Value Engineering Documentation

Item Number 9-124.01

US68 Mason County

South of Washington to

US62/AA Highway intersection

Report: August 2010

Study Meeting: June 26, 2008

Prepared by Jim Simpson
Division of Highway Design

Introduction

In May of 2008, a construction letting date was established for November of that year. Right-of-way acquisition, utility relocation, plan development, and environmental tasks were scheduled to be finalized by the letting.

At that time the design consisted of a 4-lane, 40' depressed median template, interchanges at the AA Highway and US 68, fully controlled access, and 60 mph design speed. The ADT for the year 2000 was projected to be 1,200 and the ADT for the design year, 2025 was projected to be 2,300.

Subsequently, a constructability / value engineering / practical solutions review was conducted on June 26, 2008. The goal of the review was to enhance the current design while, at the same time, cutting costs if possible and still meeting the project's purpose and need. Attached are the minutes of that meeting, construction cost estimate for the 4-lane alternate, and an estimate of savings of value engineering / practical solution suggestions in the form of a table. This information is provided in Exhibit 2.

The above referenced construction cost was estimated to be $41.8 million. The proposed ideas for cost savings are shown in the table on page 17 entitled Mason County, US 68 North South Connector Item No. 9-214. Three items were implemented from this list and are shown on page 19 in the table entitled Value Engineering Punch List. The current proposed construction cost was reduced to $33.5 million.

Project Description

This project is located in Mason County and proposes to link US 68 (south) to the KY 9 (AA Highway) south of the city of Maysville, Exhibit 1. The construction of the new bridge over the Ohio River north of Maysville combined with the increase in traffic to the regional arterial routes (mainly truck traffic) has precipitated the need to route traffic from the US 62 / US68 / AA Highway intersection.

US 68 is a major north – south roadway, classified as a rural arterial, and is on the National Highway System. In 1998, the ADT was 16,000 and is expected to increase to 25,000 by the year 2020. The intersection of US 68 with US 62 and with the AA Highway are two of the high accident locations in the project area.

As described in the 1998 Six-Year Highway Plan, the project description is, “Relocate US 68 from 1 mile south of Washington to the AA Highway opposite the new Maysville bridge approach”. This project, in conjunction with item number 9-147 will create the Southern Maysville Bypass. Item number 9-147 will continue east of US 68, where 9-124 ends, then swing north after crossing KY 3313 to end at the AA Highway. Interchanges are proposed at each major intersection and will have full access control.

The Purpose and Need, as stated in the FONSI, completed in August of 2001, is “to substantially improve system linkage and traffic service by providing a direct connection to the new Ohio River Bridge west of Maysville; relieve congestion and improve the capacity at the current AA Highway-US 68 junction; and provide a safer roadway network to accommodate the truck-auto mix projected. These goals will address the identified transportation problems associated with the poor connectivity of

the current roadway network, which is not effectively tied-in to the new Ohio River Bridge west of Maysville, and the deterioration level of service of the current US 68 – AA Highway signalized intersection.

Traffic coming from or going to Ohio using the William H. Harsha cable stayed bridge currently must use the AA Highway and contend with high traffic volumes and traffic signals. This project will allow truck traffic (about 10% of ADT) and other users to bypass the congestion and traffic signals on the AA Highway. This in turn will decrease congestion and accidents on the AA.

Recommendations

A public meeting was held on September 16, 1999 to receive input concerning a choice of two alternates described as Concept 1 and Concept 2. Concept 2 proposes this new route to be the through-movement for US 68 to the south and provides a “T” intersection with existing US 68. Integrating the next phase of the bypass, item number 9-147, does not provide a seamless connection with Concept 2. Concept 1 provides a diamond interchange at US 68 and allows for a continuous flow of traffic to 9-147. Both concepts provide a “flop diamond” interchange at the AA Highway. Both concepts have bride crossings at Slack Pike (CR 1306) and Clarks Run Road (CR 1302). Both concepts were designed using 60 mph design speed and a 4-lane template with a 40’ depressed median.

The decision was made to move forward with Concept 1 into phase II design. However, in July of 2008, the fiscal year for construction had been moved to 2011. Consequently, the letting date was moved to October 2010. Since then, the right-of-way has been acquired (for the 4-lane

alternate), environmental issues have been resolved, and to date utilities are being moved.

Interest in the project has increased since the letting date was moved to October 2010. Currently the letting date is September 17, 2010.

The current construction estimate is $26.6 million. This estimate is much lower than that shown on page 1. This is due to the reduction is unit price costs of some items, mainly in roadway excavation, since the estimate shown in Exhibit 2 was made. This is a savings of $15.2 million.

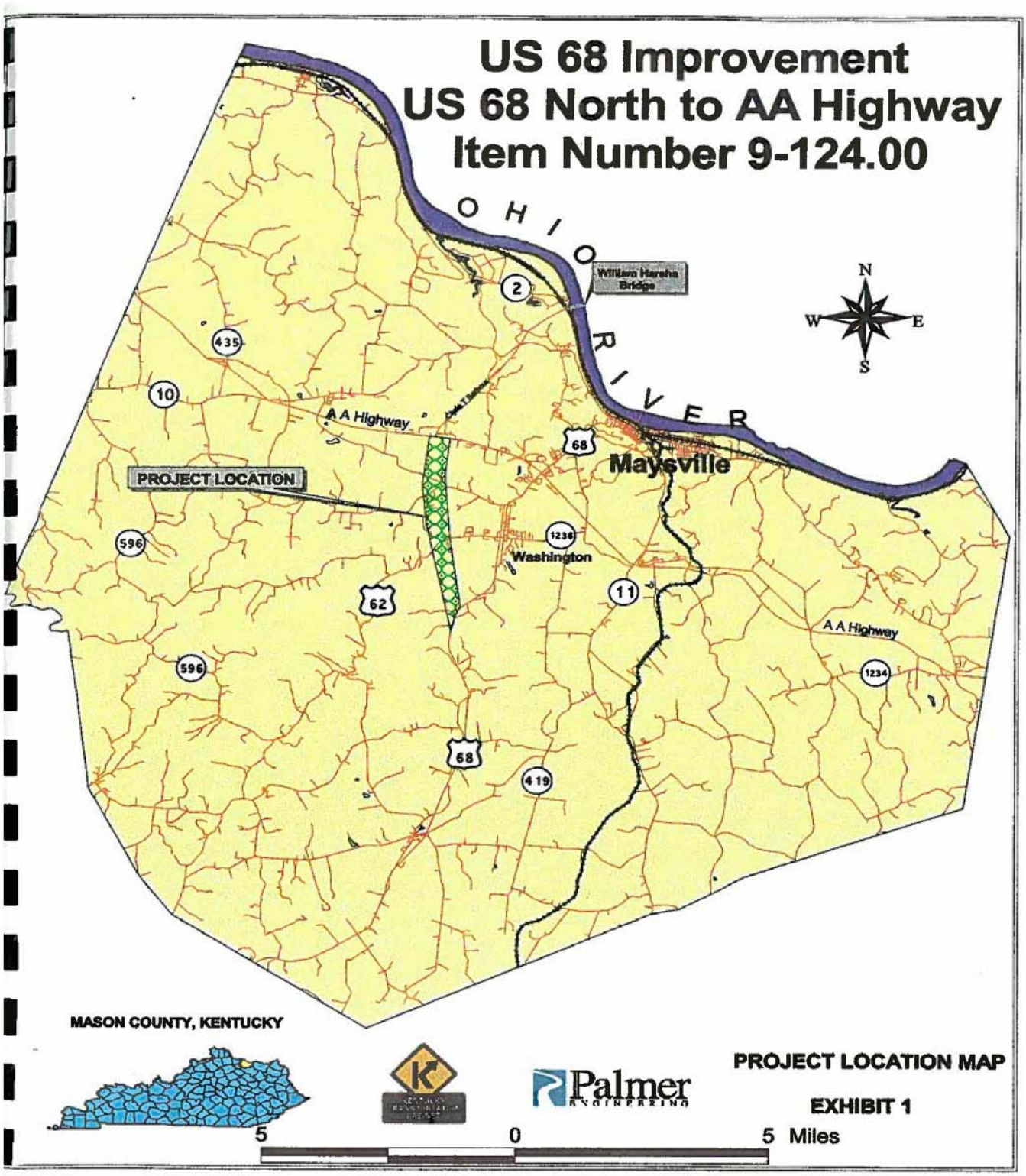
US 68 Improvement
US 68 North to AA Highway
Item Number 9-124.00
OHIO RIVER
William Harsha Bridge
N
W
E
S
435
10
2
AA Highway
68
Maysville
PROJECT LOCATION
596
1236
Washington
62
11
AA Highway
596
1234
68
419
MASON COUNTY, KENTUCKY
Palmer ENGINEERING
PROJECT LOCATION MAP
EXHIBIT 1
5
0
5 Miles

Exhibit 2

July 8, 2008

Darrin Eldridge

Kentucky Transportation Cabinet

District 9

822 Elizaville Avenue, P.O. Box 347

Flemingsburg, Kentucky 41041

RE: Mason County, US 68 to AA, North South Connector

Item No 9-124.01

Draft Constructability Review / Value Engineering / Practical Solutions Meeting

This is a summary of the items discussed at the Constructability Review / Value Engineering / Practical Solutions Meeting for the referenced project held at the District 9 offices on June 26, 2008.

Attendees:	Bart Bryant	KYTC D9
	Rachel Catchings	KYTC D9
	Travis Cropper	KYTC D9
	Darrin Eldridge	KYTC D9 Project Manager
	Richard Farrow	KYTC D9
	Jim Fisher	KYTC CO
	Ryan Griffith	KYTC CO
	Kevin Ishmael	KYTC D9

Rob Martin	KYTC CO Project Development
Phil Mauney	KYTC D9
Karen Mynhier	KYTC D9 Environmental
Daran Razor	KYTC D9
James Simpson	KYTC CO
Donald L. Smith	KYTC CO
Ted Swansegar	KYTC CO
Larry Taylor	KYTC D9
Lindsey Briggs	Palmer Engineering (PEC)
David Lindeman	Palmer Engineering (PEC)
Karl Sawyer	Palmer Engineering (PEC)

The meeting began with introductions, and agenda which included the following topics:

A) Purpose and Need Statement

The Purpose and Need Statement for the project was read to make project team members aware of the Purpose and Need of the project when discussing Value Engineering (VE) and/or Practical Solution (PS) suggestions. Purpose and Need items:

A1) Connectivity to Bridge Approach (Barbour Parkway)

A2) AA / US 68 Capacity Improvements

A3) AA Safety Improvements

A4) Improve existing AA intersection capacities at KY11 and US68

B) General project comments (based on the current design)

B1) PEC will send VISSIM traffic analysis of currently planned signal to D9. D9 will submit it with request for signal plan to Jeff Wolfe (CO). (Estimated cost of signal is $100,000)

B2) Add Temporary Signal to MOT Plan at AA and Ramp EF while Barber Parkway traffic is detoured to Ramp F. (Estimated cost of signal is $100,000)

B3) D9 will request temporary signal plans from CO. Add note to signal plans stating that existing signal equipment belongs to KYTC.

B4) The temporary signal may require GES protection, posted 10 MPH reduction, and advanced warning signs.

B5) D9 will request Lighting for both US68 and AA Interchanges. (Estimated cost of Lighting is $600,000 per interchange.)

B6) PEC will provide an updated estimate of current design.

C) Value Engineering / Practical Solution Items

C1) Elimination of both interchanges: The discussion centered on the savings available by eliminating the interchanges verses meeting the Purpose and Need of the project.

PEC will quantify the potential savings for each intersection. The US68 intersection will utilize a two lane Ramp D to intersect US68. Construction will be minimized on US 68, and no construction will occur south of US 68.

A new mainline grade will be used to intersect AA at the existing Barbour Parkway. Construction will be minimized on AA, and no construction will occur north of AA.

It was noted that the change in grade and limits will affect the overall balance of the project.

A LOS of “C” or “D” is adequate to comply with the Purpose and Need statement. PEC will model the intersections. D9 requested a full traffic study if the decision is made to eliminate the interchanges.

C2) Control of Access: The current design is for a Fully Controlled Access Highway. Since the Right of Way has already been purchased as Fully Controlled, and since a Fully Controlled Access would better fit the Purpose and Need, the project team recommended that the Access remain Fully Controlled between the intersections. There was some discussion about cost savings from eliminating the fence, but the project team decided that the fence should remain

C3) At-Grade Intersections at US 62 and Clarks Run / Slack Pike: In addition to eliminating the two interchanges the project team discussed the possibility of eliminating the two grade separated crossings at US62 and at Clarks Run / Slack Pike.

PEC will quantify the savings of changing the mainline and US 62 grades and developing an at-grade intersection at US 62.

The topography at Clarks Run does not make an at-grade intersection feasible and adding an at grade intersection at Slake Pike is not warranted; the project team recommended no changes in this grade separated crossing.

C4) Two Lane Initial / 4 Lane Ultimate: PEC will quantify the savings of initially paving only two lanes while constructing the grade for the four lane facility between the US 68 and AA interchange/intersection limits. This will also eliminate one of the two bridges over Clarks Run.

There was an additional suggestion that the Clarks Run bridge(s) have a steel alternate. After some discussion, the project team decided that the additional design fees would counter any potential savings.

C5) Reduced Width Paved Shoulder: PEC will quantify the savings of reducing the mainline outside shoulders from 8'paved to 4' paved.

C6) Lime stabilization: The project team decided that not enough rock is available to construct a rock roadbed to eliminate the lime stabilization. The team recommended to keep the lime stabilization, but to limit its use to mainline only and to eliminate it in areas where part width construction is required

C7) Value Engineering / Practical Solutions Decision Matrix: PEC will develop a decision matrix to quantify the potential savings for the following items:

1) Eliminate "AA" Interchange

2) Eliminate the US 68 Interchange

3) US 62 At-Grade Intersection

4) Two Lane Initial Construction

5) Reduced Width Paved Outside Shoulder (8' to 4')

D) Constructability Review

The Constructability Review of the project as designed was deferred until decisions are reached on the Value Engineering / Practical Solution suggestions.

Meeting Adjourned

Sincerely,

Karl Sawyer

Estimate 9-124.01

Estimated Cost: $37,992,263.95

Contingency: 10.00%

Estimated Total: $41,791,490.35

Mason North South Connector

Letting Date: 10/01/08

Spec Year: 00

Unit System: E

Work Type: GRADE & DRAIN WITH ASPHALT SURFACE

Highway Type: NATIONAL HIGHWAY SYSTEM

Urban/Rural Type: RURAL

Season: SUMMER

County: MASON

Estimate: 9-124.01

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0001: PAVING					
0005	00001 DGA BASE	174,601.00	TON	$15.90	$2,776,155.90
0006	00013 LIME STABILIZED ROADBED	455,601.00	SQYD	$1.98	$902,089.98
0007	00014 LIME	8,200.00	TON	$115.20	$944,640.00
0008	00100 ASPHALT SEAL AGGREGATE	655.00	TON	$64.40	$42,182.00
0009	00212 CL2 ASPH BASE 1.00D PG64-22	163,674.00	TON	$49.36	$8,078,948.64
0010	00291 EMULSIFIED ASPHALT RS-2	79.00	TON	$557.97	$44,079.63
0011	00301 CL2 ASPH SURF 0.38D PG64-22	23,556.00	TON	$55.03	$1,296,286.68
0012	00358 ASPHALT CURING SEAL	455.00	TON	$380.66	$173,200.30
0013	02702 SAND FOR BLOTTER	1,138.00	TON	$26.57	$30,236.66
				Total for Group 0001:	$14,287,819.79
Group 0002: ROADWAY					
0014	01310 REMOVE PIPE	161.00	LF	$15.12	$2,434.32
0015	02091 REMOVE PAVEMENT	977.00	SQYD	$8.72	$8,519.44
0016	02159 TEMPORARY DITCH	37,171.00	LF	$1.04	$38,657.84
0017	02200 ROADWAY EXCAVATION	1,579,729.00	CUYD	$6.25	$9,873,306.25
0018	02242 WATER	4,634.00	MGAL	$0.07	$324.38
0019	02262 FENCE-WOVEN WIRE TYPE 1	55,662.00	LF	$5.11	$284,432.82
0020	02282 PEDESTRIAN WOVEN WIRE GATE	1.00	EACH	$500.00	$500.00
0021	02289 DOUBLE VEHICULAR WOVEN WIRE GATE	2.00	EACH	$1,000.00	$2,000.00
0022	02347 WATER GATE TYPE 1	5.00	EACH	$250.00	$1,250.00
0023	02351 GUARDRAIL-STEEL W BEAM-S FACE	11,038.00	LF	$18.62	$205,527.56
0024	02352 GUARDRAIL-STEEL W BEAM-D FACE	2,041.00	LF	$27.42	$55,964.22
0025	02360 GUARDRAIL TERMINAL SECTION NO 1	9.00	EACH	$42.62	$383.58
0026	02363 GUARDRAIL CONNECTOR TO BRIDGE END TY A	16.00	EACH	$2,407.28	$38,516.48
0027	02365 CRASH CUSHION TYPE IX-A	4.00	EACH	$262.50	$1,050.00
0028	02369 GUARDRAIL END TREATMENT TYPE 2A	14.00	EACH	$582.43	$8,154.02
0029	02381 REMOVE GUARDRAIL	2,121.00	LF	$1.63	$3,457.23
0030	02387 GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	3.00	EACH	$345.35	$1,036.05

Estimate: 9-124.01

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0031	02391 GUARDRAIL END TREATMENT TYPE 4A	22.00	EACH	$1,962.87	$43,183.14
0032	02429 RIGHT-OF-WAY MONUMENT TYPE 1	100.00	EACH	$89.40	$8,940.00
0033	02432 WITNESS POST	100.00	EACH	$38.98	$3,898.00
0034	02482 CHANNEL LINING CLASS IA	1,414.00	TON	$122.98	$173,893.72
0035	02483 CHANNEL LINING CLASS II	30,603.00	TON	$20.33	$622,158.99
0036	02484 CHANNEL LINING CLASS III	1,005.00	TON	$31.24	$31,396.20
0037	02545 CLEARING AND GRUBBING	1.00	LS	$250,000.00	$250,000.00
0038	02599 FABRIC-GEOTEXTILE TYPE IV	72,854.00	SQYD	$1.98	$144,250.92
0039	02650 MAINTAIN & CONTROL TRAFFIC	1.00	LS	$200,000.00	$200,000.00
0040	02701 TEMPORARY SILT FENCE	37,171.00	LF	$2.36	$87,723.56
0041	02703 SILT TRAP TYPE A	338.00	EACH	$336.92	$113,878.96
0042	02704 SILT TRAP TYPE B	338.00	EACH	$216.39	$73,139.82
0043	02705 SILT CHECK	338.00	EACH	$400.00	$135,200.00
0044	02706 CLEAN SILT TRAP TYPE A	2,028.00	EACH	$40.90	$82,945.20
0045	02707 CLEAN SILT TRAP TYPE B	2,028.00	EACH	$43.79	$88,806.12
0046	02708 CLEAN SILT CHECK	2,028.00	EACH	$40.00	$81,120.00
0047	02709 CLEAN TEMPORARY SILT FENCE	37,171.00	LF	$0.42	$15,611.82
0048	02929 CRASH CUSHION TYPE IX	2.00	EACH	$5,736.39	$11,472.78
0049	05950 EROSION CONTROL BLANKET	51,865.00	SQYD	$1.20	$62,238.00
0050	05952 TEMPORARY MULCH	1,634,371.00	SQYD	$0.12	$196,124.52
0051	05953 TEMP SEEDING AND PROTECTION	1,342,166.00	SQYD	$0.19	$255,011.54
0052	05966 TOPDRESSING FERTILIZER	70.00	TON	$443.82	$31,067.40
0053	05985 SEEDING AND PROTECTION	1,342,166.00	SQYD	$0.23	$308,698.18
0054	05989 SPECIAL SEEDING CROWN VETCH	163,548.00	SQYD	$0.14	$22,896.72
0055	05990 SODDING	6,425.00	SQYD	$4.57	$29,362.25
0056	06516 PAVE STRIPING-PERM PAINT-8 IN	5,495.00	LF	$0.38	$2,088.10
0057	06520 PAVE STRIPING-WB PAINT-4 IN W	19.00	MILE	$194.25	$3,690.75
0058	06521 PAVE STRIPING-WB PAINT-4 IN Y	20.00	MILE	$213.89	$4,277.80
0059	06550 PAVE STRIPING-TEMP REM TAPE-W	12,400.00	LF	$1.25	$15,500.00

Estimate: 9-124.01

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0060	06551 PAVE STRIPING-TEMP REM TAPE-Y	12,400.00	LF	$1.45	$17,980.00
0061	06567 PAVE MARKING-THERMO STOP BAR-12IN	4,537.00	LF	$7.26	$32,938.62
0062	06574 PAVE MARKING-PRE THERM CURV ARROW	14.00	EACH	$99.41	$1,391.74
0063	06589 PAVEMENT MARKER TYPE V-MW	316.00	EACH	$21.15	$6,683.40
0064	06591 PAVEMENT MARKER TYPE V-BY	496.00	EACH	$16.89	$8,377.44
0065	06592 PAVEMENT MARKER TYPE V-B W/R	732.00	EACH	$22.37	$16,374.84
0066	06593 PAVEMENT MARKER TYPE V-B Y/R	643.00	EACH	$19.85	$12,763.55
0067	08100 CONCRETE-CLASS A	192.00	CUYD	$640.42	$122,960.64
0068	08150 STEEL REINFORCEMENT	12,919.00	LB	$1.23	$15,890.37

Total for Group 0002: $13,859,449.28

Group 0003: DRAINAGE

0069	00440 ENTRANCE PIPE-15 INCH	413.00	LF	$33.06	$13,653.78
0070	00441 ENTRANCE PIPE-18 INCH	113.00	LF	$48.58	$5,489.54
0071	00445 ENTRANCE PIPE-30 INCH	112.00	LF	$51.98	$5,821.76
0072	00461 CULVERT PIPE-15 INCH	81.00	LF	$59.50	$4,819.50
0073	00462 CULVERT PIPE-18 INCH	2,275.00	LF	$52.34	$119,073.50
0074	00464 CULVERT PIPE-24 INCH	1,070.00	LF	$70.08	$74,985.60
0075	00466 CULVERT PIPE-30 INCH	595.00	LF	$84.19	$50,093.05
0076	00468 CULVERT PIPE-36 INCH	910.00	LF	$98.47	$89,607.70
0077	00469 CULVERT PIPE-42 INCH	606.00	LF	$107.31	$65,029.86
0078	00471 CULVERT PIPE-54 INCH	231.00	LF	$170.77	$39,447.87
0079	00474 CULVERT PIPE-72 INCH	412.00	LF	$242.49	$99,905.88
0080	00476 CULVERT PIPE-84 INCH	213.00	LF	$261.75	$55,752.75
0081	00494 CULVERT PIPE-30 INCH EQUIV	183.00	LF	$129.79	$23,751.57
0082	00498 CULVERT PIPE-42 INCH EQUIV	50.00	LF	$131.74	$6,587.00
0083	00522 STORM SEWER PIPE-18 INCH	699.00	LF	$63.50	$44,386.50
0084	00524 STORM SEWER PIPE-24 INCH	419.00	LF	$60.10	$25,181.90
0085	00526 STORM SEWER PIPE-30 INCH	657.00	LF	$78.00	$51,246.00
0086	00532 STORM SEWER PIPE-60 INCH	355.00	LF	$147.90	$52,504.50

Estimate: 9-124.01

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0087	01000 PERFORATED PIPE-4 INCH	2,492.00	LF	$7.56	$18,839.52
0088	01010 NON-PERFORATED PIPE-4 INCH	601.00	LF	$12.52	$7,524.52
0089	01020 PERF PIPE HEADWALL TY 1-4 INCH	2.00	EACH	$438.20	$876.40
0090	01024 PERF PIPE HEADWALL TY 2-4 INCH	1.00	EACH	$460.67	$460.67
0091	01028 PERF PIPE HEADWALL TY 3-4 INCH	20.00	EACH	$506.74	$10,134.80
0092	01450 S & F BOX INLET-OUTLET-18 INCH	23.00	EACH	$2,206.12	$50,740.76
0093	01451 S & F BOX INLET-OUTLET-24 INCH	7.00	EACH	$2,912.67	$20,388.69
0094	01452 S & F BOX INLET-OUTLET-30 INCH	7.00	EACH	$3,580.61	$25,064.27
0095	01453 S & F BOX INLET-OUTLET-36 INCH	4.00	EACH	$4,884.45	$19,537.80
0096	01490 DROP BOX INLET TYPE 1	6.00	EACH	$2,605.53	$15,633.18
0097	01493 DROP BOX INLET TYPE 2	1.00	EACH	$3,130.70	$3,130.70
0098	01502 DROP BOX INLET TYPE 5A	2.00	EACH	$3,288.51	$6,577.02
0099	01505 DROP BOX INLET TYPE 5B	34.00	EACH	$3,451.09	$117,337.06
0100	01511 DROP BOX INLET TYPE 5D	1.00	EACH	$2,245.92	$2,245.92
0101	01538 DROP BOX INLET TYPE 7	1.00	EACH	$3,535.53	$3,535.53
0102	01642 JUNCTION BOX-18 INCH	1.00	EACH	$1,878.88	$1,878.88
0103	01651 JUNCTION BOX-MODIFIED	1.00	EACH	$4,500.00	$4,500.00
0104	02200 ROADWAY EXCAVATION	3,151.00	CUYD	$6.25	$19,693.75
0105	08100 CONCRETE-CLASS A	180.00	CUYD	$640.42	$115,275.60
0106	08150 STEEL REINFORCEMENT	12,527.00	LB	$1.23	$15,408.21
0107	21588NN METAL END SECTION TY 3-30 IN (EQUIV)	5.00	EACH	$2,385.00	$11,925.00
0108	21880NN METAL END SECTION TY 3-42 IN EQUIV	2.00	EACH	$3,500.00	$7,000.00

Total for Group 0003: $1,305,046.54

Group 0004: BRIDGE

0109	ML BRIDGE OVER US68	1.00	LS	$1,342,484.02	$1,342,484.02
0110	US 62 BRIDGE OVER ML	1.00	LS	$1,400,000.00	$1,400,000.00
0111	ML BRIDGE OVER CLARKS RUN	1.00	LS	$1,575,850.07	$1,575,850.07
0112	ML BRIDGE OVER AA	1.00	LS	$1,804,967.35	$1,804,967.35
0113	BOX CULVERT STA 684+40	1.00	LS	$471,768.78	$471,768.78

Estimate: 9-124.01

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0114	BOX CULVERT STA 54+39	1.00	LS	$308,847.62	$308,847.62
				Total for Group 0004:	$6,903,917.84

Group 0019: DEMOBILIZATION &/OR MOBILIZATION

0115	02568 MOBILIZATION	1.00	LS	$1,090,687.00	$1,090,687.00
0116	02569 DEMOBILIZATION	1.00	LS	$545,343.50	$545,343.50
				Total for Group 0019:	$1,636,030.50

Mason County, US 68 North South Connector
Item No. 09-0124

Project Element	*Current Design*	*Practical Solutions*	*Estimated Savings*
Eliminate "AA" Interchange (1)	Modified Flop Diamond Interchange	At-Grade Intersection	$7,400,000
Eliminate US 68 Interchange (2)	Modified Diamond Interchange	At-Grade Intersection	$5,800,000
US 62 At-Grade Intersection (3)	Grade Seperated Crossing, No Access	At-Grade Intersection	$2,900,000
Two Lane Initial Construction (4)	Four Lane, 40' Depressed Median	Two Lane Initial Construction on Four Lane Ultimate R/W	$1,800,000
Reduced Width Paved Outside Shoulder (5)	10' Shoulder, 8' Paved	10' Shoulder, 4' Paved	$700,000
		Total Potential Savings	$18,600,000

Project Phases		*Current Design*	*Practical Solutions*
Construction		$41,800,000	$23,900,000

(1) Eliminates Mainline Station 485+00 to 512+50, bridge over AA, US 68 Sta 51+00 to 65+45, and Ramps A, AB, B. & C. Includes Grade and Drain Mainline Station 512+50 to 523+64 (4 lane). Includes modified construction of Ramp D (2 lane)

from Mainline Station 523+64 to US 68,
and US 68 Station 36+50 to 51+00.

(2) Elimination of all construction on and north of the AA Highway, Bridge over AA, all ramps and approaches. Includes modified construction of
Mainline Station 667+00 to 702+65 (4 lane Grade and Drain / 2 lane paved with transition to 5 lane at intersection with AA.

(3) Includes the elimination of two mainline lanes, inside shoulders and bridges and the earthwork modifications from
Station 531+00 to Station 613+00, retains full width outside shoulders.

(4) Includes the elimination of two mainline lanes and paved inside shoulders from
Station 485+00 to Station 738+35, excluding (1), (2) and (3), retains full width outside shoulders.
Grade and drain constructed for ultimate four lane typical section.

(5) Eliminates 4' of paved shoulder for double the project length.

Note: Traffic Signals and Lighting not included in estimates.

8/11/2010

VALUE ENGINEERING PUNCH LIST

ITEM NO. 9- 124.01 PROJECT COUNTY: Mason DATE OF STUDY: 6/28/08

VE Alternative No.	Description	Status	Implemented Life Cycle Cost Savings	Original Cost	Alternative Cost	Initial Cost Saving	Tot. Present Worth Life Cycle Cost Savings	Remarks
Roadway								
1	Eliminate AA Interchange	Not Implemented		$ 7,400,000.00				District recommends for initial construction phase
2	Eliminate US 68 Interchange	Implemented		$ 5,800,000.00				
3	Eliminate bridge at US 62, use at-grade intersection	Not Implemented		$ 2,900,000.00				Concern for full access control
4	2-lane initial construction	Implemented		$ 2,500,000.00				
5	Reduced width paved outside shoulder	Implemented		$ 700,000.00				

DESIGN SUGGESTIONS

Design Suggestion No.	Description	Status	Implemented Life Cycle Cost Savings	Remarks

VE Alternative No.	Description	Status	Implemented Life Cycle Cost Savings	Original Cost	Alternative Cost	Initial Cost Saving	Tot. Present Worth Life Cycle Cost Savings	Remarks
Pavement/Ramps								

DESIGN SUGGESTIONS

Design Suggestion No.	Description	Status	Implemented Life Cycle Cost Savings	Remarks

VE Alternative No.	Description	Status	Implemented Life Cycle Cost Savings	Original Cost	Alternative Cost	Initial Cost Saving	Tot. Present Worth Life Cycle Cost Savings	Remarks
Structures								
4	2 bridges eliminated; 1 at US 62 and 1 at Clarks Run Rd.							
	Costs included in VE Alt. 4 above.							

DESIGN SUGGESTIONS

Design Suggestion No.	Description	Status	Implemented Life Cycle Cost Savings	Remarks