

To: Derrick Radke

From: Mack Christensen, P.E.
Michael Merkley, E.I.T.

Date: September 17, 2009

Memorandum

Subject: Jeremy Ranch Interchange Study – Modified Michigan U-turn Alternative Summary

This summary report provides the requested information for the proposed Modified Michigan U-turn Alternative at the Jeremy Ranch Interchange. Included in this summary report are the design, intersection performance, and cost estimate of the proposed Modified Michigan U-turn Alternative.

Design of the Proposed Modified Michigan U-turn Alternative

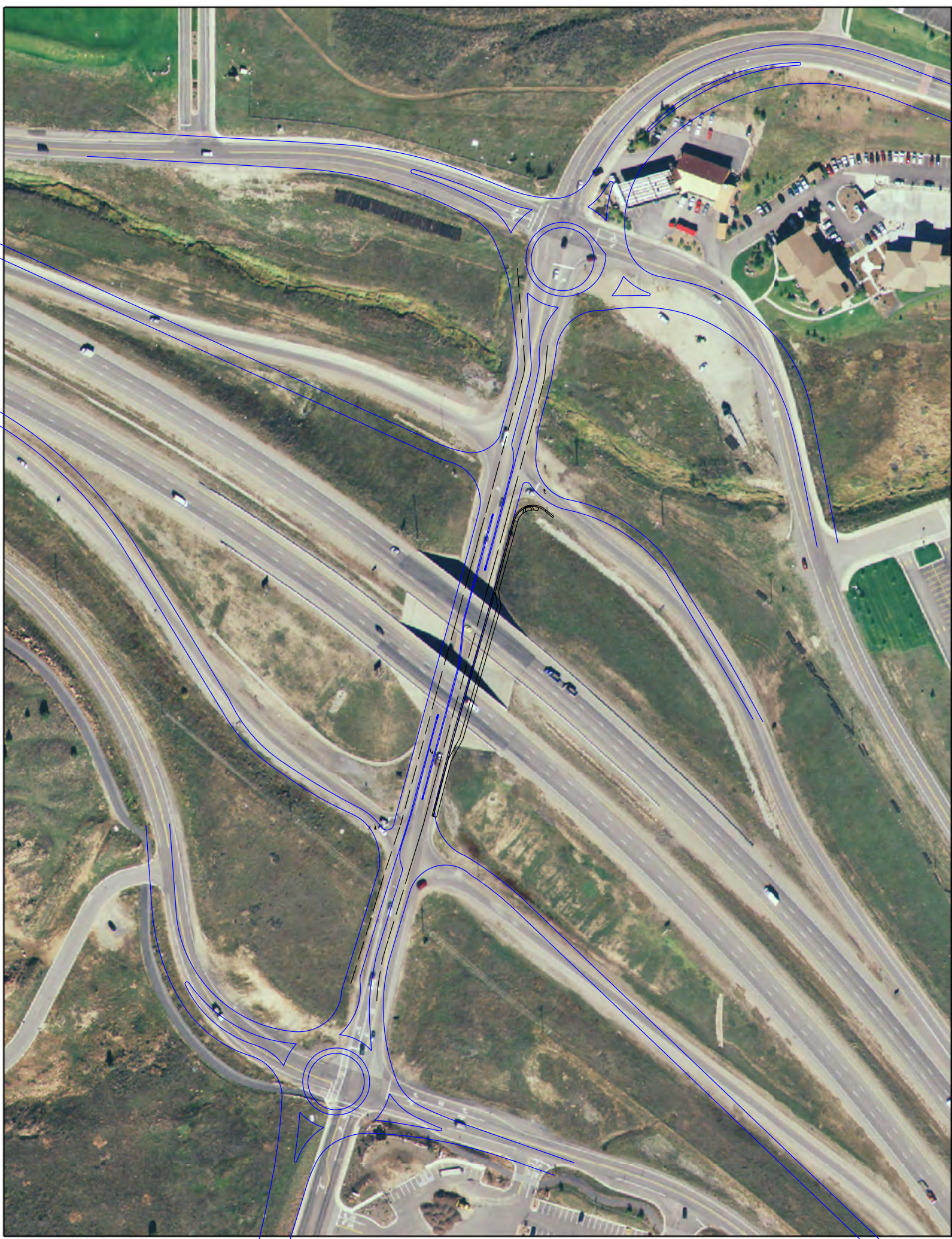
The proposed Modified Michigan U-turn Alternative at the Jeremy Ranch Interchange would require the installation of two roundabouts on the frontage roads of the interchange, Kilby Road and Rasmussen Road. The proposed Modified Michigan U-turn Alternative also requires right turns only at the I-80 off-ramp terminals and allows partial left turns onto the I-80 on-ramp terminals. All other movements at the ramp terminals will be required to proceed to the roundabout in order to make the necessary u-turns. In order to enforce the required right-turns only at the off-ramp terminals raised medians will be required along Homestead Road. The proposed alternative design layout is attached to this summary.

Intersection Performance of the Proposed Modified Michigan U-turn Alternative

The two roundabouts at the Kilby Road and Rasmussen Road intersections are expected to perform at an acceptable Level of Service (LOS) until the desired horizon year of 2030. The two ramp terminals with the partial left turns onto the I-80 on-ramps are expected to operate at an acceptable LOS until approximately 2014. The traffic modeling of the ramp terminals found that the PM peak hour operated at an acceptable LOS during the 2015 PM peak period, however, large queues developed in the northbound direction on Homestead Road during the AM peak period. Due to the severe queuing in the northbound direction along Homestead Road, it is recommended that two more roundabouts be built at the two ramp terminals by 2015.

Cost Estimate for the Proposed Modified Michigan U-turn Alternative

Horrocks Engineers prepared a preliminary cost estimate for the proposed Michigan U-turn Alternative. The proposed cost is approximately \$1,535,000. The preliminary cost estimate is attached to this summary report.



Summit County I-80 Jeremy Ranch Interchange

Modified Michigan Left-turn Alternative

September 17, 2009

Engineer's Estimate

SPEC	Description	Unit	Quantity	Unit Price	Amount
	Mobilization	Lump	1	\$100,000.00	\$100,000.00
	Traffic Control	Lump	1	\$70,000.00	\$70,000.00
	Temporary Pavement Markings	Ln Ft	3,850	\$0.25	\$962.50
	Erosion Control	Lump	1	\$50,000.00	\$50,000.00
	Dust Control and Watering	1000 Gal	100	\$25.00	\$2,500.00
	Environment Control Supervisor	Lump	1	\$1,500.00	\$1,500.00
	Survey	Lump	1	\$15,000.00	\$15,000.00
	Borrow	Cu Yd	600	\$12.50	\$7,500.00
	2" Granular Borrow	Ton	6,000	\$18.48	\$110,880.00
	Remove Concrete Headwalls	Lump	1	\$5,000.00	\$5,000.00
	Soil Removal (Sidewalk Relocation)	Cu Yd	350	\$20.00	\$7,000.00
	Remove Concrete Curb and Gutter	Sq Ft	1,200	\$5.09	\$6,108.00
	Remove Sign	Each	8	\$89.46	\$715.68
	Pavement Removal (Driveways)	Sq Ft	2,000	\$1.25	\$2,500.00
	Roadway Excavation	Cu Yd	9,000	\$12.00	\$108,000.00
	Loose Riprap	Cu Yd	30	\$62.31	\$1,869.30
	18" Pipe Culvert	Ln Ft	250	\$40.00	\$10,000.00
	Metal End Section (18")	Each	1	\$300.00	\$300.00
	Precast Concrete Catch Basin (36"X36"X48")	Each	4	\$2,000.00	\$8,000.00
	Cement Treated Recycled Base	Ton	90	\$150.00	\$13,500.00
	Untreated Base Course (3/4" or 1" max.)	Ton	5,000	\$25.00	\$125,000.00
	HMA (3/4" max.)(PG 58-34)	Ton	2,400	\$75.00	\$180,000.00
	HMA - Driveway(3/4" max.)(PG 58-34)	Ton	70	\$75.00	\$5,250.00
	Tack Coat	Ton	3	\$600.00	\$1,800.00
	Prime Coat	Ton	24	\$600.00	\$14,400.00
	Pavement Markings	Ln Ft	4,500	\$0.30	\$1,350.00
	Pavement Marking Paint (Messages)	Each	14	\$50.00	\$700.00
	Traffic Sign, Type A-2 (R2-1)(24"X30")(Speed Limit),Metal	Each	2	\$400.00	\$800.00
	Traffic Sign, Type A-2 (R3-5R)(30"X36")(Right Turn Only)	Each	2	\$400.00	\$800.00
	Traffic Sign, Type A-2 (W13-1)(18"X18")(50 MPH),Metal	Each	5	\$350.00	\$1,750.00
	Concrete Edge	Ln Ft	800	\$19.50	\$15,600.00
	ADA Ramps	Lump	12	\$1,200.00	\$14,400.00
	Concrete Sidewalk	Sq Ft	7,000	\$5.00	\$35,000.00
	Soil Stabilization-6' MSE Wall (Relocation of Sidewalk)	Sq Ft	1,200	\$60.00	\$72,000.00
	Raised Curb (1.5')	Ln Ft	4,870	\$12.00	\$58,440.00
	Curb and Gutter (2')	Ln Ft	660	\$12.00	\$7,920.00
	Utilities	Lump	1	\$25,000.00	\$25,000.00
	Water-Hydrant Relocate	Lump	2	\$2,500.00	\$5,000.00
	Concrete Demolition	Ln Ft	600	\$4.50	\$2,700.00
	Landscaping	Lump	1	\$65,000.00	\$65,000.00
Subtotal =					\$984,245.48

Contingency (30%) = \$295,273.64

UDOT Contingency (10%) = \$98,424.55

Engineering (8%) = \$78,739.64

Construction Engineering (8%) = \$78,739.64

Total = \$1,535,422.95