRUBBING	L S	1	\$ 2,000.00	\$ 2,000.00	\$ 10,000.00	\$ 17,250.00		\$ 90,000.00		\$ 10,900.00	\$ 15,498.00		\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99	
REM	2	202-00008	TREE TRIMMING	hour	5	\$ 200.00	\$ 1,000.00								\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69		
REM	3	202-00010	REMOVAL OF TREE	EACH	10	\$ 500.00	\$ 5,000.00	\$ 1,210.00	\$ 266.00	\$ 368.69			\$ 310.00	\$ 783.00		\$ 362.12	\$ 359.85	\$ 366.20	\$ -	\$ 270.73	\$ 354.89	\$ 185.09	\$ 200.00	
UTIL	6	202-00035	REMOVAL OF PIPE	LF	124	\$ 25.00	\$ 3,100.00	\$ 21.00	\$ 17.00	\$ 12.12			\$ 10.75	\$ 57.56	\$ 12.12	\$ 23.27	\$ 27.28	\$ 28.50	\$ -	\$ 16.55	\$ 17.16	\$ 16.83	\$ 15.27	
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	922	\$ 10.00	\$ 9,220.00	\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00		\$ 18.50	\$ 11.23		\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34	
REM	19	202-05026	SAWING ASPHALT MATERIAL (6 INCH)	LF	21	\$ 5.00	\$ 105.00			\$ 2.56			\$ 5.50			\$ 1.46	\$ 3.52	\$ 2.62	\$ -	\$ 3.51	\$ 2.06	\$ 2.48	\$ 1.92	
EW	20	203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	2413	\$ 30.00	\$ 72,399.60	\$ 31.35		\$ 21.21	\$ 54.87		\$ 28.60	\$ 29.80		\$ 37.13	\$ 10.12	\$ 16.72	\$ -	\$ 9.45	\$ 8.37	\$ 6.38	\$ 9.31	
EC	28	207-00205	TOPSOIL	CY	50	\$ 25.00	\$ 1,250.00	\$ 27.00	\$ 8.75			\$ 52.58	\$ 49.50	\$ 80.46		\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95	
EC	29	207-00210	STOCKPILE TOPSOIL	CY	50	\$ 10.00	\$ 500.00		\$ 9.43							\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29	
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	800	\$ 5.00	\$ 4,000.00		\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 13.00		\$ 5.00	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68	
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	1	\$ 2,000.00	\$ 2,000.00	\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57			\$ 1,063.80		\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39	
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	20	\$ 200.00	\$ 4,000.00									\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A	
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	281	\$ 40.00	\$ 11,256.00	\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29	
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	200	\$ 120.00	\$ 23,940.00	\$ 166.00					\$ 108.87			\$ 76.93	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41	
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	90	\$ 2.00	\$ 180.60									\$ 1.74	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07	
WALL	58	504-06400	SOIL NAIL WALL	SF	2861	\$ 30.00	\$ 85,830.00									\$ 19.50	\$ 24.71	N/A	\$ -	N/A	N/A	N/A	\$ 68.13	
DRA	64	603-30024	24 INCH STEEL END SECTION	EACH	2	\$ 500.00	\$ 1,000.00					\$ 50.56	\$ 68.96			\$ 493.63	\$ 822.35	\$ 462.04	\$ -	\$ 376.03	\$ 549.04	\$ 359.54	\$ 314.58	
DRA	66	603-50012	12 INCH PLASTIC PIPE	LF	107	\$ 50.00	\$ 5,350.00	\$ 73.40	\$ 51.00							\$ 60.00	\$ 71.80	\$ 90.71	\$ -	\$ 44.81	\$ 42.01	\$ 55.83	\$ 66.80	
DRA	68	603-50024	24 INCH PLASTIC PIPE	LF	125	\$ 100.00	\$ 12,500.00		\$ 83.20			\$ 64.20				\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00	
MISC	119	625-00000	CONSTRUCTION SURVEYING	L S	1		\$ -	\$ 49,500.00	\$ 36,600.00	\$208,569.10	\$ 82,979.16		\$326,953.94			\$ 84,611.86	\$ 67,628.43	\$ 43,692.59	\$ -	\$ 32,852.17	\$ 28,504.30	\$ 29,330.49	\$ 24,724.61	
MOB	120	626-00000	MOBILIZATION	L S	1		\$ -	\$332,625.00	\$660,000.00		\$621,623.00	\$558,796.67	\$ 74,616.38	\$136,862.12	\$171,438.00	\$208,441.22	\$295,558.34	\$240,603.45	\$ -	\$259,614.48	\$165,941.59	\$211,129.05	\$173,737.79	
SS	121	627-00008	MODIFIED EPOXY PAVEMENT MARKING	GAL	3	\$ 150.00	\$ 450.00									\$ 61.31	\$ 75.78	\$ 60.23	\$ -	N/A	N/A	N/A	N/A	
SS	122	627-30305	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (WORD- SYMBOL)	SF	16	\$ 20.00	\$ 310.00									N/A	N/A	\$ 20.00	\$ -	N/A	N/A	N/A	N/A	
SS	123	627-30310	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (XWALK-STOP LINE)	SF	42	\$ 20.00	\$ 840.00						\$ 17.28			\$ 14.00	N/A	\$ 17.28	\$ -	N/A	N/A	N/A	N/A	
TC	124	630-00000	FLAGGING	hour	320	\$ 30.00	\$ 9,600.00	\$ 38	\$ 33	\$ 28	\$ 28	\$ 31		\$ 28	\$ 25	\$ 26.33	\$ 26	\$ 25	\$ -	\$ 22	\$ 21	\$ 21	\$ 21	
TC	125	630-00007	TRAFFIC CONTROL INSPECTION	DAY	8	\$ 400.00	\$ 3,200.00	\$ 415.00	\$ 310.00	\$ 348.72	\$ 612.30	\$ 231.00		\$ 194.40	\$ 107.29	\$ 201.09	\$ 180.51	\$ 184.65	\$ -	\$ 157.34	\$ 140.54	\$ 73.90	\$ 121.53	
TC	126	630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	20	\$ 950.00	\$ 19,000.00	\$ 1,025.00	\$ 977.50	\$ 1,004.06	\$ 823.10		\$ 1,188.00	\$ 736.75		\$ 818.50	\$ 893.21	\$ 760.60	\$ -	\$ 600.50	\$ 557.82	\$ 440.60	\$ 455.69	
WALL	132	641-10000	SHOTCRETE	SY	318	\$ 200.00	\$ 63,600.00									\$ 159.18	\$ 188.76	\$ 310.00	\$ -	\$ 164.09	\$ 155.85	\$ 85.39	\$ 182.46	
TOTAL COST						\$ 341,631.20		\$ 2,038,085	\$ 6,232,801	\$ 15,889,608	\$ 4,815,438	\$ 5,155,609	\$ 1,815,753	\$ 63,377,492	\$ 2,044,110									

CATEGORY		
REM	REMOVAL AND RESET	\$ 17,325.00
EW	EARTHWORK	\$ 72,399.60
EC	EROSION CONTROL	\$ 11,750.00
SURF	SURFACING / ABC / SW	\$ 35,376.60
RDWY	ROADWAY ITEMS	\$ -
DRA	DRAINAGE	\$ 18,850.00
BR	BRIDGE	\$ -
WALL	RETAINING WALL	\$ 149,430.00
ROCK	ROCKFALL MITIGATION	\$ -
TC	TRAFFIC CONTROL	\$ 31,800.00
SS	SIGNING AND STRIPING	\$ 1,600.00
LIGHT	LIGHTING	\$ -
UTIL	UTILITIES	\$ 3,100.00
MISC	MISCELLANEOUS	\$ -
MOB	MOBILIZATION	\$ -
FA	FORCE ACCOUNT	\$ -
		\$ 341,631.20

REFERENCE PROJECTS	
REF. 1	EL JEBEL ROUNDABOUT, EAGLE COUNTY
REF. 2	BASALT UNDERPASS
REF. 3	I-70 VAIL UNDERPASS, EAGLE COUNTY
REF. 4	I-70 EAST VAIL CHAIN UP, EAGLE COUNTY
REF. 5	I-70 EXIT 49, MESA COUNTY
REF. 6	WEST MIDLAND TRAIL, GLENWOOD SPRINGS
REF. 7	SH-82 GRAND AVENUE BRIDGE, GLENWOOD SPRINGS
REF. 8	SH-133 ROCKFALL MITIGATION
REF. 9	US-40 OVER ELK RIVER, 7 MI W. OF STEAMBOAT
REF. 10	US-85 NORTH OF NUNN

#DIV/0! / SF Bridge Area = 0 SF

0% OF ALL CONSTRUCTION ITEMS
0% OF ALL CONSTRUCTION ITEMS

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: S. Midland Ave. - Old Cardiff Bridge Road (CR-156) Intersection Improvements
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 15,000	7.7%
Earthwork (Excavation, Embankment)	\$ 55,500	28.5%
Erosion Control	\$ 15,000	7.7%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 45,000	23.1%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ 13,500	6.9%
Drainage (Pipes, Inlets, Manholes)	\$ -	0.0%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ -	0.0%
Rockfall Mitigation (Mesh above Walls)	\$ -	0.0%
Traffic Control during Construction	\$ 47,500	24.4%
Signing and Striping	\$ 3,000	1.5%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 194,500 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 29,000	15.0%
Mobilization	\$ 11,500	6.0%
Lighting	\$ -	0.0%
Utilities (Electrical)	\$ -	0.0%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 2,000	1.0%
Construction Management (Inspection & Testing)	\$ 9,500	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 52,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$246,500
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA							
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010
REM	1	201-00000	CLEARING AND GRUBBING	L S	1	\$ 1,000.00	\$ 1,000.00	\$ 10,000.00	\$ 17,250.00		\$ 90,000.00		\$ 10,900.00	\$ 15,498.00		\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99
REM	2	202-00008	TREE TRIMMING	HOUR	5	\$ 200.00	\$ 1,000.00									\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69
REM	3	202-00010	REMOVAL OF TREE	EACH	10	\$ 500.00	\$ 5,000.00	\$ 1,210.00	\$ 266.00	\$ 368.69		\$ 310.00	\$ 783.00		\$ 362.12	\$ 359.85	\$ 366.20	\$ -	\$ 270.73	\$ 354.89	\$ 185.09	\$ 200.00	
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	664	\$ 10.00	\$ 6,640.00	\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00		\$ 18.50	\$ 11.23		\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34
REM	14	202-00810	REMOVAL OF GROUND SIGN	EACH	1	\$ 150.00	\$ 150.00	\$ 130.00	\$ 116.50	\$ 255.10	\$ 105.39					\$ 95.85	\$ 84.45	\$ 84	\$ -	\$ 61.76	\$ 45.60	\$ 102.24	\$ 77.36
REM	16	202-01000	REMOVAL OF FENCE	LF	362	\$ 3.00	\$ 1,086.00	\$ -		\$ 6.80		\$ 2.85	\$ 8.80		\$ 1.09	\$ 1.60	\$ 1.53	\$ -	\$ 1.09	\$ 0.58	\$ 0.74	\$ 0.46	
REM	19	202-05026	SAWING ASPHALT MATERIAL (6 INCH)	LF	21	\$ 5.00	\$ 105.00			\$ 2.56		\$ 5.50			\$ 1.46	\$ 3.52	\$ 2.62	\$ -	\$ 3.51	\$ 2.06	\$ 2.48	\$ 1.92	
EW	20	203-00060	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CY	1849	\$ 30.00	\$ 55,470.00	\$ 50.00	\$ 17.88			\$ 24.00	\$ 15.01		\$ 21.12	\$ 17.40	\$ 17.20	\$ -	\$ 8.61	\$ 11.47	\$ 6.76	\$ 6.73	
EC	28	207-00205	TOPSOIL	CY	80	\$ 25.00	\$ 2,000.00	\$ 27.00	\$ 8.75		\$ 52.58	\$ 49.50	\$ 80.46		\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95	
EC	29	207-00210	STOCKPILE TOPSOIL	CY	80	\$ 10.00	\$ 800.00		\$ 9.43						\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29	
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	800	\$ 5.00	\$ 4,000.00		\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 13.00	\$ 5.00	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	1	\$ 2,000.00	\$ 2,000.00	\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57			\$ 1,063.80		\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	30	\$ 200.00	\$ 6,000.00								\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A	
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	521	\$ 40.00	\$ 20,832.00	\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	197	\$ 120.00	\$ 23,688.00	\$ 166.00						\$ 108.87		\$ 76.93	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	170	\$ 2.00	\$ 340.20								\$ 1.74	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07	
RDWY	87	607-11455	FENCE WOOD	LF	250	\$ 50.00	\$ 12,500.00								\$ 32.00	\$ 50.90	\$ 17.25	\$ -	N/A	\$ 5.00	N/A	N/A	
RDWY	92	607-60110	10 FOOT GATE	EACH	1	\$ 1,000.00	\$ 1,000.00								N/A	N/A	\$ 511.33	\$ -	\$ 1,562.50	N/A	N/A	N/A	
MISC	119	625-00000	CONSTRUCTION SURVEYING	L S	1		\$ -	\$ 49,500.00	\$ 36,600.00	\$208,569.10	\$ 82,979.16			\$326,953.94		\$ 84,611.86	\$ 67,628.43	\$ 43,692.59	\$ -	\$ 32,852.17	\$ 28,504.30	\$ 29,330.49	\$ 24,724.61
MOB	120	626-00000	MOBILIZATION	L S	1		\$ -	\$332,625.00	\$660,000.00		\$621,623.00	\$558,796.67	\$ 74,616.38	\$136,862.12	\$171,438.00	\$208,441.22	\$295,558.34	\$240,603.45	\$ -	\$259,614.48	\$165,941.59	\$211,129.05	\$173,737.79
SS	121	627-00008	MODIFIED EPOXY PAVEMENT MARKING	GAL	2	\$ 150.00	\$ 300.00								\$ 61.31	\$ 75.78	\$ 60.23	\$ -	N/A	N/A	N/A	N/A	
SS	123	627-30310	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (XWALK-STOP LINE)	SF	140	\$ 20.00	\$ 2,806.00						\$ 17.28		\$ 14.00	N/A	\$ 17.28	\$ -	N/A	N/A	N/A	N/A	
TC	124	630-00000	FLAGGING	HOUR	480	\$ 30.00	\$ 14,400.00	\$ 38	\$ 33	\$ 28	\$ 28	\$ 31		\$ 28	\$ 25	\$ 26.33	\$ 26	\$ 25	\$ -	\$ 22	\$ 21	\$ 21	\$ 21
TC	125	630-00007	TRAFFIC CONTROL INSPECTION	DAY	12	\$ 400.00	\$ 4,800.00	\$ 415.00	\$ 310.00	\$ 348.72	\$ 612.30	\$ 231.00		\$ 194.40	\$ 107.29	\$ 201.09	\$ 180.51	\$ 184.65	\$ -	\$ 157.34	\$ 140.54	\$ 73.90	\$ 121.53
TC	126	630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	30	\$ 950.00	\$ 28,500.00	\$ 1,025.00	\$ 977.50	\$ 1,004.06	\$ 823.10			\$ 1,188.00	\$ 736.75	\$ 818.50	\$ 893.21	\$ 760.60	\$ -	\$ 600.50	\$ 557.82	\$ 440.60	\$ 455.69
TOTAL COST						\$ 194,417.20	\$ 2,038,085	\$ 6,232,801	\$ 15,889,608	\$ 4,815,438	\$ 5,155,609	\$ 1,815,753	\$ 63,377,492	\$ 2,044,110									

CATEGORY		
REM	REMOVAL AND RESET	\$ 14,981.00
EW	EARTHWORK	\$ 55,470.00
EC	EROSION CONTROL	\$ 14,800.00
SURF	SURFACING / ABC / SW	\$ 44,860.20
RDWY	ROADWAY ITEMS	\$ 13,500.00
DRA	DRAINAGE	\$ -
BR	BRIDGE	\$ -
WALL	RETAINING WALL	\$ -
ROCK	ROCKFALL MITIGATION	\$ -
TC	TRAFFIC CONTROL	\$ 47,700.00
SS	SIGNING AND STRIPING	\$ 3,106.00
LIGHT	LIGHTING	\$ -
UTIL	UTILITIES	\$ -
MISC	MISCELLANEOUS	\$ -
MOB	MOBILIZATION	\$ -
FA	FORCE ACCOUNT	\$ -
		\$ 194,417.20

#DIV/0! / SF Bridge Area = 0 SF

0% OF ALL CONSTRUCTION ITEMS

0% OF ALL CONSTRUCTION ITEMS

REFERENCE PROJECTS	
REF. 1	EL JEBEL ROUNDABOUT, EAGLE COUNTY
REF. 2	BASALT UNDERPASS
REF. 3	I-70 VAIL UNDERPASS, EAGLE COUNTY
REF. 4	I-70 EAST VAIL CHAIN UP, EAGLE COUNTY
REF. 5	I-70 EXIT 49, MESA COUNTY
REF. 6	WEST MIDLAND TRAIL, GLENWOOD SPRINGS
REF. 7	SH-82 GRAND AVENUE BRIDGE, GLENWOOD SPRINGS
REF. 8	SH-133 ROCKFALL MITIGATION
REF. 9	US-40 OVER ELK RIVER, 7 MI W. OF STEAMBOAT
REF. 10	US-85 NORTH OF NUNN

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Hager Lane Intersection Improvements
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 10,500	4.8%
Earthwork (Excavation, Embankment)	\$ 14,500	6.6%
Erosion Control	\$ 12,000	5.5%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 31,500	14.4%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ -	0.0%
Drainage (Pipes, Inlets, Manholes)	\$ -	0.0%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ 94,500	43.2%
Rockfall Mitigation (Mesh above Walls)	\$ -	0.0%
Traffic Control during Construction	\$ 55,000	25.2%
Signing and Striping	\$ 500	0.2%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 218,500 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 33,000	15.0%
Mobilization	\$ 13,000	6.0%
Lighting	\$ -	0.0%
Utilities (Electrical)	\$ 2,500	1.1%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 2,000	1.0%
Construction Management (Inspection & Testing)	\$ 11,000	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 61,500 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$280,000
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NOTES:

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- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA								
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010	
REM	1	201-00000	CLEARING AND GRUBBING	LS	1	\$ 1,000.00	\$ 1,000.00	\$ 10,000.00	\$ 17,250.00		\$ 90,000.00		\$ 10,900.00	\$ 15,498.00		\$ 68,785.16	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99	
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	767	\$ 10.00	\$ 7,670.00	\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00		\$ 18.50	\$ 11.23		\$ 5.11	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34	
REM	19	202-05026	SAWING ASPHALT MATERIAL (6 INCH)	LF	49	\$ 5.00	\$ 246.00				\$ 2.56		\$ 5.50			\$ 3.52	\$ 3.52	\$ 2.62	\$ -	\$ 3.51	\$ 2.06	\$ 2.48	\$ 1.92	
EW	20	203-00060	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CY	488	\$ 30.00	\$ 14,640.00	\$ 50.00	\$ 17.88		\$ 24.00		\$ 24.00	\$ 15.01		\$ 17.40	\$ 17.40	\$ 17.20	\$ -	\$ 8.61	\$ 11.47	\$ 6.76	\$ 6.73	
UTIL	22	203-01597	POTHOLING	HOUR	10	\$ 225.00	\$ 2,250.00	\$ 211.00	\$ 197.50	\$ 237.37	\$ 230.77		\$ 176.63	\$ 239.76		\$ 233.60	\$ 233.60	\$ 217.36	\$ -	\$ 208.31	\$ 145.15	\$ 177.98	\$ 157.89	
WALL	24	206-00000	STRUCTURE EXCAVATION	CY	315	\$ 30.00	\$ 9,450.00		\$ 22.75	\$ 30.30	\$ 27.48		\$ 34.00	\$ 41.77		\$ 17.72	\$ 17.72	\$ 31.55	\$ -	\$ 9.87	\$ 13.32	\$ 7.36	\$ 7.79	
WALL	25	206-00100	STRUCTURE BACKFILL (CLASS 1)	CY	242	\$ 50.00	\$ 12,100.00			\$ 42.42	\$ 64.58		\$ 57.26	\$ 65.14		\$ 35.76	\$ 35.76	\$ 46.20	\$ -	\$ 20.51	\$ 28.37	\$ 13.94	\$ 16.68	
WALL	26	206-00200	STRUCTURE BACKFILL (CLASS 2)	CY	16	\$ 45.00	\$ 720.00			\$ 39.00	\$ 28.11		\$ 170.00	\$ 35.68		\$ 36.51	\$ 36.51	\$ 31.54	\$ -	\$ 17.84	\$ 19.85	\$ 10.60	\$ 16.57	
WALL	27	206-00520	FILTER MATERIAL (CLASS B)	CY	81	\$ 90.00	\$ 7,290.00									\$ 85.86	\$ 85.86	\$ 126.97	\$ -	N/A	\$ 47.13	\$ 35.98	\$ 36.58	
EC	28	207-00205	TOPSOIL	CY	50	\$ 25.00	\$ 1,250.00	\$ 27.00	\$ 8.75			\$ 52.58	\$ 49.50	\$ 80.46		\$ 12.17	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95	
EC	29	207-00210	STOCKPILE TOPSOIL	CY	50	\$ 10.00	\$ 500.00		\$ 9.43							\$ 9.20	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29	
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	800	\$ 5.00	\$ 4,000.00		\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 13.00	\$ 4.89	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68	
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	30	\$ 200.00	\$ 6,000.00									\$ 302.65	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A	
REM	37	210-00010	RESET MAILBOX STRUCTURE	EACH	3	\$ 200.00	\$ 600.00			\$ 408.16						\$ 183.75	\$ 183.75	\$ 237.49	\$ -	\$ 207.93	\$ 303.98	\$ 218.00	\$ 107.62	
REM	39	210-00810	RESET GROUND SIGN	EACH	3	\$ 300.00	\$ 900.00	\$ 350.00	\$ 519.50	\$ 382.65	\$ 391.46			\$ 270.00		\$ 267.73	\$ 267.73	\$ 260.45	\$ -	\$ 277.97	\$ 274.61	\$ 221.27	\$ 189.40	
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	247	\$ 40.00	\$ 9,870.00	\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 26.47	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29	
WALL	50	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	70	\$ 40.00	\$ 2,800.00	\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 26.47	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29	
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	177	\$ 120.00	\$ 21,294.00	\$ 166.00						\$ 108.87		\$ 87.59	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41	
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	81	\$ 2.00	\$ 161.70									\$ 1.73	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07	
WALL	56	420-00113	GEOTEXTILE (DRAINAGE) (CLASS 2)	SY	292	\$ 5.00	\$ 1,460.00						\$ 5.40			\$ 2.65	\$ 2.65	\$ 4.94	\$ -	\$ 2.61	\$ 3.12	\$ 8.83	\$ 1.09	
WALL	57	504-04410	BLOCK FACING	SF	1365	\$ 40.00	\$ 54,600.00			\$ 31.08			\$ 57.00	\$ 64.15		\$ 52.19	\$ 52.19	\$ 36.93	\$ -	\$ 10.46	\$ 24.75	\$ 13.06	\$ 15.11	
WALL	83	605-00040	4 INCH PERFORATED PIPE UNDERDRAIN	LF	400	\$ 15.00	\$ 6,000.00			\$ 16.16						\$ 18.88	\$ 18.88	\$ 15.25	\$ -	\$ 13.31	\$ 10.53	\$ 29.11	\$ 7.70	
MISC	119	625-00000	CONSTRUCTION SURVEYING	LS	1		\$ -	\$ 49,500.00	\$ 36,600.00	\$ 208,569.10	\$ 82,979.16		\$ 326,953.94			\$ 67,628.43	\$ 67,628.43	\$ 43,692.59	\$ -	\$ 32,852.17	\$ 28,504.30	\$ 29,330.49	\$ 24,724.61	
MOB	120	626-00000	MOBILIZATION	LS	1		\$ -	\$ 332,625.00	\$ 660,000.00		\$ 621,623.00		\$ 558,796.67	\$ 74,616.38	\$ 136,862.12	\$ 171,438.00	\$ 295,558.34	\$ 295,558.34	\$ 240,603.45	\$ -	\$ 259,614.48	\$ 165,941.59	\$ 211,129.05	\$ 173,737.79
SS	121	627-00008	MODIFIED EPOXY PAVEMENT MARKING	GAL	1	\$ 150.00	\$ 150.00									\$ 75.78	\$ 75.78	\$ 60.23	\$ -	N/A	N/A	N/A	N/A	
SS	122	627-30305	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (WORD- SYMBOL)	SF	16	\$ 20.00	\$ 310.00									N/A	N/A	\$ 20.00	\$ -	N/A	N/A	N/A	N/A	
TC	124	630-00000	FLAGGING	HOUR	720	\$ 30.00	\$ 21,600.00	\$ 38	\$ 33	\$ 28	\$ 28	\$ 31		\$ 28	\$ 25	\$ 25.87	\$ 26	\$ 25	\$ -	\$ 22	\$ 21	\$ 21	\$ 21	
TC	125	630-00007	TRAFFIC CONTROL INSPECTION	DAY	12	\$ 400.00	\$ 4,800.00	\$ 415.00	\$ 310.00	\$ 348.72	\$ 612.30	\$ 231.00		\$ 194.40	\$ 107.29	\$ 180.51	\$ 180.51	\$ 184.65	\$ -	\$ 157.34	\$ 140.54	\$ 73.90	\$ 121.53	
TC	126	630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	30	\$ 950.00	\$ 28,500.00	\$ 1,025.00	\$ 977.50	\$ 1,004.06	\$ 823.10		\$ 1,188.00	\$ 736.75		\$ 893.21	\$ 893.21	\$ 760.60	\$ -	\$ 600.50	\$ 557.82	\$ 440.60	\$ 455.69	
						TOTAL COST	\$ 220,161.70	\$ 2,038,085	\$ 6,232,801	\$ 15,889,608	\$ 4,815,438	\$ 5,155,609	\$ 1,815,753	\$ 63,377,492	\$ 2,044,110									

CATEGORY		
REM	REMOVAL AND RESET	\$ 10,416.00
EW	EARTHWORK	\$ 14,640.00
EC	EROSION CONTROL	\$ 11,750.00
SURF	SURFACING / ABC / SW	\$ 31,325.70
RDWY	ROADWAY ITEMS	\$ -
DRA	DRAINAGE	\$ -
BR	BRIDGE	\$ -
WALL	RETAINING WALL	\$ 94,420.00
ROCK	ROCKFALL MITIGATION	\$ -
TC	TRAFFIC CONTROL	\$ 54,900.00
SS	SIGNING AND STRIPING	\$ 460.00
LIGHT	LIGHTING	\$ -
UTIL	UTILITIES	\$ 2,250.00
MISC	MISCELLANEOUS	\$ -
MOB	MOBILIZATION	\$ -
FA	FORCE ACCOUNT	\$ -
		\$ 220,161.70

REFERENCE PROJECTS	
REF. 1	EL JEBEL ROUNDABOUT, EAGLE COUNTY
REF. 2	BASALT UNDERPASS
REF. 3	I-70 VAIL UNDERPASS, EAGLE COUNTY
REF. 4	I-70 EAST VAIL CHAIN UP, EAGLE COUNTY
REF. 5	I-70 EXIT 49, MESA COUNTY
REF. 6	WEST MIDLAND TRAIL, GLENWOOD SPRINGS
REF. 7	SH-82 GRAND AVENUE BRIDGE, GLENWOOD SPRINGS
REF. 8	SH-133 ROCKFALL MITIGATION
REF. 9	US-40 OVER ELK RIVER, 7 MI W. OF STEAMBOAT
REF. 10	US-85 NORTH OF NUNN

#DIV/0! / SF Bridge Area = 0 SF

0% OF ALL CONSTRUCTION ITEMS
0% OF ALL CONSTRUCTION ITEMS

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Drainage Costs
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

DRAINAGE CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
4 Mile Roundabout To 3 Mile Creek	\$ 230,500	35.4%
3 Mile Creek To Low Point	\$ 65,500	10.0%
Low Point To High Point	\$ 31,500	4.8%
High Point To City Parcel	\$ 324,500	49.8%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 652,000 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items)	\$ 98,000	15.0%
Lighting	\$ -	0.0%
Utilities (Waterline, Electrical)	\$ -	0.0%
Landscaping (e.g. Center of Roundabout)	\$ -	0.0%
Construction Management (Inspection & Testing)	\$ -	0.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 98,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$750,000
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects. These were then adjusted based on the recent average bids received, adding about 10%.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE	
						UNIT COST	EXTENDED COST
DRA 1	1	603-30018	18 INCH STEEL END SECTION	EACH	2	\$ 350.00	\$ 700.00
DRA 1	3	603-30030	30 INCH STEEL END SECTION	EACH	1	\$ 600.00	\$ 600.00
DRA 1	4	603-50018	18 INCH PLASTIC PIPE	LF	280	\$ 100.00	\$ 28,000.00
DRA 1	5	603-50024	24 INCH PLASTIC PIPE	LF	188	\$ 100.00	\$ 18,800.00
DRA 1	6	603-50030	30 INCH PLASTIC PIPE	LF	174	\$ 150.00	\$ 26,100.00
DRA 1	7	603-50036	36 INCH PLASTIC PIPE	LF	485	\$ 150.00	\$ 72,750.00
DRA 1	8	604-00305	INLET TYPE C (5 FOOT)	EACH	2	\$ 4,500.00	\$ 9,000.00
DRA 1	10	604-00510	INLET TYPE D (10 FOOT)	EACH	1	\$ 5,500.00	\$ 5,500.00
DRA 1	11	604-19105	INLET TYPE R L 5 (5 FOOT)	EACH	1	\$ 6,000.00	\$ 6,000.00
DRA 1	12	604-19110	INLET TYPE R L 5 (10 FOOT)	EACH	1	\$ 7,000.00	\$ 7,000.00
DRA 1	13	604-19115	INLET TYPE R L 5 (15 FOOT)	EACH	1	\$ 10,000.00	\$ 10,000.00
DRA 1	14	604-19205	INLET TYPE R L 10 (5 FOOT)	EACH	1	\$ 8,000.00	\$ 8,000.00
DRA 1	15	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	7	\$ 4,000.00	\$ 28,000.00
DRA 1	16	604-25011	VANE GRATE INLET SPECIAL (10 FOOT)	EACH	2	\$ 5,000.00	\$ 10,000.00
DRA 2	23	603-50018	18 INCH PLASTIC PIPE	LF	251	\$ 100.00	\$ 25,100.00
DRA 2	24	603-50024	24 INCH PLASTIC PIPE	LF	38	\$ 100.00	\$ 3,800.00
DRA 2	27	604-00305	INLET TYPE C (5 FOOT)	EACH	1	\$ 4,500.00	\$ 4,500.00
DRA 2	34	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	6	\$ 4,000.00	\$ 24,000.00
DRA 2	37	604-30005	MANHOLE SLAB BASE (5 FOOT)	EACH	2	\$ 4,000.00	\$ 8,000.00
DRA 3	43	603-50024	24 INCH PLASTIC PIPE	LF	112	\$ 100.00	\$ 11,200.00
DRA 3	45	603-50036	36 INCH PLASTIC PIPE	LF	20	\$ 150.00	\$ 3,000.00
DRA 3	46	604-00305	INLET TYPE C (5 FOOT)	EACH	1	\$ 4,500.00	\$ 4,500.00
DRA 3	53	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	2	\$ 4,000.00	\$ 8,000.00
DRA 3	57	604-30010	MANHOLE SLAB BASE (10 FOOT)	EACH	1	\$ 5,000.00	\$ 5,000.00
DRA 4	59	603-30024	24 INCH STEEL END SECTION	EACH	1	\$ 500.00	\$ 500.00
DRA 4	60	603-30030	30 INCH STEEL END SECTION	EACH	3	\$ 600.00	\$ 1,800.00
DRA 4	61	603-50018	18 INCH PLASTIC PIPE	LF	313	\$ 100.00	\$ 31,300.00
DRA 4	62	603-50024	24 INCH PLASTIC PIPE	LF	477	\$ 100.00	\$ 47,700.00
DRA 4	63	603-50030	30 INCH PLASTIC PIPE	LF	1167	\$ 150.00	\$ 175,050.00
DRA 4	65	604-00305	INLET TYPE C (5 FOOT)	EACH	2	\$ 4,500.00	\$ 9,000.00
DRA 4	66	604-00310	INLET TYPE C (10 FOOT)	EACH	6	\$ 5,000.00	\$ 30,000.00
DRA 4	72	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	1	\$ 4,000.00	\$ 4,000.00
DRA 4	73	604-25011	VANE GRATE INLET SPECIAL (10 FOOT)	EACH	3	\$ 5,000.00	\$ 15,000.00
DRA 4	74	604-25016	VANE GRATE INLET SPECIAL (15 FOOT)	EACH	1	\$ 6,000.00	\$ 6,000.00
DRA 4	75	604-30005	MANHOLE SLAB BASE (5 FOOT)	EACH	1	\$ 4,000.00	\$ 4,000.00
DRA 4	76	604-30010	MANHOLE SLAB BASE (10 FOOT)	EACH	0	\$ 5,000.00	\$ -
TOTAL COST						\$ 651,900.00	\$ 651,900.00

UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA							
REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010
					\$ 333.00			\$ 327.87	\$ 675.74	\$ 380.21	\$ -	\$ 353.02	\$ 267.56	\$ 338.13	\$ 270.03
								\$ 590.28	\$ 950.00	\$ 677.63	\$ -	N/A	\$ 697.25	\$ 780.83	\$ 621.76
	\$ 72.00				\$ 49.59			\$ 200.00	\$ 85.00	\$ 98.00	\$ -	\$ 81.72	\$ 36.82	\$ 63.06	\$ 48.24
	\$ 83.20				\$ 64.20			\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00
								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 504.54	N/A
					\$ 90.00			N/A	N/A	N/A	\$ -	N/A	N/A	N/A	\$ 60.00
		\$ 3,252.53			\$ 4,115.00	\$ 5,292.00		\$ 5,398.80	\$ 3,372.87	\$ 4,183.61	\$ -	\$ 3,004.95	\$ 2,364.34	\$ 2,256.06	\$ 2,494.26
		\$ 5,303.03						\$ 6,000.00	\$ 7,601.35	\$ 3,982.03	\$ -	\$ 4,587.80	\$ 5,074.32	\$ 7,090.65	\$ 4,212.50
	\$ 4,490.00	\$ 4,414.14				\$ 7,111.80		\$ 5,721.43	\$ 4,736.15	\$ 5,087.03	\$ -	\$ 3,598.71	\$ 4,065.43	\$ 4,300.76	\$ 3,349.44
		\$ 5,555.56				\$ 11,735.28		\$ 6,841.00	\$ 6,607.98	\$ 8,384.20	\$ -	\$ 5,038.52	\$ 5,634.46	\$ 4,670.77	\$ 4,235.88
		\$ 6,393.94				\$ 13,643.64		\$ 11,000.00	N/A	\$ 11,376.27	\$ -	N/A	N/A	\$ 4,700.00	N/A
								\$ 7,833.33	\$ 7,255.00	\$ 6,469	\$ -	\$ 5,409.74	\$ 4,655.83	\$ 5,276.84	\$ 4,351.17
	\$ 4,109.00					\$ 4,865.40		N/A	\$ 7,709.45	\$ 4,865.40	\$ -	N/A	N/A	\$ 5,600.00	N/A
								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 5,471.43	\$ 15,543.85
	\$ 72.00				\$ 49.59			\$ 200.00	\$ 85.00	\$ 98.00	\$ -	\$ 81.72	\$ 36.82	\$ 63.06	\$ 48.24
	\$ 83.20				\$ 64.20			\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00
		\$ 3,252.53			\$ 4,115.00	\$ 5,292.00		\$ 5,398.80	\$ 3,372.87	\$ 4,183.61	\$ -	\$ 3,004.95	\$ 2,364.34	\$ 2,256.06	\$ 2,494.26
	\$ 4,109.00				\$ 4,865.40			N/A	\$ 7,709.45	\$ 4,865.40	\$ -	N/A	N/A	\$ 5,600.00	N/A
	\$ 2,750.00		\$ 3,711.10			\$ 5,194.80		\$ 4,200.00	\$ 3,346.06	\$ 4,142.07	\$ -	\$ 2,778.29	\$ 2,595.12	\$ 2,448.97	\$ 2,417.68
	\$ 83.20				\$ 64.20			\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00
					\$ 90.00			N/A	N/A	N/A	\$ -	N/A	N/A	N/A	\$ 60.00
		\$ 3,252.53			\$ 4,115.00	\$ 5,292.00		\$ 5,398.80	\$ 3,372.87	\$ 4,183.61	\$ -	\$ 3,004.95	\$ 2,364.34	\$ 2,256.06	\$ 2,494.26
	\$ 4,109.00				\$ 4,865.40			N/A	\$ 7,709.45	\$ 4,865.40	\$ -	N/A	N/A	\$ 5,600.00	N/A
	\$ 3,450.00	\$ 4,242.42			\$ 8,377.56			\$ 7,395.69	\$ 4,502.21	\$ 5,584.02	\$ -	\$ 3,587.71	\$ 2,941.75	\$ 2,968.85	\$ 3,203.15
					\$ 447.00			\$ 493.63	\$ 822.35	\$ 462.04	\$ -	\$ 376.03	\$ 549.04	\$ 359.54	\$ 314.58
	\$ 72.00				\$ 49.59			\$ 590.28	\$ 950.00	\$ 677.63	\$ -	N/A	\$ 697.25	\$ 780.83	\$ 621.76
	\$ 83.20				\$ 64.20			\$ 200.00	\$ 85.00	\$ 98.00	\$ -	\$ 81.72	\$ 36.82	\$ 63.06	\$ 48.24
								\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00
								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 504.54	N/A
		\$ 3,252.53			\$ 4,115.00	\$ 5,292.00		\$ 5,398.80	\$ 3,372.87	\$ 4,183.61	\$ -	\$ 3,004.95	\$ 2,364.34	\$ 2,256.06	\$ 2,494.26
		\$ 4,747.47			\$ 4,115.00	\$ 5,292.00		\$ 3,760.00	\$ 5,519.32	\$ 4,534.66	\$ -	\$ 3,455.00	\$ 2,706.21	\$ 3,770.92	\$ 3,118.18
	\$ 4,109.00				\$ 4,865.40			N/A	\$ 7,709.45	\$ 4,865.40	\$ -	N/A	N/A	\$ 5,600.00	N/A
								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 5,471.43	\$ 15,543.85
								N/A	N/A	N/A	\$ -	N/A	N/A	N/A	N/A
	\$ 2,750.00		\$ 3,711.10		\$ 5,194.80			\$ 4,200.00	\$ 3,346.06	\$ 4,142.07	\$ -	\$ 2,778.29	\$ 2,595.12	\$ 2,448.97	\$ 2,417.68
	\$ 3,450.00	\$ 4,242.42			\$ 8,377.56			\$ 7,395.69	\$ 4,502.21	\$ 5,584.02	\$ -	\$ 3,587.71	\$ 2,941.75	\$ 2,968.85	\$ 3,203.15
TOTAL								\$ 2,038,085	\$ 6,232,801	\$ 15,889,608	\$ 4,815,438	\$ 5,155,609	\$ 1,815,753	\$ 63,377,492	\$ 2,044,110

CATEGORY		
DRA 1	4 MILE ROUNDABOUT TO 3 MILE CR	\$ 230,450.00
DRA 2	3 MILE CREEK TO LOW POINT	\$ 65,400.00
DRA 3	LOW POINT TO HIGH POINT	\$ 31,700.00
DRA 4	HIGH POINT TO CITY PARCEL	\$ 324,350.00
		\$ 651,900.00

REFERENCE PROJECTS			
REF. 1	EL JEBEL ROUNDABOUT, EAGLE COUNTY	REF. 5	I-70 EXIT 49, MESA COUNTY
REF. 2	BASALT UNDERPASS	REF. 6	WEST MIDLAND TRAIL, GLENWOOD SPRINGS
REF. 3	I-70 VAIL UNDERPASS, EAGLE COUNTY	REF. 7	SH-82 GRAND AVENUE BRIDGE, GLENWOOD SPRINGS
REF. 4	I-70 EAST VAIL CHAIN UP, EAGLE COUNTY	REF. 8	SH-133 ROCKFALL MITIGATION

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Item 5f Roundabout to Old Cardiff Bridge Road
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 170,000	10.8%
Earthwork (Excavation, Embankment)	\$ 32,000	2.0%
Erosion Control	\$ 63,500	4.0%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 767,000	48.7%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ 12,000	0.8%
Drainage (Pipes, Inlets, Manholes)	\$ 327,500	20.8%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ -	0.0%
Rockfall Mitigation (Mesh above Walls)	\$ -	0.0%
Traffic Control during Construction	\$ 182,500	11.6%
Signing and Striping	\$ 21,500	1.4%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 1,576,000 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 236,500	15.0%
Mobilization	\$ 94,500	6.0%
Lighting	\$ -	0.0%
Utilities (Electrical)	\$ 6,000	0.4%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 16,000	1.0%
Construction Management (Inspection & Testing)	\$ 79,000	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 432,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$2,008,000
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA							
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010
REM	1	201-00000	CLEARING AND GRUBBING	LS	1	\$ 6,000.00	\$ 6,000.00	\$ 10,000.00	\$ 17,250.00		\$ 90,000.00		\$ 10,900.00	\$ 15,498.00		\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99
REM	2	202-00008	TREE TRIMMING	HR	10	\$ 200.00	\$ 2,000.00									\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69
REM	4	202-00019	REMOVAL OF INLET	EACH	5	\$ 750.00	\$ 3,750.00		\$ 642.50	\$ 757.58		\$ 900.00	\$ 1,188.00		\$ 746.22	\$ 1,020.87	\$ 918.20	\$ -	\$ 678.21	\$ 567.00	\$ 415.61	\$ 500.06	
UTIL	6	202-00035	REMOVAL OF PIPE	LF	65	\$ 25.00	\$ 1,625.00	\$ 21.00	\$ 17.00	\$ 12.12		\$ 10.75	\$ 57.56		\$ 23.27	\$ 27.28	\$ 28.50	\$ -	\$ 16.55	\$ 17.16	\$ 16.83	\$ 15.27	
REM	8	202-00200	REMOVAL OF SIDEWALK	SY	693	\$ 20.00	\$ 13,860.00		\$ 15.13	\$ 9.09			\$ 17.12		\$ 19.71	\$ 13.18	\$ 13.54	\$ -	\$ 8.74	\$ 13.29	\$ 8.37	\$ 7.18	
REM	9	202-00202	REMOVAL OF GUTTER	LF	224	\$ 15.00	\$ 3,360.00					\$ 19.70			\$ 12.85	\$ 13.46	\$ 12.40	\$ -	\$ 8.84	\$ 5.03	\$ 3.33	\$ 11.02	
REM	10	202-00203	REMOVAL OF CURB AND GUTTER	LF	1594	\$ 15.00	\$ 23,910.00	\$ 12.60	\$ 7.63	\$ 3.03		\$ 47.00	\$ 8.37		\$ 7.80	\$ 6.80	\$ 7.33	\$ -	\$ 4.89	\$ 4.69	\$ 3.54	\$ 3.90	
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	8977	\$ 10.00	\$ 89,770.00	\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00	\$ 18.50	\$ 11.23		\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34	
REM	13	202-00495	REMOVAL OF PORTIONS OF PRESENT STRUCTURE	LS	1	\$ 10,000.00	\$ 10,000.00								\$ 15,542.00	\$ 50,885.64	\$ 157,954.25	\$ -	\$ 9,091.94	\$ 18,136.90	\$ 17,665.00	\$ 22,801.21	
REM	14	202-00810	REMOVAL OF GROUND SIGN	EACH	3	\$ 150.00	\$ 450.00	\$ 130.00	\$ 116.50	\$ 255.10	\$ 105.39		\$ 48.60		\$ 95.85	\$ 84.45	\$ 84	\$ -	\$ 61.76	\$ 45.60	\$ 102.24	\$ 77.36	
REM	15	202-00889	REMOVAL OF DETECTABLE WARNING	EACH	2	\$ 500.00	\$ 1,000.00							\$ 637.50	N/A	N/A	\$ -	N/A	N/A	N/A	N/A	N/A	
REM	17	202-01130	REMOVAL OF GUARDRAIL TYPE 3	LF	56	\$ 5.00	\$ 280.00			\$ 5.33	\$ 4.92		\$ 3.13		\$ 4.11	\$ 3.77	\$ 3.33	\$ -	\$ 2.33	\$ 2.30	\$ 2.39	\$ 1.96	
EW	20	203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	1000	\$ 30.00	\$ 30,000.00	\$ 31.35		\$ 21.21	\$ 54.87	\$ 28.60	\$ 29.80		\$ 37.13	\$ 10.12	\$ 16.72	\$ -	\$ 9.45	\$ 8.37	\$ 6.38	\$ 9.31	
EW	21	203-00100	MUCK EXCAVATION	CY	40	\$ 50.00	\$ 2,000.00	\$ 36.00		\$ 36.36	\$ 44.03		\$ 21.46		\$ 39.74	\$ 21.46	\$ 19.82	\$ -	\$ 15.45	\$ 11.26	\$ 13.22	\$ 12.56	
UTIL	22	203-01597	POTHOLING	HR	20	\$ 225.00	\$ 4,500.00	\$ 211.00	\$ 197.50	\$ 237.37	\$ 230.77	\$ 176.63	\$ 239.76		\$ 216.37	\$ 233.60	\$ 217.36	\$ -	\$ 208.31	\$ 145.15	\$ 177.98	\$ 157.89	
EC	28	207-00205	TOPSOIL	CY	500	\$ 25.00	\$ 12,500.00	\$ 27.00	\$ 8.75			\$ 52.58	\$ 80.46		\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95	
EC	29	207-00210	STOCKPILE TOPSOIL	CY	500	\$ 10.00	\$ 5,000.00		\$ 9.43						\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29	
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	5000	\$ 5.00	\$ 25,000.00		\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 5.00	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68		
EC	33	208-00045	CONCRETE WASHOUT STRUCTURE	EACH	2	\$ 2,500.00	\$ 5,000.00	\$ 1,160.00	\$ 1,650.00	\$ 2,083.26	\$ 1,492.66	\$ 2,123.33	\$ 650.00	\$ 10,265.64	\$ 2,656.73	\$ 1,247.60	\$ 1,553.04	\$ -	\$ 781.96	\$ 761.80	\$ 781.81	\$ 605.82	
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	2	\$ 2,000.00	\$ 4,000.00	\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57		\$ 1,063.80		\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39	
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	60	\$ 200.00	\$ 12,000.00								\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A	
REM	37	210-00010	RESET MAILBOX STRUCTURE	EACH	2	\$ 200.00	\$ 400.00			\$ 408.16					\$ 3,627.16	\$ 183.75	\$ 237.49	\$ -	\$ 207.93	\$ 303.98	\$ 218.00	\$ 107.62	
REM	38	210-00050	RESET FIRE HYDRANT	EACH	1	\$ 6,000.00	\$ 6,000.00						\$ 9,666.00		N/A	\$ 5,939.04	\$ 6,971.60	\$ -	\$ 3,319.83	\$ 6,000.00	N/A	\$ 3,377.60	
REM	40	210-00825	RESET FLASHING BEACON	EACH	1	\$ 500.00	\$ 500.00				\$ 1,957.28				\$ 776.18	\$ 1,957.14	\$ 2,225.00	\$ -	\$ 1,562.88	\$ 1,741.76	\$ 1,160.00	\$ 100.00	
REM	41	210-04010	ADJUST MANHOLE	EACH	8	\$ 1,000.00	\$ 8,000.00	\$ 885.00	\$ 1,757.50			\$ 600.00	\$ 612.36		\$ 859.55	\$ 594.38	\$ 795.07	\$ -	\$ 497.45	\$ 467.20	\$ 549.28	\$ 419.43	
REM	43	210-04050	ADJUST VALVE BOX	EACH	1	\$ 500.00	\$ 500.00	\$ 362.00				\$ 232.00	\$ 378.00		\$ 552.58	\$ 281.13	\$ 410.55	\$ -	\$ 342.32	\$ 273.90	\$ 147.84	\$ 177.13	
SURF	48	304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	1930	\$ 30.00	\$ 57,897.00	\$ 36.00							\$ 24.49	\$ 26.75	\$ 20.43	\$ -	\$ 20.09	\$ 24.32	\$ 15.23	\$ 16.17	
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	3105	\$ 40.00	\$ 124,188.00	\$ 44.00	\$ 34.25	\$ 35.31		\$ 43.79	\$ 34.34		\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29	
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	1903	\$ 120.00	\$ 228,312.00	\$ 166.00					\$ 108.87		\$ 76.93	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41	
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	698	\$ 2.00	\$ 1,396.50								\$ 1.74	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07	
SURF	53	412-00600	CONCRETE PAVEMENT (6 INCH)	SY	69	\$ 100.00	\$ 6,900.00	\$ 85.00				\$ 68.55	\$ 77.72		\$ 141.90	\$ 66.95	\$ 26.83	\$ -	\$ 44.87	\$ 47.53	\$ 18.27	\$ 47.51	
DRA	63	603-30018	18 INCH STEEL END SECTION	EACH	2	\$ 350.00	\$ 700.00					\$ 333.00			\$ 327.87	\$ 675.74	\$ 380.21	\$ -	\$ 353.02	\$ 267.56	\$ 338.13	\$ 270.03	
DRA	65	603-30030	30 INCH STEEL END SECTION	EACH	1	\$ 600.00	\$ 600.00					\$ 49.59			\$ 590.28	\$ 950.00	\$ 677.63	\$ -	N/A	\$ 697.25	\$ 780.83	\$ 621.76	
DRA	67	603-50018	18 INCH PLASTIC PIPE	LF	531	\$ 100.00	\$ 53,100.00		\$ 72.00			\$ 49.59			\$ 200.00	\$ 85.00	\$ 98.00	\$ -	\$ 81.72	\$ 36.82	\$ 63.06	\$ 48.24	
DRA	68	603-50024	24 INCH PLASTIC PIPE	LF	338	\$ 100.00	\$ 33,800.00		\$ 83.20			\$ 64.20			\$ 60.00	N/A	\$ 98.56	\$ -	N/A	N/A	N/A	\$ 48.00	
DRA	69	603-50030	30 INCH PLASTIC PIPE	LF	174	\$ 150.00	\$ 26,100.00								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 504.54	N/A	
DRA	70	603-50036	36 INCH PLASTIC PIPE	LF	505	\$ 150.00	\$ 75,750.00					\$ 90.00			N/A	N/A	N/A	\$ -	N/A	N/A	N/A	\$ 60.00	
DRA	71	604-00305	INLET TYPE C (5 FOOT)	EACH	4	\$ 4,500.00	\$ 18,000.00			\$ 3,252.53		\$ 4,115.00	\$ 5,292.00		\$ 7,980.00	\$ 3,372.87	\$ 4,183.61	\$ -	\$ 3,004.95	\$ 2,364.34	\$ 2,256.06	\$ 2,494.26	
DRA	73	604-00510	INLET TYPE D (10 FOOT)	EACH	1	\$ 5,500.00	\$ 5,500.00			\$ 5,303.03					\$ 12,955.65	\$ 7,601.35	\$ 3,982.03	\$ -	\$ 4,587.80	\$ 5,074.32	\$ 7,090.65	\$ 4,212.50	
DRA	74	604-19105	INLET TYPE R L 5 (5 FOOT)	EACH	1	\$ 6,000.00	\$ 6,000.00		\$ 4,490.00	\$ 4,414.14					\$ 5,721.43	\$ 4,736.15	\$ 5,087.03	\$ -	\$ 3,598.71	\$ 4,065.43	\$ 4,300.76	\$ 3,349.44	
DRA	75	604-19110	INLET TYPE R L 5 (10 FOOT)	EACH	1	\$ 7,000.00	\$ 7,000.00			\$ 5,555.56			\$ 11,735.28		\$ 6,841.00	\$ 6,607.98	\$ 8,384.20	\$ -	\$ 5,038.52	\$ 5,634.46	\$ 4,670.77	\$ 4,235.88	
DRA	76	604-19115	INLET TYPE R L 5 (15 FOOT)	EACH	1	\$ 10,000.00	\$ 10,000.00			\$ 6,393.94			\$ 13,643.64		N/A	N/A	\$ 11,376.27	\$ -	N/A	N/A	\$ 4,700.00	N/A	
DRA	77	604-19205	INLET TYPE R L 10 (5 FOOT)	EACH	1	\$ 8,000.00	\$ 8,000.00								\$ 7,833.33	\$ 7,255.00	\$ 6,469.00	\$ -	\$ 5,409.74	\$ 4,655.83	\$ 5,276.84	\$ 4,351.17	
DRA	78	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	15	\$ 4,000.00	\$ 60,000.00		\$ 4,109.00				\$ 4,865.40		\$ 7,709.45	\$ 4,865.40	\$ -	N/A	N/A	\$ 5,600.00	N/A	N/A	
DRA	79	604-25011	VANE GRATE INLET SPECIAL (10 FOOT)	EACH	2	\$ 5,000.00	\$ 10,000.00								N/A	N/A	N/A	\$ -	N/A	N/A	\$ 5,471.43	\$ 15,543.85	
DRA	81	604-30005	MANHOLE SLAB BASE (5 FOOT)	EACH	2	\$ 4,000.00	\$ 8,000.00		\$ 2,750.00		\$ 3,711.10		\$ 5,194.80		\$ 4,200.00	\$ 3,346.06	\$ 4,142.07	\$ -	\$ 2,778.29	\$ 2,595.12	\$ 2,448.97	\$ 2,417.68	
DRA	82	604-30010	MANHOLE SLAB BASE (10 FOOT)	EACH	1	\$ 5,000.00	\$ 5,000.00		\$ 3,450.00	\$ 4,242.42			\$ 8,377.56		\$ 7,395.69	\$ 4,502.21	\$ 5,584.02	\$ -	\$ 3,587.71	\$ 2,941.75	\$ 2,968.85	\$ 3,203.15	
RDWY	86	606-10200	BRIDGE RAIL (SPECIAL)	LF	20	\$ 150.00	\$ 3,000.00								\$ 104.16	\$ 49.00	N/A	\$ -	N/A	N/A	N/A	\$ 37.00	
SURF	93	608-00000	CONCRETE SIDEWALK	SY	1872	\$ 60.00	\$ 112,320.00	\$ 60.00	\$ 56.10			\$ 65.78	\$ 57.63		\$ 49.83	\$ 54.86	\$ 33.98	\$ -	\$ 35.47	\$ 36.34	\$ 21.58	\$ 29.02	
SURF	95	608-00010	CONCRETE CURB RAMP	SY	215	\$ 150.00	\$ 32,250.00	\$ 95.25</															

UTIL	UTILITIES	\$	6,125.00	
MISC	MISCELLANEOUS	\$	-	
MOB	MOBILIZATION	\$	-	0% OF ALL CONSTRUCTION ITEMS
FA	FORCE ACCOUNT	\$	-	0% OF ALL CONSTRUCTION ITEMS
		\$	<u>1,581,571.50</u>	

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Item 5g Station 35+50 to Old Cardiff Bridge Road
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 37,000	5.9%
Earthwork (Excavation, Embankment)	\$ 13,000	2.1%
Erosion Control	\$ 23,500	3.7%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 143,000	22.7%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ 16,000	2.5%
Drainage (Pipes, Inlets, Manholes)	\$ -	0.0%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ 295,000	46.8%
Rockfall Mitigation (Mesh above Walls)	\$ -	0.0%
Traffic Control during Construction	\$ 102,500	16.3%
Signing and Striping	\$ 500	0.1%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 630,500 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 94,500	15.0%
Mobilization	\$ 38,000	6.0%
Lighting	\$ 10,500	1.7%
Utilities (Electrical)	\$ 14,000	2.2%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 6,500	1.0%
Construction Management (Inspection & Testing)	\$ 31,500	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 195,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$825,500
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA												
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010					
REM	1	201-00000	CLEARING AND GRUBBING	LS	1	\$ 3,000.00	\$ 3,000.00				\$ 90,000.00			\$ 10,900.00	\$ 15,498.00			\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99			
REM	2	202-00008	TREE TRIMMING	HOUR	10	\$ 200.00	\$ 2,000.00											\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69			
REM	5	202-00031	REMOVAL OF FIRE HYDRANT	EACH	1	\$ 4,000.00	\$ 4,000.00											\$ 4,200.00	\$ 2,064.60	\$ 1,144.00	\$ -	\$ 697.84	\$ 1,664.36	\$ 500.00	\$ 633.63			
REM	7	202-00155	REMOVAL OF WALL	LF	209	\$ 50.00	\$ 10,450.00							\$ 24.00				\$ 22.77	\$ 31.64	\$ 54.34	\$ -	\$ 52.00	\$ 14.50	\$ 47.72	\$ 17.52			
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	1478	\$ 10.00	\$ 14,780.00							\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00	\$ 18.50	\$ 11.23	\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34	
REM	14	202-00810	REMOVAL OF GROUND SIGN	EACH	2	\$ 150.00	\$ 300.00							\$ 130.00	\$ 116.50	\$ 255.10	\$ 105.39		\$ 48.60	\$ 95.85	\$ 84.45	\$ 84	\$ -	\$ 61.76	\$ 45.60	\$ 102.24	\$ 77.36	
REM	16	202-01000	REMOVAL OF FENCE	LF	205	\$ 3.00	\$ 615.00							\$ -		\$ 6.80		\$ 2.85	\$ 8.80	\$ 1.09	\$ 1.60	\$ 1.53	\$ -	\$ 1.09	\$ 0.58	\$ 0.74	\$ 0.46	
REM	17	202-01130	REMOVAL OF GUARDRAIL TYPE 3	LF	164	\$ 5.00	\$ 820.00									\$ 5.33	\$ 4.92		\$ 3.13	\$ 4.11	\$ 3.77	\$ 3.33	\$ -	\$ 2.33	\$ 2.30	\$ 2.39	\$ 1.96	
EW	20	203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	400	\$ 30.00	\$ 12,000.00							\$ 31.35		\$ 21.21	\$ 54.87	\$ 28.60	\$ 29.80	\$ 37.13	\$ 10.12	\$ 16.72	\$ -	\$ 9.45	\$ 8.37	\$ 6.38	\$ 9.31	
EW	21	203-00100	MUCK EXCAVATION	CY	20	\$ 50.00	\$ 1,000.00							\$ 36.00		\$ 36.36	\$ 44.03		\$ 46.33	\$ 39.74	\$ 21.46	\$ 19.82	\$ -	\$ 15.45	\$ 11.26	\$ 13.22	\$ 12.56	
UTIL	22	203-01597	POTHOLING	HOUR	10	\$ 225.00	\$ 2,250.00							\$ 211.00	\$ 197.50	\$ 237.37	\$ 230.77		\$ 176.63	\$ 239.76	\$ 216.37	\$ 233.60	\$ 217.36	\$ -	\$ 208.31	\$ 145.15	\$ 177.98	\$ 157.89
WALL	24	206-00000	STRUCTURE EXCAVATION	CY	549	\$ 30.00	\$ 16,470.00								\$ 22.75	\$ 30.30	\$ 27.48	\$ 34.00	\$ 41.77	\$ 24.80	\$ 17.72	\$ 31.55	\$ -	\$ 9.87	\$ 13.32	\$ 7.36	\$ 7.79	
WALL	25	206-00100	STRUCTURE BACKFILL (CLASS 1)	CY	537	\$ 50.00	\$ 26,850.00									\$ 42.42	\$ 64.58	\$ 57.26	\$ 65.14	\$ 52.68	\$ 35.76	\$ 46.20	\$ -	\$ 20.51	\$ 28.37	\$ 13.94	\$ 16.68	
WALL	26	206-00200	STRUCTURE BACKFILL (CLASS 2)	CY	27	\$ 45.00	\$ 1,215.00								\$ 39.00	\$ 21.21	\$ 28.11	\$ 170.00	\$ 35.68	\$ 33.48	\$ 36.51	\$ 31.54	\$ -	\$ 17.84	\$ 19.85	\$ 10.60	\$ 16.57	
WALL	27	206-00520	FILTER MATERIAL (CLASS B)	CY	147	\$ 90.00	\$ 13,230.00													\$ 89.38	\$ 85.86	\$ 126.97	\$ -	N/A	\$ 47.13	\$ 35.98	\$ 36.58	
EC	28	207-00205	TOPSOIL	CY	100	\$ 25.00	\$ 2,500.00							\$ 27.00	\$ 8.75		\$ 52.58	\$ 49.50	\$ 80.46	\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95	
EC	29	207-00210	STOCKPILE TOPSOIL	CY	100	\$ 10.00	\$ 1,000.00								\$ 9.43					\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29	
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	1000	\$ 5.00	\$ 5,000.00								\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 3.76	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68	
EC	33	208-00045	CONCRETE WASHOUT STRUCTURE	EACH	2	\$ 2,500.00	\$ 5,000.00							\$ 1,160.00	\$ 1,650.00	\$ 2,083.26	\$ 1,492.66	\$ 2,123.33	\$ 650.00	\$ 10,265.64	\$ 2,656.73	\$ 1,247.60	\$ 1,553.04	\$ -	\$ 781.96	\$ 761.80	\$ 781.81	\$ 605.82
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	2	\$ 2,000.00	\$ 4,000.00							\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57		\$ 1,063.80	\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39	
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	30	\$ 200.00	\$ 6,000.00													\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A	
REM	43	210-04050	ADJUST VALVE BOX	EACH	2	\$ 500.00	\$ 1,000.00							\$ 362.00				\$ 232.00	\$ 378.00	\$ 552.58	\$ 281.13	\$ 410.55	\$ -	\$ 342.32	\$ 273.90	\$ 147.84	\$ 177.13	
SURF	48	304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	387	\$ 30.00	\$ 11,623.50							\$ 36.00						\$ 24.49	\$ 26.75	\$ 20.43	\$ -	\$ 20.09	\$ 24.32	\$ 15.23	\$ 16.17	
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	617	\$ 40.00	\$ 24,676.00							\$ 44.00	\$ 34.25		\$ 35.31	\$ 43.79	\$ 34.34	\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29	
WALL	50	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	122	\$ 40.00	\$ 4,880.00							\$ 44.00	\$ 34.25		\$ 35.31	\$ 43.79	\$ 34.34	\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29	
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	357	\$ 120.00	\$ 42,840.00							\$ 166.00					\$ 108.87	\$ 76.93	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41	
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	129	\$ 2.00	\$ 258.30													\$ 1.74	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07	
SURF	53	412-00600	CONCRETE PAVEMENT (6 INCH)	SY	2	\$ 100.00	\$ 200.00							\$ 85.00				\$ 68.55	\$ 77.72	\$ 141.90	\$ 66.95	\$ 26.83	\$ -	\$ 44.87	\$ 47.53	\$ 18.27	\$ 47.51	
WALL	56	420-00113	GEOTEXTILE (DRAINAGE) (CLASS 2)	SY	668	\$ 5.00	\$ 3,340.00												\$ 5.40	\$ 5.46	\$ 2.65	\$ 4.94	\$ -	\$ 2.61	\$ 3.12	\$ 8.83	\$ 1.09	
WALL	57	504-04410	BLOCK FACING	SF	3642	\$ 40.00	\$ 145,680.00									\$ 31.08		\$ 57.00	\$ 64.15	\$ 84.00	\$ 52.19	\$ 36.93	\$ -	\$ 10.46	\$ 24.75	\$ 13.06	\$ 15.11	
WALL	59	514-00200	PEDESTRIAN RAILING (STEEL)	LF	477	\$ 150.00	\$ 71,550.00								\$ 105.75				\$ 186.00	N/A	\$ 172.00	\$ 182.42	\$ -	\$ 118.80	\$ 129.66	\$ 146.00	\$ 160.52	
WALL	83	605-00040	4 INCH PERFORATED PIPE UNDERDRAIN	LF	792	\$ 15.00	\$ 11,880.00									\$ 16.16				\$ 13.35	\$ 18.88	\$ 15.25	\$ -	\$ 13.31	\$ 10.53	\$ 29.11	\$ 7.70	
RDWY	84	606-00301	GUARDRAIL TYPE 3 (6-3 POST SPACING)	LF	425	\$ 30.00	\$ 12,750.00								\$ 57.50	\$ 33.71	\$ 51.67		\$ 20.36	\$ 25.81	\$ 28.30	\$ 24.21	\$ -	\$ 17.81	\$ 15.86	\$ 15.51	\$ 13.94	
RDWY	85	606-02003	END ANCHORAGE (NONFLARED)	EACH	1	\$ 3,000.00	\$ 3,000.00								\$ 3,033.50	\$ 4,228.43			\$ 2,111.40	\$ 2,508.31	\$ 3,045.95	\$ 2,617.76	\$ 2,487.29	\$ -	\$ 2,185.39	\$ 1,970.14	\$ 1,911.86	\$ 1,770.70
SURF	94	608-00005	CONCRETE SIDEWALK (SPECIAL)	SY	314	\$ 80.00	\$ 25,120.00							\$ 153.00		\$ 53.65			\$ 60.61	N/A	\$ 52.44	\$ 60.11	\$ -	\$ 44.35	\$ 92.68	N/A	\$ 45.00	
SURF	95	608-00010	CONCRETE CURB RAMP	SY	9	\$ 150.00	\$ 1,350.00							\$ 95.25		\$ 147.97		\$ 124.25	\$ 244.84	\$ 186.00	\$ 140.87	\$ 139.04	\$ -	\$ 108.45	\$ 90.99	\$ 92.04	\$ 79.60	
SURF	96	608-00015	DETECTABLE WARNINGS	SF	12	\$ 60.00	\$ 720.00							\$ 57.10	\$ 63.00	\$ 65.51		\$ 76.74	\$ 62.75	\$ 114.80	\$ 57.77	\$ 74.82	\$ -	\$ 45.34	\$ 51.67	\$ 36.03	\$ 44.81	
SURF	99	609-21020	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	853	\$ 35.00	\$ 29,855.00								\$ 40.00	\$ 23.72			\$ 38.85	\$ 33.50	\$ 25.00	\$ 22.08	\$ -	\$ 16.69	\$ 16.05	\$ 13.18	\$ 13.21	
SURF	100	609-21021	CURB AND GUTTER TYPE 2 (SECTION II-M)	LF	142	\$ 40.00	\$ 5,680.00												\$ 38.88	\$ 37.88	\$ 25.95	\$ 18.30	\$ -	\$ 19.40	\$ 18.84	\$ 16.40	\$ 10.44	
SURF	101	609-24004	GUTTER TYPE 2 (4 FOOT)	LF	17	\$ 50.00	\$ 850.00							\$ 45.75					\$ 43.36	\$ 48.27	\$ 47.06	\$ 43.30	\$ -	\$ 23.45	\$ 31.23	\$ 22.39	\$ 21.23	
UTIL	106	613-01202	2 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	254	\$ 2.50	\$ 635.00								\$ 13.00					N/A	\$ 19.75	N/A	\$ -	N/A	\$ 16.51	N/A	N/A	
UTIL	107	613-01302	3 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	254	\$ 2.50	\$ 635.00													N/A	\$ 61.00	N/A	\$ -	N/A	N/A	N/A	N/A	
UTIL	108	613-01602	6 INCH ELECTRICAL CONDUIT (PLASTIC)(INSTALL ONLY)	LF	254	\$ 2.50	\$ 635.00									\$ 11.18				N/A	\$ 17.00	\$ 11.96	\$ -	N/A	\$ 20.00	N/A	N/A	
UTIL	110	613-08000	VAULT (INSTALL ONLY)	EACH	1	\$ 5,000.00	\$ 5,000.00									\$ 3,556.63			\$ 6,893.78	\$ 5,325.00	N/A	\$ 5,040.87	\$ -	N/A	N/A	N/A	N/A	
LIGHT	111	613-01202	2 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	510	\$ 2.50	\$ 1,275.00								\$ 13.00					N/A	\$ 19.75	N/A	\$ -	N/A	\$ 16.51	N/A	N/A	
LIGHT	112	613-30300	LIGHT STANDARD ALUMINUM (30 FOOT)	EACH	2	\$ 3,000.00	\$ 6,000.00													N/A	\$ 1,800.00	\$ 2,500.00	\$ -	\$ 4,225.00	N/A	N/A	\$ 1,730.00	
LIGHT	113	613-40010	LIGHT STANDARD FOUNDATION	EACH	2	\$ 1,500.00																						

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Item 5h Begin Project to Station 35+50
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 149,000	3.8%
Earthwork (Excavation, Embankment)	\$ 62,000	1.6%
Erosion Control	\$ 94,500	2.4%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 969,000	24.5%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ 94,000	2.4%
Drainage (Pipes, Inlets, Manholes)	\$ 346,000	8.8%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ 1,576,500	39.9%
Rockfall Mitigation (Mesh above Walls)	\$ 305,500	7.7%
Traffic Control during Construction	\$ 348,000	8.8%
Signing and Striping	\$ 4,000	0.1%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 3,948,500 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 592,500	15.0%
Mobilization	\$ 237,000	6.0%
Lighting	\$ 66,000	1.7%
Utilities (Electrical)	\$ 39,000	1.0%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 39,500	1.0%
Construction Management (Inspection & Testing)	\$ 197,500	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 1,171,500 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$5,120,000
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE	
						UNIT COST	EXTENDED COST
REM	1	201-00000	CLEARING AND GRUBBING	LS	1	\$ 16,000.00	\$ 16,000.00
REM	2	202-00008	TREE TRIMMING	HOURL	5	\$ 200.00	\$ 1,000.00
REM	5	202-00031	REMOVAL OF FIRE HYDRANT	EACH	3	\$ 4,000.00	\$ 12,000.00
UTIL	6	202-00035	REMOVAL OF PIPE	LF	39	\$ 25.00	\$ 975.00
REM	8	202-00200	REMOVAL OF SIDEWALK	SY	9	\$ 20.00	\$ 180.00
REM	10	202-00203	REMOVAL OF CURB AND GUTTER	LF	329	\$ 15.00	\$ 4,935.00
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	8843	\$ 10.00	\$ 88,430.00
REM	14	202-00810	REMOVAL OF GROUND SIGN	EACH	6	\$ 150.00	\$ 900.00
REM	17	202-01130	REMOVAL OF GUARDRAIL TYPE 3	LF	535	\$ 5.00	\$ 2,675.00
REM	18	202-01140	REMOVAL OF GUARDRAIL TYPE 4	LF	1274	\$ 15.00	\$ 19,110.00
REM	19	202-05026	SAWING ASPHALT MATERIAL (6 INCH)	LF	23	\$ 5.00	\$ 115.00
EW	20	203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	2000	\$ 30.00	\$ 60,000.00
EW	21	203-00100	MUCK EXCAVATION	CY	40	\$ 50.00	\$ 2,000.00
UTIL	22	203-01597	POTHOLING	HOURL	10	\$ 225.00	\$ 2,250.00
ROCK	23	203-02300	ROCK SCALER	HOURL	40	\$ 200.00	\$ 8,000.00
WALL	24	206-00000	STRUCTURE EXCAVATION	CY	3483	\$ 30.00	\$ 104,490.00
WALL	25	206-00100	STRUCTURE BACKFILL (CLASS 1)	CY	1766	\$ 50.00	\$ 88,300.00
WALL	26	206-00200	STRUCTURE BACKFILL (CLASS 2)	CY	98	\$ 45.00	\$ 4,410.00
WALL	27	206-00520	FILTER MATERIAL (CLASS B)	CY	522	\$ 90.00	\$ 46,980.00
EC	28	207-00205	TOPSOIL	CY	700	\$ 25.00	\$ 17,500.00
EC	29	207-00210	STOCKPILE TOPSOIL	CY	700	\$ 10.00	\$ 7,000.00
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	7000	\$ 5.00	\$ 35,000.00
EC	33	208-00045	CONCRETE WASHOUT STRUCTURE	EACH	2	\$ 2,500.00	\$ 5,000.00
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	2	\$ 2,000.00	\$ 4,000.00
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	130	\$ 200.00	\$ 26,000.00
REM	39	210-00810	RESET GROUND SIGN	EACH	2	\$ 300.00	\$ 600.00
REM	42	210-04020	MODIFY INLET	EACH	2	\$ 750.00	\$ 1,500.00
REM	43	210-04050	ADJUST VALVE BOX	EACH	3	\$ 500.00	\$ 1,500.00
SURF	48	304-02000	AGGREGATE BASE COURSE (CLASS 2)	TON	2742	\$ 30.00	\$ 82,246.50
SURF	49	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	4231	\$ 40.00	\$ 169,220.00
WALL	50	304-06000	AGGREGATE BASE COURSE (CLASS 6)	TON	442	\$ 40.00	\$ 17,680.00
SURF	51	403-34721	HOT MIX ASPHALT (GRADING SX) (75) (PG 58-28)	TON	2522	\$ 120.00	\$ 302,652.00
SURF	52	411-10216	EMULSIFIED ASPHALT (CRS-2P)	GAL	918	\$ 2.00	\$ 1,835.40
SURF	53	412-00600	CONCRETE PAVEMENT (6 INCH)	SY	5	\$ 100.00	\$ 500.00
WALL	56	420-00113	GEOTEXTILE (DRAINAGE) (CLASS 2)	SY	2418	\$ 5.00	\$ 12,090.00
WALL	57	504-04410	BLOCK FACING	SF	13162	\$ 40.00	\$ 526,480.00
WALL	58	504-06400	SOIL NAIL WALL	SF	6479	\$ 30.00	\$ 194,370.00
WALL	59	514-00200	PEDESTRIAN RAILING (STEEL)	LF	2520	\$ 150.00	\$ 378,000.00
DRA	64	603-30024	24 INCH STEEL END SECTION	EACH	2	\$ 500.00	\$ 1,000.00
DRA	65	603-30030	30 INCH STEEL END SECTION	EACH	3	\$ 600.00	\$ 1,800.00
DRA	67	603-50018	18 INCH PLASTIC PIPE	LF	360	\$ 100.00	\$ 36,000.00
DRA	68	603-50024	24 INCH PLASTIC PIPE	LF	520	\$ 100.00	\$ 52,000.00
DRA	69	603-50030	30 INCH PLASTIC PIPE	LF	1167	\$ 150.00	\$ 175,050.00
DRA	71	604-00305	INLET TYPE C (5 FOOT)	EACH	2	\$ 4,500.00	\$ 9,000.00
DRA	72	604-00310	INLET TYPE C (10 FOOT)	EACH	6	\$ 5,000.00	\$ 30,000.00
DRA	78	604-25006	VANE GRATE INLET SPECIAL (5 FOOT)	EACH	4	\$ 4,000.00	\$ 16,000.00
DRA	79	604-25011	VANE GRATE INLET SPECIAL (10 FOOT)	EACH	3	\$ 5,000.00	\$ 15,000.00
DRA	80	604-25016	VANE GRATE INLET SPECIAL (15 FOOT)	EACH	1	\$ 6,000.00	\$ 6,000.00
DRA	81	604-30005	MANHOLE SLAB BASE (5 FOOT)	EACH	1	\$ 4,000.00	\$ 4,000.00
WALL	83	605-00040	4 INCH PERFORATED PIPE UNDERDRAIN	LF	3980	\$ 15.00	\$ 59,700.00
RDWY	84	606-00301	GUARDRAIL TYPE 3 (6-3 POST SPACING)	LF	3041	\$ 30.00	\$ 91,230.00
RDWY	85	606-02003	END ANCHORAGE (NONFLARED)	EACH	1	\$ 3,000.00	\$ 3,000.00
ROCK	89	607-55040	MESH ANCHOR	EACH	307	\$ 400.00	\$ 122,800.00
ROCK	90	607-55050	MESH ANCHOR (SPECIAL)	EACH	143	\$ 950.00	\$ 135,850.00
ROCK	91	607-55103	CABLE NET (SPECIAL)	SF	6479	\$ 6.00	\$ 38,874.00
SURF	93	608-00000	CONCRETE SIDEWALK	SY	541	\$ 60.00	\$ 32,460.00
SURF	94	608-00005	CONCRETE SIDEWALK (SPECIAL)	SY	1672	\$ 80.00	\$ 133,760.00
SURF	95	608-00010	CONCRETE CURB RAMP	SY	9	\$ 150.00	\$ 1,350.00
SURF	96	608-00015	DETECTABLE WARNINGS	SF	12	\$ 60.00	\$ 720.00
SURF	99	609-21020	CURB AND GUTTER TYPE 2 (SECTION II-B)	LF	6852	\$ 35.00	\$ 239,820.00
SURF	100	609-21021	CURB AND GUTTER TYPE 2 (SECTION II-M)	LF	67	\$ 40.00	\$ 2,680.00
SURF	101	609-24004	GUTTER TYPE 2 (4 FOOT)	LF	33	\$ 50.00	\$ 1,650.00
UTIL	106	613-01202	2 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	3182	\$ 2.50	\$ 7,955.00
UTIL	107	613-01302	3 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	1025	\$ 2.50	\$ 2,562.50
UTIL	108	613-01602	6 INCH ELECTRICAL CONDUIT (PLASTIC)(INSTALL ONLY)	LF	1599	\$ 2.50	\$ 3,997.50
UTIL	109	613-07023	PULL BOX (24"X36"X24")	EACH	1	\$ 1,500.00	\$ 1,500.00
UTIL	110	613-08000	VAULT (INSTALL ONLY)	EACH	3	\$ 5,000.00	\$ 15,000.00
LIGHT	111	613-01202	2 INCH ELECTRICAL CONDUIT (PLASTIC) (INSTALL ONLY)	LF	2925	\$ 2.50	\$ 7,312.50
LIGHT	112	613-30300	LIGHT STANDARD ALUMINUM (30 FOOT)	EACH	13	\$ 3,000.00	\$ 39,000.00
LIGHT	113	613-40010	LIGHT STANDARD FOUNDATION	EACH	13	\$ 1,500.00	\$ 19,500.00
UTIL	118	619-78048	6 INCH FIRE HYDRANT	EACH	1	\$ 5,000.00	\$ 5,000.00
MISC	119	625-00000	CONSTRUCTION SURVEYING	LS	1	\$ -	\$ -
MOB	120	626-00000	MOBILIZATION	LS	1	\$ -	\$ -
SS	121	627-00008	MODIFIED EPOXY PAVEMENT MARKING	GAL	24	\$ 150.00	\$ 3,600.00
SS	122	627-30305	PREFORMED PLASTIC PAVEMENT MARKING (60 MIL) (WORD- SYMBOL)	SF	16	\$ 20.00	\$ 310.00
TC	124	630-00000	FLAGGING	HOURL	3120	\$ 30.00	\$ 93,600.00
TC	125	630-00007	TRAFFIC CONTROL INSPECTION	DAY	52	\$ 400.00	\$ 20,800.00
TC	126	630-00012	TRAFFIC CONTROL MANAGEMENT	DAY	130	\$ 950.00	\$ 123,500.00
TC	128	630-80355	PORTABLE MESSAGE SIGN PANEL	EACH	2	\$ 5,000.00	\$ 10,000.00

UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA									
REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010		
\$ 10,000.00	\$ 17,250.00		\$ 90,000.00			\$ 10,900.00	\$ 15,498.00	\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99		
								\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69		
								\$ 4,200.00	\$ 2,064.60	\$ 1,144.00	\$ -	\$ 697.84	\$ 1,664.36	\$ 500.00	\$ 633.63		
\$ 21.00	\$ 17.00	\$ 12.12			\$ 10.75	\$ 57.56		\$ 23.27	\$ 27.28	\$ 28.50	\$ -	\$ 16.55	\$ 17.16	\$ 16.83	\$ 15.27		
	\$ 15.13	\$ 9.09				\$ 17.12		\$ 19.71	\$ 13.18	\$ 13.54	\$ -	\$ 8.74	\$ 13.29	\$ 8.37	\$ 7.18		
\$ 12.60	\$ 7.63	\$ 3.03			\$ 47.00	\$ 8.37		\$ 7.80	\$ 6.80	\$ 7.33	\$ -	\$ 4.89	\$ 4.69	\$ 3.54	\$ 3.90		
\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00		\$ 18.50	\$ 11.23		\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34		
\$ 130.00	\$ 116.50	\$ 255.10	\$ 105.39			\$ 48.60		\$ 95.85	\$ 84.45	\$ 84	\$ -	\$ 61.76	\$ 45.60	\$ 102.24	\$ 77.36		
		\$ 5.33	\$ 4.92			\$ 3.13		\$ 4.11	\$ 3.77	\$ 3.33	\$ -	\$ 2.33	\$ 2.30	\$ 2.39	\$ 1.96		
				\$ 17.17			\$ 31.95	\$ 24.09	\$ 12.41	\$ 8.63	\$ -	\$ 16.77	\$ 8.68	\$ 10.23	\$ 10.01		
			\$ 2.56		\$ 5.50			\$ 1.46	\$ 3.52	\$ 2.62	\$ -	\$ 3.51	\$ 2.06	\$ 2.48	\$ 1.92		
\$ 31.35		\$ 21.21	\$ 54.87		\$ 28.60	\$ 29.80		\$ 37.13	\$ 10.12	\$ 16.72	\$ -	\$ 9.45	\$ 8.37	\$ 6.38	\$ 9.31		
\$ 36.00		\$ 36.36	\$ 44.03			\$ 46.33		\$ 39.74	\$ 21.46	\$ 19.82	\$ -	\$ 15.45	\$ 11.26	\$ 13.22	\$ 12.56		
\$ 211.00	\$ 197.50	\$ 237.37	\$ 230.77		\$ 176.63	\$ 239.76		\$ 216.37	\$ 233.60	\$ 217.36	\$ -	\$ 208.31	\$ 145.15	\$ 177.98	\$ 157.89		
							\$ 119.13	\$ 190.05	\$ 274.94	\$ 112.94	\$ -	\$ 110.00	\$ 76.58	\$ 98.09	\$ 81.98		
	\$ 22.75	\$ 30.30	\$ 27.48		\$ 34.00	\$ 41.77		\$ 24.80	\$ 17.72	\$ 31.55	\$ -	\$ 9.87	\$ 13.32	\$ 7.36	\$ 7.79		
		\$ 42.42	\$ 64.58		\$ 57.26	\$ 65.14		\$ 52.68	\$ 35.76	\$ 46.20	\$ -	\$ 20.51	\$ 28.37	\$ 13.94	\$ 16.68		
	\$ 39.00	\$ 21.21	\$ 28.11		\$ 170.00	\$ 35.88		\$ 33.48	\$ 36.51	\$ 31.54	\$ -	\$ 17.84	\$ 19.85	\$ 10.60	\$ 16.57		
								\$ 89.38	\$ 85.86	\$ 126.97	\$ -	N/A	\$ 47.13	\$ 35.98	\$ 36.58		
\$ 27.00	\$ 8.75			\$ 52.58	\$ 49.50	\$ 80.46		\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95		
	\$ 9.43							\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29		
	\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 13.00	\$ 5.00	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68		
\$ 1,160.00	\$ 1,650.00	\$ 2,083.26	\$ 1,492.66	\$ 2,123.33	\$ 650.00	\$ 10,265.64		\$ 2,656.73	\$ 1,247.60	\$ 1,553.04	\$ -	\$ 781.96	\$ 761.80	\$ 781.81	\$ 605.82		
\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57			\$ 1,063.80		\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39		
								\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A		
\$ 350.00	\$ 519.50	\$ 382.65	\$ 391.46					\$ 229.71	\$ 267.73	\$ 260.45	\$ -	\$ 277.97	\$ 274.61	\$ 221.27	\$ 189.40		
		\$ 631.32						\$ 3,279.72	\$ 2,746.07	\$ 1,770.20	\$ -	\$ 1,963.63	\$ 1,909.14	\$ 1,729.98	\$ 1,570.19		
\$ 362.00						\$ 232.00	\$ 378.00	\$ 552.58	\$ 281.13	\$ 410.55	\$ -	\$ 342.32	\$ 273.90	\$ 147.84	\$ 177.13		
\$ 36.00								\$ 24.49	\$ 26.75	\$ 20.43	\$ -	\$ 20.09	\$ 24.32	\$ 15.23	\$ 16.17		
\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29		
\$ 44.00	\$ 34.25		\$ 35.31		\$ 43.79	\$ 34.34		\$ 24.57	\$ 26.47	\$ 24.23	\$ -	\$ 18.23	\$ 15.50	\$ 16.56	\$ 17.29		
\$ 166.00						\$ 108.87		\$ 76.93	\$ 87.59	\$ 17.33	\$ -	\$ 71.81	\$ 80.82	\$ 72.18	\$ 56.41		
								\$ 1.74	\$ 1.73	\$ 2.35	\$ -	\$ 1.25	\$ 1.25	N/A	\$ 2.07		
								\$ 141.90	\$ 66.95	\$ 26.83	\$ -	\$ 44.87	\$ 47.53	\$ 18.27	\$ 47.51		
								\$ 5.46	\$ 2.65	\$ 4.94	\$ -	\$ 2.61	\$ 3.12	\$ 8.83	\$ 1.09		
			\$ 31.08		\$ 57.00	\$ 64.15		\$ 84.00	\$ 52.19	\$ 36.93	\$ -</						

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS								UNIT PRICES FROM CDOT COST DATA								
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	2017	2016	2015	2014	2013	2012	2011	2010	
TC	129	630-80370	CONCRETE BARRIER (TEMPORARY)	LF	4000	\$ 25.00	\$ 100,000.00	\$ 50.00	\$ 37.13	\$ 11.49	\$ 34.84	\$ 70.33		\$ 65.25		\$ 43.94	\$ 24.80	\$ 34.57	\$ -	\$ 30.91	\$ 24.91	\$ 24.88	\$ 21.18	
WALL	132	641-10000	SHOTCRETE	SY	720	\$ 200.00	\$ 144,000.00									\$ 159.18	\$ 188.76	\$ 310.00	\$ -	\$ 164.09	\$ 155.85	\$ 85.39	\$ 182.46	
TOTAL COST						\$ 4,053,305.40		\$ 2,038,085	\$ 6,232,801	\$ 15,889,608	\$ 4,815,438	\$ 5,155,609	\$ 1,815,753	\$ 63,377,492	\$ 2,044,110									

CATEGORY		
REM	REMOVAL AND RESET	\$ 148,945.00
EW	EARTHWORK	\$ 62,000.00
EC	EROSION CONTROL	\$ 94,500.00
SURF	SURFACING / ABC / SW	\$ 968,893.90
RDWY	ROADWAY ITEMS	\$ 94,230.00
DRA	DRAINAGE	\$ 345,850.00
BR	BRIDGE	\$ -
WALL	RETAINING WALL	\$ 1,576,500.00
ROCK	ROCKFALL MITIGATION	\$ 305,524.00
TC	TRAFFIC CONTROL	\$ 347,900.00
SS	SIGNING AND STRIPING	\$ 3,910.00
LIGHT	LIGHTING	\$ 65,812.50
UTIL	UTILITIES	\$ 39,240.00
MISC	MISCELLANEOUS	\$ -
MOB	MOBILIZATION	\$ -
FA	FORCE ACCOUNT	\$ -
		\$ 4,053,305.40

REFERENCE PROJECTS	
REF. 1	EL JEBEL ROUNDABOUT, EAGLE COUNTY
REF. 2	BASALT UNDERPASS
REF. 3	I-70 VAIL UNDERPASS, EAGLE COUNTY
REF. 4	I-70 EAST VAIL CHAIN UP, EAGLE COUNTY
REF. 5	I-70 EXIT 49, MESA COUNTY
REF. 6	WEST MIDLAND TRAIL, GLENWOOD SPRINGS
REF. 7	SH-82 GRAND AVENUE BRIDGE, GLENWOOD SPRINGS
REF. 8	SH-133 ROCKFALL MITIGATION
REF. 9	US-40 OVER ELK RIVER, 7 MI W. OF STEAMBOAT
REF. 10	US-85 NORTH OF NUNN

#DIV/0! / SF Bridge Area = 0 SF

0% OF ALL CONSTRUCTION ITEMS
0% OF ALL CONSTRUCTION ITEMS

ENGINEER'S OPINION OF PROBABLE COST (EOPC)



PROJECT: South Midland Avenue - Full Reconstruction
SGM NO.: 2017-211.001
DATE: 4/11/2018
EOPC LEVEL: Post - 30% Design
PREPARED BY: Mike Fowler
REVIEWED BY:

ROADWAY CONSTRUCTION ITEMS	ESTIMATED COST	% OF (a)
Removals and Resets	\$ 464,500	6.3%
Earthwork (Excavation, Embankment)	\$ 340,000	4.6%
Erosion Control	\$ 194,500	2.6%
Surfacing (Base Course, Pavement, Sidewalk)	\$ 2,566,000	34.7%
Roadway (Curb & Gutter, Guardrail, Fence)	\$ 141,000	1.9%
Drainage (Pipes, Inlets, Manholes)	\$ 692,500	9.4%
Retaining Walls (Block Wall, Railing, Soil Nail Wall)	\$ 2,115,500	28.6%
Rockfall Mitigation (Mesh above Walls)	\$ 305,500	4.1%
Traffic Control during Construction	\$ 528,500	7.1%
Signing and Striping	\$ 53,000	0.7%
Force Accounts (Incentives, MCRs)	\$ -	0.0%
SUBTOTAL OF CONSTRUCTION ITEMS:	\$ 7,401,000 (a)	

OTHER PROJECT COSTS	ESTIMATED COST	% OF (a)
Contingency (Final Design Items, Phased Const.)	\$ 888,000	12.0%
Mobilization	\$ 444,000	6.0%
Lighting	\$ 99,500	1.3%
Utilities (Electrical)	\$ 70,500	1.0%
Landscaping	\$ -	0.0%
Construction Surveying	\$ 74,000	1.0%
Construction Management (Inspection & Testing)	\$ 370,000	5.0%
SUBTOTAL OF OTHER PROJECT COSTS:	\$ 1,946,000 (b)	

ENGINEER'S OPINION OF TOTAL PROJECT COSTS (a) + (b):	\$9,347,000
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NOTES:

- Unit prices used in developing this EOPC were based on cost estimate data from recent CDOT Cost Data Book(s) compiled by the CDOT Engineering and Market Analysis Unit and SGM's database of similar projects.
- Unit prices and total costs are based on Present Value dollars. Adjustments should be made for years beyond the present year if actual construction occurs in a future year.
- This EOPC was prepared on the basis of SGM's experience and qualifications and represents SGM's judgment as a professional generally familiar with the industry. However, since SGM has no control over the cost of labor, materials, equipment, or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, SGM cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from SGM's EOPC.

ENGINEER'S OPINION OF PROBABLE COST - UNIT PRICE ANALYSIS

CATEGORY	ITEM NO.	CDOT REF. NO.	CONTRACT ITEM	UNIT	QUANTITY	ENGINEER'S ESTIMATE		UNIT PRICES FROM REFERENCE PROJECTS										UNIT PRICES FROM CDOT COST DATA								
						UNIT COST	EXTENDED COST	REF. 1	REF. 2	REF. 3	REF. 4	REF. 5	REF. 6	REF. 7	REF. 8	REF. 9	REF. 10	2017	2016	2015	2014	2013	2012	2011	2010	
REM	1	201-00000	CLEARING AND GRUBBING	L S	1	\$ 34,000.00	\$ 34,000.00	\$ 10,000.00	\$ 17,250.00			\$ 90,000.00		\$ 10,900.00	\$ 15,498.00		\$ 45,483.08		\$ 27,648.36	\$ 68,785.16	\$ 48,641.20	\$ -	\$ 23,052.61	\$ 34,561.34	\$ 29,425.73	\$ 22,895.99
REM	2	202-00008	TREE TRIMMING	HOURL	40	\$ 200.00	\$ 8,000.00											\$ 310.00	\$ 301.30	\$ 430.00	\$ -	\$ 163.50	\$ 149.50	\$ 141.62	\$ 88.69	
REM	3	202-00010	REMOVAL OF TREE	EACH	25	\$ 500.00	\$ 12,500.00	\$ 1,210.00	\$ 266.00	\$ 368.69				\$ 310.00	\$ 783.00			\$ 362.12	\$ 359.85	\$ 366.20	\$ -	\$ 270.73	\$ 354.89	\$ 185.09	\$ 200.00	
REM	4	202-00019	REMOVAL OF INLET	EACH	5	\$ 750.00	\$ 3,750.00		\$ 642.50	\$ 757.58				\$ 900.00	\$ 1,188.00			\$ 746.22	\$ 1,020.87	\$ 918.20	\$ -	\$ 678.21	\$ 567.00	\$ 415.61	\$ 500.06	
REM	5	202-00031	REMOVAL OF FIRE HYDRANT	EACH	4	\$ 4,000.00	\$ 16,000.00											\$ 4,200.00	\$ 2,064.60	\$ 1,144.00	\$ -	\$ 697.84	\$ 1,664.36	\$ 500.00	\$ 633.63	
UTIL	6	202-00035	REMOVAL OF PIPE	LF	359	\$ 25.00	\$ 8,975.00	\$ 21.00	\$ 17.00	\$ 12.12			\$ 10.75	\$ 57.56			\$ 36.73	\$ 18.88	\$ 23.27	\$ 27.28	\$ 28.50	\$ -	\$ 16.55	\$ 17.16	\$ 16.83	\$ 15.27
REM	7	202-00155	REMOVAL OF WALL	LF	209	\$ 50.00	\$ 10,450.00		\$ 24.00					\$ 54.07				\$ 22.77	\$ 31.64	\$ 54.34	\$ -	\$ 52.00	\$ 14.50	\$ 47.72	\$ 17.52	
REM	8	202-00200	REMOVAL OF SIDEWALK	SY	1120	\$ 20.00	\$ 22,400.00		\$ 15.13	\$ 9.09				\$ 17.12				\$ 19.71	\$ 13.18	\$ 13.54	\$ -	\$ 8.74	\$ 13.29	\$ 8.37	\$ 7.18	
REM	9	202-00202	REMOVAL OF GUTTER	LF	224	\$ 15.00	\$ 3,360.00							\$ 19.70				\$ 12.85	\$ 13.46	\$ 12.40	\$ -	\$ 8.84	\$ 5.03	\$ 3.33	\$ 11.02	
REM	10	202-00203	REMOVAL OF CURB AND GUTTER	LF	1923	\$ 15.00	\$ 28,845.00	\$ 12.60	\$ 7.63	\$ 3.03			\$ 47.00	\$ 8.37				\$ 7.80	\$ 6.80	\$ 7.33	\$ -	\$ 4.89	\$ 4.69	\$ 3.54	\$ 3.90	
REM	11	202-00210	REMOVAL OF CONCRETE PAVEMENT	SY	1067	\$ 25.00	\$ 26,675.00	\$ 24.75						\$ 15.12				\$ 26.13	\$ 10.77	\$ 13.21	\$ -	\$ 5.55	\$ 4.94	\$ 5.96	\$ 9.20	
REM	12	202-00220	REMOVAL OF ASPHALT MAT	SY	23661	\$ 10.00	\$ 236,610.00	\$ 7.60	\$ 11.00	\$ 6.06	\$ 18.00		\$ 18.50	\$ 11.23		\$ 7.25	\$ 3.91	\$ 6.88	\$ 5.11	\$ 7.55	\$ -	\$ 3.12	\$ 3.79	\$ 3.64	\$ 3.34	
REM	13	202-00495	REMOVAL OF PORTIONS OF PRESENT STRUCTURE	L S	1	\$ 10,000.00	\$ 10,000.00											\$ 15,542.00	\$ 50,885.64	\$ 157,954.25	\$ -	\$ 9,091.94	\$ 18,136.90	\$ 17,665.00	\$ 22,801.21	
REM	14	202-00810	REMOVAL OF GROUND SIGN	EACH	17	\$ 150.00	\$ 2,550.00	\$ 130.00	\$ 116.50	\$ 255.10	\$ 105.39			\$ 48.60			\$ 86.11	\$ 95.85	\$ 84.45	\$ 84	\$ -	\$ 61.76	\$ 45.60	\$ 102.24	\$ 77.36	
REM	15	202-00889	REMOVAL OF DETECTABLE WARNING	EACH	2	\$ 500.00	\$ 1,000.00											\$ 637.50	N/A	N/A	\$ -	N/A	N/A	N/A	N/A	
REM	16	202-01000	REMOVAL OF FENCE	LF	786	\$ 3.00	\$ 2,358.00	\$ -		\$ 6.80			\$ 2.85	\$ 8.80			\$ 2.36	\$ 0.61	\$ 1.09	\$ 1.60	\$ 1.53	\$ -	\$ 1.09	\$ 0.58	\$ 0.74	\$ 0.46
REM	17	202-01130	REMOVAL OF GUARDRAIL TYPE 3	LF	755	\$ 5.00	\$ 3,775.00			\$ 5.33	\$ 4.92			\$ 3.13			\$ 4.92	\$ 2.41	\$ 4.11	\$ 3.77	\$ 3.33	\$ -	\$ 2.33	\$ 2.30	\$ 2.39	\$ 1.96
REM	18	202-01140	REMOVAL OF GUARDRAIL TYPE 4	LF	1274	\$ 15.00	\$ 19,110.00				\$ 17.17			\$ 31.95				\$ 24.09	\$ 12.41	\$ 8.63	\$ -	\$ 16.77	\$ 8.68	\$ 10.23	\$ 10.01	
REM	19	202-05026	SAWING ASPHALT MATERIAL (6 INCH)	LF	160	\$ 5.00	\$ 800.00				\$ 2.56		\$ 5.50					\$ 1.46	\$ 3.52	\$ 2.62	\$ -	\$ 3.51	\$ 2.06	\$ 2.48	\$ 1.92	
EW	20	203-00010	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	11168	\$ 30.00	\$ 335,039.40	\$ 31.35		\$ 21.21	\$ 54.87		\$ 28.60	\$ 29.80				\$ 37.13	\$ 10.12	\$ 16.72	\$ -	\$ 9.45	\$ 8.37	\$ 6.38	\$ 9.31	
EW	21	203-00100	MUCK EXCAVATION	CY	100	\$ 50.00	\$ 5,000.00	\$ 36.00		\$ 36.36	\$ 44.03			\$ 46.33			\$ 20.01	\$ 39.74	\$ 21.46	\$ 19.82	\$ -	\$ 15.45	\$ 11.26	\$ 13.22	\$ 12.56	
UTIL	22	203-01597	POTHOLING	HOURL	60	\$ 225.00	\$ 13,500.00	\$ 211.00	\$ 197.50	\$ 237.37	\$ 230.77		\$ 176.63	\$ 239.76			\$ 251.81	\$ 229.71	\$ 216.37	\$ 233.60	\$ 217.36	\$ -	\$ 208.31	\$ 145.15	\$ 177.98	\$ 157.89
ROCK	23	203-02300	ROCK SCALER	HOURL	40	\$ 200.00	\$ 8,000.00								\$ 119.13			\$ 190.05	\$ 274.94	\$ 112.94	\$ -	\$ 110.00	\$ 76.58	\$ 98.09	\$ 81.98	
WALL	24	206-00000	STRUCTURE EXCAVATION	CY	4347	\$ 30.00	\$ 130,410.00		\$ 22.75	\$ 30.30	\$ 27.48		\$ 34.00	\$ 41.77		\$ 20.28	\$ 9.08	\$ 24.80	\$ 17.72	\$ 31.55	\$ -	\$ 9.87	\$ 13.32	\$ 7.36	\$ 7.79	
WALL	25	206-00100	STRUCTURE BACKFILL (CLASS 1)	CY	2545	\$ 50.00	\$ 127,250.00			\$ 42.42	\$ 64.58		\$ 57.26	\$ 65.14		\$ 43.75	\$ 23.61	\$ 52.68	\$ 35.76	\$ 46.20	\$ -	\$ 20.51	\$ 28.37	\$ 13.94	\$ 16.68	
WALL	26	206-00200	STRUCTURE BACKFILL (CLASS 2)	CY	141	\$ 45.00	\$ 6,345.00		\$ 39.00	\$ 21.21	\$ 28.11		\$ 170.00	\$ 35.68		\$ 50.67	\$ 12.00	\$ 33.48	\$ 36.51	\$ 31.54	\$ -	\$ 17.84	\$ 19.85	\$ 10.60	\$ 16.57	
WALL	27	206-00520	FILTER MATERIAL (CLASS B)	CY	750	\$ 90.00	\$ 67,500.00											\$ 89.38	\$ 85.86	\$ 126.97	\$ -	N/A	\$ 47.13	\$ 35.98	\$ 36.58	
EC	28	207-00205	TOPSOIL	CY	1680	\$ 25.00	\$ 42,000.00	\$ 27.00	\$ 8.75		\$ 52.58	\$ 49.50	\$ 80.46			\$ 13.63		\$ 17.96	\$ 12.17	\$ 11.48	\$ -	\$ 8.34	\$ 10.69	\$ 7.55	\$ 11.95	
EC	29	207-00210	STOCKPILE TOPSOIL	CY	1680	\$ 10.00	\$ 16,800.00		\$ 9.43							\$ 8.24		\$ 8.36	\$ 9.20	\$ 14.63	\$ -	\$ 9.00	\$ 6.81	\$ 5.04	\$ 2.29	
EC	30	208-00002	EROSION LOG TYPE 1 (12 INCH)	LF	16400	\$ 5.00	\$ 82,000.00		\$ 4.25	\$ 4.25	\$ 3.67	\$ 10.17		\$ 3.76	\$ 13.00	\$ 3.46	\$ 3.58	\$ 5.00	\$ 4.89	\$ 4.27	\$ -	\$ 3.84	\$ 4.09	\$ 3.53	\$ 3.68	
EC	31	208-00020	SILT FENCE	LF	0	\$ 5.00	\$ -									\$ 1.16		\$ 1.92	\$ 1.51	\$ 2.42	\$ -	\$ 1.73	\$ 1.28	\$ 1.15	\$ 1.12	
EC	32	208-00035	AGGREGATE BAG	LF	0	\$ 10.00	\$ -			\$ 3.39	\$ 7.53	\$ 13.00		\$ 3.24				\$ 9.63	\$ 7.83	\$ 6.92	\$ -	\$ 7.82	N/A	N/A	N/A	
EC	33	208-00045	CONCRETE WASHOUT STRUCTURE	EACH	2	\$ 2,500.00	\$ 5,000.00	\$ 1,160.00	\$ 1,650.00	\$ 2,083.26	\$ 1,492.66	\$ 2,123.33	\$ 650.00	\$ 10,265.64		\$ 1,143.07	\$ 832.02	\$ 2,656.73	\$ 1,247.60	\$ 1,553.04	\$ -	\$ 781.96	\$ 761.80	\$ 781.81	\$ 605.82	
EC	34	208-00051	STORM DRAIN INLET PROTECTION (TYPE I)	LF	12	\$ 20.00	\$ 240.00		\$ 18.50	\$ 3.39				\$ 4.32				\$ 13.76	\$ 8.48	\$ 7.38	\$ -	\$ 5.05	\$ 8.01	\$ 4.40	\$ 6.46	
EC	35	208-00070	VEHICLE TRACKING PAD	EACH	2	\$ 2,000.00	\$ 4,000.00	\$ 1,650.00	\$ 2,000.00	\$ 1,338.38	\$ 2,709.57		\$ 1,063.80			\$ 1,798.72	\$ 1,816.73	\$ 3,310.73	\$ 2,008.38	\$ 2,079.67	\$ -	\$ 1,603.90	\$ 1,446.63	\$ 1,162.61	\$ 1,209.39	
EC	36	208-00207	EROSION CONTROL MANAGEMENT	DAY	215	\$ 200.00	\$ 43,000.00											\$ 199.41	\$ 302.65	N/A	\$ -	N/A	N/A	N/A	N/A	
REM	37	210-00010	RESET MAILBOX STRUCTURE	EACH	5	\$ 200.00	\$ 1,000.00			\$ 408.16						\$ 233.95		\$ 3,627.16	\$ 183.75	\$ 237.49	\$ -	\$ 207.93	\$ 303.98	\$ 218.00	\$ 107.62	
REM	38	210-00050	RESET FIRE HYDRANT	EACH	1	\$ 6,000.00	\$ 6,000.00							\$ 9,666.00				N/A	\$ 5,939.04	\$ 6,971.60	\$ -	\$ 3,319.83	\$ 6,000.00	N/A	\$ 3,377.60	
REM	39	210-00810	RESET GROUND SIGN	EACH	5	\$ 300.00	\$ 1,500.00	\$ 350.00	\$ 519.50	\$ 382.65	\$ 391.46		\$ 270.00					\$ 229.71	\$ 267.73	\$ 260.45	\$ -	\$ 277.97	\$ 274.61	\$ 221.27	\$ 189.40	
REM	40	210-00825	RESET FLASHING BEACON	EACH	1	\$ 500.00	\$ 500.00			\$ 1,957.28								\$ 776.18	\$ 1,957.14	\$ 2,225.00	\$ -	\$ 1,562.88	\$ 1,741.76	\$ 1,160.00	\$ 100.00	
REM	41	210-04010	ADJUST MANHOLE	EACH	9	\$ 1,000.00	\$ 9,000.00	\$ 885.00	\$ 1,757.50				\$ 600.00	\$ 612.36				\$ 859.55	\$ 594.38	\$ 795.07	\$ -	\$ 497.45	\$ 467.20	\$ 549.28	\$ 419.43	
REM	42	210-04020	MODIFY INLET	EACH	2	\$ 750.00	\$ 1,500.00			\$ 631.32				\$ 1,420.20				\$ 3,279.72	\$ 2,746.07	\$ 1,770.20	\$ -	\$ 1,963.63	\$ 1,909.14	\$ 1,729.98	\$ 1,570.19	
REM	43	210-04050	ADJUST VALVE BOX	EACH	6	\$ 500.00	\$ 3,000.00	\$ 362.00					\$ 232.00	\$ 378.00				\$ 552.58	\$ 281.13	\$ 410.55	\$ -	\$ 342.32	\$ 273.90	\$ 147.84	\$ 177.13	
EC	44	212-00006	SEEDING (NATIVE)	ACRE	1	\$ 1,000.00	\$ 750.00	\$ 7,620.00	\$ 1,932.50	\$ 462.36	\$ 997.57	\$ 5,572.00	\$ 4,052.86	\$ 1,036.80		\$ 692.50	\$ 458.30	\$ 999.04	\$ 771.76	\$ 729.73	\$ -	\$ 639.29	\$ 552.93	\$ 619.00	\$ 454.07	
EC	45	213-00004	MULCHING (WEED FREE STRAW)	ACRE	1	\$ 1,000.00	\$ 750.00		\$ 1,875.00									\$ 593.71	\$ 785.12	\$ 508.66	\$ -	\$ 483.85	\$ 620.00	\$ 893.54	\$ 573.21	
EC	46	213-00061	M																							

