Chapter 6: Implementation Plan and Cost Estimates

This chapter presents a plan for implementing the recommended construction projects by segment and presents cost estimates for 15 of the construction projects.

6.1 Implementation

Table 5.2-1, Recommended Construction Projects for the US 40 Study Corridor, in Chapter 5, Project and Policy Recommendations, lists a timeline and rank for all of the proposed construction projects in the US 40 study corridor, but does not identify a logical implementation sequence. The order in which projects are constructed largely depends on funding and priority (need), but the relationship of a proposed project to other recent or imminent projects in the vicinity also affects the sequence in which the projects can or should be constructed. Table 6.1-1 below lists the US 40 projects by segment and includes an implementation strategy for each segment. The project number and ranking are taken from Table 5.2-1 in Chapter 5.

Table 6.1-1. Implementation Strategy

Segment 1 – MP 21.4 to MP 34.3

Overall Implementation Strategy for Segment 1

This study recommends that the variable-message signs (Project X2) and cameras (Project Y2) should be implemented first in Segment 1 to address weather-related road conditions. Even though these projects were ranked lower based on the scoring criteria, variable-message signs and cameras are inexpensive to install and provide value to the growing number of travelers. The two projects could also be used together: UDOT could use the cameras to view conditions along the segment and update the variable-message signs accordingly.

The second project in this segment should be closing the gap in the existing passing lane between MP 30.44 and MP 31.28.

Finally, UDOT should give priority to preparing an evaluation/study of downhill passing opportunities in Daniels Canyon to determine the appropriate location for new passing lanes. This study will take into account geotechnical issues with slopes and Daniels Creek.

Short-Term – by 2013 (Project Number and Ranking)[a]	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
None	• O1/15 – Add/extend eastbound passing lane from MP 30.44 to MP 31.28 (gap in existing climbing lane). • D2/25 – Identify specific locations for and construct westbound passing lanes in Daniels Canyon between about MP 23–MP 21, MP 28–MP 26, and MP 32.6–MP 31. • X2/45 – Install variable-message signs at entry to Daniels Canyon (~MP 23.3 to MP 35) to inform travelers of road conditions. • Y2/48 – Install cameras around rest area (~MP 70) and Daniels Lodge (~MP 35).	None

Table 6.1-1. Implementation Strategy

Segment 2 – MP 34.3 to MP 85.86

Overall Implementation Strategy for Segment 2

As the longest segment in the study area, Segment 2 has many recommended projects. Most of the projects involve passing lanes and are recommended as mid-term improvements. Of primary importance is extending existing passing lanes that currently end at the top of a grade. This should be completed as a single project and would provide the greatest safety benefit since many passing lanes in this segment end before the crest of the hill.

New passing lanes should be added based on ranking.

Traffic count data collected during the corridor study did not include Red Creek Road and Currant Creek Road. Summer traffic counts would help determine usage and the need for accelerating projects G2, H2, and U2.

Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
• H2/29 – Replace/rehabilitate Red Creek Bridge (bridge D-595) at MP 65.4.	• S1/19 – Extend existing eastbound passing lane that ends at MP 49.2 to next passing lane that begins at MP 50.6. • T1/20 – Connect existing westbound passing lanes from MP 61.4 to MP 59.7. • F2/27 – Extend existing eastbound passing lane from MP 59.4 to MP 61. • G2/28 – Improve intersection of US 40 and Red Creek Road (near MP 65.4; improve sight distance; add acceleration and deceleration lanes; add left-turn lanes; add passing lanes over hill crests in both directions). • I2/30 – Add 2 miles of new westbound passing lane between MP 46 and MP 35. • J2/31 – Extend existing eastbound passing lane from MP 43.3 to MP 44. • K2/32 – Extend existing eastbound passing lane from MP 68 to MP 69.2. • N2/35 – Extend existing westbound passing lane from MP 61.5 to MP 60.5.	None

Table 6.1-1. Implementation Strategy

Segment 2 – MP 34.3 to MP 85.86 (continued)		
	• O2/36 – Extend existing westbound passing lane from MP 70.9 to MP 70.2. • P2/37 – Add 1 mile of new eastbound passing lane between MP 82 and MP 84. • Q2/38 – Extend existing eastbound passing lane that ends at MP 51 to MP 51.4. • U2/42 – Add eastbound right-turn/left-turn lane at Currant Creek Road (MP 58.2). • A3/48 – Install cameras around rest area (~MP 70) and Daniels Lodge (~MP 35).	
Segment 3 – MP 85.86 to MP 87.53		
Overall Implementation Strategy for Segment 3 Segment 3 contains only one project. This short-term project should be completed as funding becomes available. UDOT should consider realigning this intersection and the intersection of US 191 to intersect opposite each another, which would create one major intersection instead of having two highway intersections within one block of each other.		
Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
• E1/5 – Improve/relocate intersection of SR 87 and US 40 in Duchesne (MP 86.5); make intersection concrete.	None	None

Table 6.1-1. Implementation Strategy

Segment 4 – MP 87.53 to MP 111.48

Overall Implementation Strategy for Segment 4

Of primary importance is extending existing passing lanes that currently end at the top of a grade. This should be completed as a single project and would provide the greatest safety benefit since many passing lanes end before the crest of a hill.

Project N1, widening the segment to four lanes, should occur after Segment 6 is widened to four lanes (Project D1). Overall, Segment 6 has a greater need for the capacity improvement to serve a safety need.

Passing lanes should be implemented as prioritized or as part of other projects as possible.

Interchange improvements should be constructed only after the four-lane widening is constructed.

Short-Term – by 2013	Mid-Term – by 2023	Long-Term – by 2035
(Project Number and Ranking)	(Project Number and Ranking)	(Project Number and Ranking)
• K1/11 – Add turn and acceleration lanes for both right-hand and left-hand turns at Pleasant Valley Road intersection (~MP 103.6); make intersection concrete. • U1/21 – Add 2 miles of new eastbound passing lane between MP 88 and MP 93. • V1/21 – Add 2 miles of new eastbound passing lane between MP 93 and MP 103. • W1/21 – Add 1 mile of new westbound passing lane between MP 93 and MP 87. • X1/21 – Add 1 mile of new westbound passing lane between MP 98 and MP 93. • Y1/21 – Add 1 mile of new westbound passing lane between MP 104 and MP 98. • Z1/21 – Extend existing westbound passing lane that ends at MP 108.8 west to MP 107.6.	• N1/14 – Widen highway to four lanes along entire segment from Roosevelt to Duchesne.	• L1/12 – Convert intersection of US 40 and Pleasant Valley Road to an interchange (~MP 103.6). • P1/16 – Convert intersection of US 40 and Bridgeland turnoff (Antelope Canyon Road) to an interchange (~MP 96.9). • A2/22 – Convert intersection of US 40 and SR 87 (Ioka Junction, north of Myton) to an interchange (~MP 109.6).

Table 6.1-1. Implementation Strategy

Segment 5 – MP 111.48 to MP 118.5

Overall Implementation Strategy for Segment 5

The stamped concrete crossing of US 40 (Project T2) should be the first project implemented. This project is inexpensive and can have lasting beneficial impacts with Ballard as a partner in corridor management.

The remainder of the projects should be constructed in order of priority.

The intersection of US 40 and SR 121 should be improved to allow continuous flow on US 40, with traffic stopping only when traffic on SR 121 dictates.

Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
• G1/7 – Construct three-lane section with center turn lane east of Ballard from MP 115.2 to MP 116.62. • H1/8 – Add 1 mile or more of new eastbound passing lane between MP 116.62 and ~MP 118.79. • T2/41 – Construct stamped concrete crossing of Roosevelt bicycle path at US 40 and Lagoon Street (~MP 114.4).	• J1/10 – Widen highway from 500 East to L&L corner at intersection with SR 121 to four lanes (~MP 114.4 to MP 114.6). Change intersection geometrics to improve level of service. • S2/40 – Construct concrete intersections in Roosevelt and Ballard.	None

Table 6.1-1. Implementation Strategy

Segment 6 – MP 118.5 to MP 141.48

Overall Implementation Strategy for Segment 6

This segment has the most critical needs in the entire corridor. The passing-lane projects should be constructed before the four-lane improvement (Project D1).

It might be possible to address sight distance problems at 2500 West in Vernal (Project I1) as part of the "Twists" project (A1).

The remainder of the projects should be constructed in order of priority.

Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
• A1/1 – Add eastbound and westbound passing lanes from the "Twists" to Vernal (MP 134 to MP 141.2) to create a four-lane section along entire segment. • B1/2 – At intersection of SR 88 and US 40 (~MP 130.5), add acceleration/deceleration lanes and westbound hill-climbing lane. Also, lengthen turn lanes and make intersection concrete. • D1/4 – Widen highway to four lanes along entire segment between Vernal and Roosevelt. • I1/9 – Address sight distance problems and intersection geometrics at 2500 West on the southwest edge of Vernal (~MP 141.2). • Q1/17 – Add 2 miles of new eastbound passing lane between MP 122 and MP 134. • R1/18 – Add 2 miles of new westbound passing lane between MP 134 and MP 122. • B2/23 – Extend existing westbound passing lane from MP 119.4 to ~MP 118 (Ballard city limit).	• C1/3 – Construct full-service interchange at intersection of SR 88 and US 40 (~MP 130.5).	• W2/44 – Upgrade intersection of 7500 West and US 40 in Fort Duchesne to an interchange (~MP 121.4).

Table 6.1-1. Implementation Strategy

Segment 7 – MP 141.48 to MP 148.54

Overall Implementation Strategy for Segment 7

Projects in this segment should be constructed in order of priority. The improvements to the intersection of US 40 and US 191 (Project F1) should begin with concrete and signalization improvements. Relocation of this intersection needs to be considered in discussions of a Vernal alternate route.

Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
• F1/6 – Improve/relocate intersection of US 40 and US 191 in Vernal (~MP 144.35). • M1/13 – Install signal at intersection of SR 45 (Bonanza Highway) and US 40 in Naples (~MP 148.3). • R2/39 – Reconstruct intersections in Vernal and Naples to concrete, especially at signalized intersections.	None	None

Segment 8 – MP 148.54 to MP 157

Overall Implementation Strategy for Segment 8

Project M2 should be constructed first because it is a needed safety improvement. The remainder of the projects should be constructed in order of priority.

Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
None	• C2/24 – Add 1 mile of new eastbound passing lane between MP 150 and MP 157. • E2/26 – Add 1 mile of new westbound passing lane between MP 157 and MP 150. • M2/34 – Add left-turn and right-turn lanes or center turn lane at key locations between Naples and the eastern project terminus. Suggested locations for turn lanes are at 3700 East 4000 South, 5500 East 5000 South, and 6800 East 6000 South. Suggested location for center turn lane (three lanes total) is from 7750 East 6000 South to SR 149.	None

Table 6.1-1. Implementation Strategy

Multiple Segments

Overall Implementation Strategy for Multiple Segments

Sign installation (Project Z2) should be completed first because this is a relatively inexpensive project that will provide an immediate safety improvement.

The installation of Internet cameras (Project Y2) is also inexpensive and can provide information for travelers. The cameras should be installed at the same time as variable-message signs (Project Z2).

Several drainage plans are currently under development. The recommendations in these plans will be important for UDOT to include in project planning and STIP development.

Short-Term – by 2013 (Project Number and Ranking)	Mid-Term – by 2023 (Project Number and Ranking)	Long-Term – by 2035 (Project Number and Ranking)
• Z2/47 – Install signs corridor-wide indicating passing lanes, wildlife crossing areas, and snowmobile and all-terrain-vehicle crossings.	• L2/33 – Stripe bicycle lanes in established communities corridor-wide. • V2/43 – Construct necessary drainage improvements based on drainage plan developed with Uintah County government, governments of cities in Uintah County, and the Cities of Duchesne and Roosevelt. • Y2/46 – Install cameras to allow Internet review of road conditions.	None

[a] Project numbers and rankings are shown in Table 5.2-1, Recommended Construction Projects for the US 40 Study Corridor, in Chapter 5, Project and Policy Recommendations.

6.2 Cost Estimates

Table 6.2-1 provides planning-level cost estimates for 15 projects from the US 40 Corridor Study recommended construction projects list. UDOT selected these projects based on priority and anticipated schedule. Detailed information for each cost estimate follows the table.

Table 6.2-1. Planning-Level Cost Estimates for the US 40 Study Corridor

Project, Rank, and Location	Project Description	Planning-Level Cost Estimate
Project: C1 Rank: 3 Segment: 6	Construct full-service interchange at intersection of SR 88 and US 40 (~MP 130.5).	$7,130,000
Project: D1 Rank: 4 Segment: 6	Widen highway to four lanes along entire segment between Vernal and Roosevelt.	$83,260,000
Project: E1 Rank: 5 Segment: 3	Improve/relocate intersection of SR 87 and US 40 in Duchesne (MP 86.5); make intersection concrete.	$633,000
Project: G1 Rank: 7 Segment: 5	Construct three-lane section with center turn lane east of Ballard from MP 115.2 to MP 116.62.	$1,877,400
Project: H1 Rank: 8 Segment: 5	Add 1 mile or more of new eastbound passing lane between MP 116.62 and ~MP 118.79.	$4,335,000
Project: J1 Rank: 10 Segment: 5	Widen highway from 500 East to L&L corner at intersection with SR 121 to four lanes (~MP 114.4 to MP 114.6). Change intersection geometrics to improve level of service.	$377,500
Project: K1 Rank: 11 Segment: 4	Add turn and acceleration lanes for both right-hand and left-hand turns at Pleasant Valley Road intersection (~MP 103.6); make intersection concrete.	$1,920,000
Project: M1 Rank: 13 Segment: 7	Install signal at intersection of SR 45 (Bonanza Highway) and US 40 in Naples (~MP 148.3).	$99,000
Project: N1 Rank: 14 Segment: 4	Widen highway to four lanes along entire segment from Roosevelt to Duchesne.	$90,400,000
Project: O1 Rank: 15 Segment: 1	Add/extend eastbound passing lane from MP 30.44 to MP 31.28 (gap in existing climbing lane).	$1,630,000
Project: T1 Rank: 20 Segment: 2	Connect existing westbound passing lanes from MP 61.4 to MP 59.7.	$3,038,000
Project: F2 Rank: 27 Segment: 2	Extend existing eastbound passing lane from MP 59.4 to MP 61.	$3,165,000

Table 6.2-1. Planning-Level Cost Estimates for the US 40 Study Corridor

Project, Rank, and Location	Project Description	Planning-Level Cost Estimate
Project: G2 Rank: 28 Segment: 2	Improve intersection of US 40 and Red Creek Road (near MP 65.4; improve sight distance; add acceleration and deceleration lanes; add left-turn lanes; add passing lanes over hill crests in both directions).	$4,798,000
Project: I2 Rank: 30 Segment: 2	Add 2 miles of new westbound passing lane between MP 46 and MP 35.	$4,530,000
Project: Q2 Rank: 38 Segment: 2	Extend existing eastbound passing lane from MP 51 to MP 51.4.	$900,000

6.2.1 Project C1: Full-Service Interchange at Intersection of US 40 and SR 88

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	27930	*$420,000.00*
Roadway Excavation (Plan Quantity)	yd3	$13.00	20740	*$270,000.00*
Untreated Base Course	Ton	$20.00	19320	*$400,000.00*
HMA - 3/4 inch	Ton	$80.00	10640	*$860,000.00*
Borrow	cu yd	$15.00	26500	*$400,000.00*
Structure over SR-88	Lump	$1,000,000.00	1	$1,000,000.00
			SUBTOTAL	$3,350,000
Mobilization	15%			*$510,000.00*
Traffic Control	7%			*$240,000.00*
Surveying (Construction)	3%			*$110,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	30%			*$1,270,000.00*
			SUBTOTAL	$5,480,000
Preliminary/Final Engineering	10%		1	*$550,000.00*
			SUBTOTAL	$6,030,000
Construction Engineering	10%			*$ 550,000.00*
UDOT Contingency	10%			*$ 550,000.00*
			TOTAL	**$7,130,000**
			ROUNDED TOTAL	***$7,200,000***

Italics denote rounding

6.2.2 Project D1: Widen Highway to Four Lanes from Roosevelt to Vernal

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	498750	*$7,500,000.00*
Roadway Excavation (Plan Quantity)	yd3	$13.00	550000	*$7,150,000.00*
Untreated Base Course	Ton	$20.00	345000	*$6,900,000.00*
HMA - 3/4 inch	Ton	$80.00	190000	*$15,200,000.00*
36" Reinforced Concrete Pipe	ft	$100.00	5050	*$510,000.00*
Standard Box Culvert Extension	ft	$1,000.00	400	$400,000.00
Widening of Major Box Culvert Structures	ft	$3,100.00	150	$470,000.00
Widen Bridge over Uinta River	Lump	$1,260,000.00	1	$1,260,000.00
			SUBTOTAL	$39,390,000
Mobilization	15%			*$5,910,000.00*
Traffic Control	7%			*$2,760,000.00*
Surveying (Construction)	3%			*$1,190,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	30%			*$14,780,000.00*
			SUBTOTAL	$64,030,000
Preliminary/Final Engineering	10%		1	*$6,410,000.00*
			SUBTOTAL	$70,440,000
Construction Engineering	10%			*$ 6,410,000.00*
UDOT Contingency	10%			*$ 6,410,000.00*
			TOTAL	**$83,260,000**
			ROUNDED TOTAL	***$83,300,000***

Italics denote rounding

6.2.3 Project E1: Intersection Modifications at US 40 and SR 87 in Duchesne

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$30.00	1227	*$37,000.00*
Remove Concrete Pavement	sq yd	$20.00	126	*$3,000.00*
Remove Asphalt Pavement	sq yd	$5.00	1924	*$10,000.00*
Untreated Base Course	Ton	$30.00	424	*$13,000.00*
HMA - 3/4 inch	Ton	$100.00	467	*$47,000.00*
9 Inch Portland Concrete Cement Pavement	sq yd	$75.00	2050	*$154,000.00*
Concrete Curb and Gutter Type B1	ft	$30.00	190	*$6,000.00*
			SUBTOTAL	$270,000
Mobilization	15%			*$41,000.00*
Traffic Control	7%			*$19,000.00*
Surveying (Construction)	3%			*$9,000.00*
Right-of-Way ($50/ft^2 assumption)	sq ft	$50.00	1140	$57,000.00
Contingency (Items not accounted for)	30%			*$102,000.00*
			SUBTOTAL	$498,000
Preliminary/Final Engineering	10%		1	*$45,000.00*
			SUBTOTAL	$543,000
Construction Engineering	10%			*$ 45,000.00*
UDOT Contingency	10%			*$ 45,000.00*
			TOTAL	**$633,000**
			ROUNDED TOTAL	***$640,000***

Italics denote rounding

6.2.4 Project G1: Construct Center Turn Lane East of Ballard

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$20.00	7300	$146,000.00
Roadway Excavation (Plan Quantity)	cu yd	$15.00	8200	$123,000.00
Untreated Base Course	Ton	$20.00	5100	$102,000.00
HMA - 3/4 inch	Ton	$80.00	5500	$440,000.00
Rotomilling - 2 inch	sq yd	$2.50	23500	$58,750.00
			SUBTOTAL	*$870,000*
Mobilization	15%			*$140,000.00*
Traffic Control	7%			*$70,000.00*
Survey	2%			*$17,400.00*
Right-of-Way	Lump		0	$0.00
Contingency (Items not accounted for)	30%			*$330,000.00*
			SUBTOTAL	$1,427,400
Preliminary/Final Engineering	10%		1	*$150,000.00*
			SUBTOTAL	$1,577,400
Construction Engineering	10%			*$ 150,000.00*
UDOT Contingency	10%			*$ 150,000.00*
			TOTAL	**$1,877,400**
			ROUNDED TOTAL	***$1,900,000***

Italics denote rounding

6.2.5 Project H1: Add New Passing Lane between MP 116 and MP 119

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	22900	*$350,000.00*
Roadway Excavation (Plan Quantity)	yd3	$13.00	30600	*$400,000.00*
Untreated Base Course	Ton	$20.00	15800	*$320,000.00*
HMA - 3/4 inch	Ton	$80.00	8700	*$700,000.00*
Borrow	cu yd	$15.00	15300	*$230,000.00*
36 Inch Reinforced Concrete Pipe	ft	$100.00	150	$15,000.00
			SUBTOTAL	$2,015,000
Mobilization	15%			*$310,000.00*
Traffic Control	7%			*$150,000.00*
Surveying (Construction)	3%			*$70,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	30%			*$770,000.00*
			SUBTOTAL	$3,315,000
Preliminary/Final Engineering	10%		1	*$340,000.00*
			SUBTOTAL	$3,655,000
Construction Engineering	10%			*$ 340,000.00*
UDOT Contingency	10%			*$ 340,000.00*
			TOTAL	**$4,335,000**
			ROUNDED TOTAL	***$4,400,000***

Italics denote rounding

6.2.6 Project J1: Modify Intersection and Approaches at L&L Corner in Roosevelt

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$35.00	320	*$12,000.00*
Remove Concrete Curb and Gutter	ft	$11.00	528	*$6,000.00*
Remove Concrete Sidewalk	sq yd	$7.00	352	*$3,000.00*
Untreated Base Course	Ton	$35.00	220	*$8,000.00*
HMA - 3/4 inch	Ton	$120.00	120	*$15,000.00*
Concrete Curb and Gutter Type B1	ft	$23.00	528	*$13,000.00*
Concrete Sidewalk	sq ft	$5.00	3170	*$16,000.00*
Adjust traffic signal	Lump	$25,000.00	1	$25,000.00
			SUBTOTAL	$98,000
Mobilization	15%			*$20,000.00*
Traffic Control	7%			*$7,000.00*
Surveying (Construction)	3%			*$3,000.00*
Right-of-Way ($50/ft^2 Assumption)	sq ft	$50.00	3170	*$158,500.00*
Contingency (Items not accounted for)	30%			*$40,000.00*
			SUBTOTAL	$326,500
Preliminary/Final Engineering	10%		1	*$17,000.00*
			SUBTOTAL	$343,500
Construction Engineering	10%			*$ 17,000.00*
UDOT Contingency	10%			*$ 17,000.00*
			TOTAL	**$377,500**
			ROUNDED TOTAL	***$380,000***

Italics denote rounding

6.2.7 Project K1: Intersection Modifications at US 40 and Pleasant Valley Road (MP 103.6)

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	9310	*$140,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	11000	*$170,000.00*
Untreated Base Course	Ton	$20.00	5980	*$120,000.00*
HMA - 3/4 inch	Ton	$80.00	3550	*$290,000.00*
9 Inch Portland Cement Concrete Pavement	sq yd	$75.00	2250	*$170,000.00*
			SUBTOTAL	$890,000
Mobilization	15%			*$140,000.00*
Traffic Control	7%			*$70,000.00*
Surveying (Construction)	3%			*$30,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	30%			*$340,000.00*
			SUBTOTAL	$1,470,000
Preliminary/Final Engineering	10%		1	*$150,000.00*
			SUBTOTAL	$1,620,000
Construction Engineering	10%			*$ 150,000.00*
UDOT Contingency	10%			*$ 150,000.00*
			TOTAL	**$1,920,000**
			ROUNDED TOTAL	***$2,000,000***

Italics denote rounding

6.2.8 Project M1: Install Signal at Intersection of US 40 and SR 45 in Naples

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Addition of Signal at US-40/SR-45 Intersection	lump	$75,000.00	1	$75,000.00
			SUBTOTAL	$75,000
Mobilization	N/A	included		
Traffic Control	N/A	included		
Surveying (Construction)	N/A	included		
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	N/A	included		
			SUBTOTAL	$75,000
Preliminary/Final Engineering	10%		1	*$8,000.00*
			SUBTOTAL	$83,000
Construction Engineering	10%			*$ 8,000.00*
UDOT Contingency	10%			*$ 8,000.00*
			TOTAL	**$99,000**
			ROUNDED TOTAL	***$100,000***

Italics denote rounding

6.2.9 Project N1: Widen Highway to Four Lanes from Duchesne to Roosevelt

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	490000	*$7,400,000.00*
Roadway Excavation (Plan Quantity)	yd3	$13.00	545000	*$7,090,000.00*
Untreated Base Course	Ton	$20.00	340000	*$6,800,000.00*
HMA - 3/4 inch	Ton	$80.00	190000	*$15,200,000.00*
36" Reinforced Concrete Pipe	ft	$100.00	5650	*$570,000.00*
Standard Box Culvert Extension	ft	$1,000.00	700	$700,000.00
Widening of Major Box Culverts	ft	$3,100.00	150	*$470,000.00*
Widen Structure F-62 over Strawberry River	Lump	$1,600,000.00	1	$1,600,000.00
Widen Structure F-690 over Antelope Creek	Lump	$975,000.00	1	$980,000.00
Widen Structure C-794 over Duchesne River	Lump	$1,950,000.00	1	$1,950,000.00
			SUBTOTAL	$42,760,000
Mobilization	15%			*$6,420,000.00*
Traffic Control	7%			*$3,000,000.00*
Surveying (Construction)	3%			*$1,290,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	30%			*$16,050,000.00*
			SUBTOTAL	$69,520,000
Preliminary/Final Engineering	10%		1	*$6,960,000.00*
			SUBTOTAL	$76,480,000
Construction Engineering	10%			*$ 6,960,000.00*
UDOT Contingency	10%			*$ 6,960,000.00*
			TOTAL	**$90,400,000**
			ROUNDED TOTAL	***$90,400,000***

Italics denote rounding

6.2.10 Project O1: Extend Existing Eastbound Passing Lane from MP 30.4 to MP 31.3

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	8850	*$140,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	9860	*$150,000.00*
Untreated Base Course	Ton	$20.00	6120	*$130,000.00*
HMA - 3/4 inch	Ton	$80.00	3370	*$270,000.00*
			SUBTOTAL	$690,000
Mobilization	15%			*$110,000.00*
Traffic Control	7%			*$50,000.00*
Surveying (Construction)	3%			*$30,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	40%			*$360,000.00*
			SUBTOTAL	$1,240,000
Preliminary/Final Engineering	10%		1	*$130,000.00*
			SUBTOTAL	$1,370,000
Construction Engineering	10%			*$ 130,000.00*
UDOT Contingency	10%			*$ 130,000.00*
			TOTAL	**$1,630,000**
			ROUNDED TOTAL	***$1,700,000***

Italics denote rounding

6.2.11 Project T1: Connect Existing Westbound Passing Lanes between MP 61.4 and MP 59.7

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	17960	*$270,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	20000	*$300,000.00*
Untreated Base Course	Ton	$20.00	12420	*$250,000.00*
HMA - 3/4 inch	Ton	$80.00	6840	*$550,000.00*
36 Inch Reinforced Concrete Pipe	ft	$100.00	375	*$38,000.00*
			SUBTOTAL	$1,408,000
Mobilization	15%			*$220,000.00*
Traffic Control	7%			*$100,000.00*
Surveying (Construction)	3%			*$50,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	30%			*$540,000.00*
			SUBTOTAL	$2,318,000
Preliminary/Final Engineering	10%		1	*$240,000.00*
			SUBTOTAL	$2,558,000
Construction Engineering	10%			*$ 240,000.00*
UDOT Contingency	10%			*$ 240,000.00*
			TOTAL	**$3,038,000**
			ROUNDED TOTAL	***$3,100,000***

Italics denote rounding

6.2.12 Project F2: Extend Existing Eastbound Passing Lane from MP 59.4 to MP 61

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	16960	*$260,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	18900	*$290,000.00*
Untreated Base Course	Ton	$20.00	11730	*$240,000.00*
HMA - 3/4 inch	Ton	$80.00	6460	*$520,000.00*
Remove Guardrail	ft	$3.00	850	*$3,000.00*
W-Beam Guardrail with 72 Inch Wood Posts	ft	$20.00	850	*$17,000.00*
36 Inch Reinforced Concrete Pipe	ft	$100.00	350	*$35,000.00*
			SUBTOTAL	$1,365,000
Mobilization	15%			*$210,000.00*
Traffic Control	7%			*$100,000.00*
Surveying (Construction)	3%			*$50,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	40%			*$690,000.00*
			SUBTOTAL	$2,415,000
Preliminary/Final Engineering	10%		1	*$250,000.00*
			SUBTOTAL	$2,665,000
Construction Engineering	10%			*$ 250,000.00*
UDOT Contingency	10%			*$ 250,000.00*
			TOTAL	**$3,165,000**
			ROUNDED TOTAL	***$3,200,000***

Italics denote rounding

6.2.13 Project G2: Intersection Modifications at US 40 and Red Creek Road (MP 65.4)

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	15800	*$240,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	17600	*$270,000.00*
Untreated Base Course	Ton	$20.00	10930	*$220,000.00*
HMA - 3/4 inch	Ton	$80.00	6020	*$490,000.00*
Standard Box Culvert Extension	ft	$1,000.00	25	*$25,000.00*
36 Inch Reinforced Concrete Pipe	ft	$100.00	125	*$13,000.00*
Structure over Red Creek	lump	$830,000.00	1	*$830,000.00*
			SUBTOTAL	$2,088,000
Mobilization	15%			*$320,000.00*
Traffic Control	7%			*$150,000.00*
Surveying (Construction)	3%			*$70,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	40%			*$1,060,000.00*
			SUBTOTAL	$3,688,000
Preliminary/Final Engineering	10%		1	*$370,000.00*
			SUBTOTAL	$4,058,000
Construction Engineering	10%			*$ 370,000.00*
UDOT Contingency	10%			*$ 370,000.00*
			TOTAL	**$4,798,000**
			ROUNDED TOTAL	***$4,800,000***

Italics denote rounding

6.2.14 Project I2: Add 2 Miles of New Westbound Passing Lane between MP 46 and MP 35

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	21070	*$320,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	23500	*$360,000.00*
Untreated Base Course	Ton	$20.00	14580	*$300,000.00*
HMA - 3/4 inch	Ton	$80.00	8025	*$650,000.00*
36 inch Reinforced Concrete Pipe	ft	$100.00	250	*$30,000.00*
Standard Box Culvert Extension	ft	$1,000.00	50	$50,000.00
			SUBTOTAL	$1,710,000
Mobilization	25%			*$430,000.00*
Traffic Control	7%			*$120,000.00*
Surveying (Construction)	3%			*$60,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	50%			*$1,160,000.00*
			SUBTOTAL	$3,480,000
Preliminary/Final Engineering	10%		1	*$350,000.00*
			SUBTOTAL	$3,830,000
Construction Engineering	10%			*$ 350,000.00*
UDOT Contingency	10%			*$ 350,000.00*
			TOTAL	**$4,530,000**
			ROUNDED TOTAL	***$4,600,000***

Italics denote rounding

6.2.15 Project Q2: Extend Existing Eastbound Passing Lane from MP 51 to MP 51.4

Items	UNIT	UNIT COST	QUANTITY	AMOUNT
Granular Borrow	Ton	$15.00	4290	*$70,000.00*
Roadway Excavation (Plan Quantity)	yd3	$15.00	4780	*$80,000.00*
Untreated Base Course	Ton	$20.00	2970	*$60,000.00*
HMA - 3/4 inch	Ton	$80.00	1640	*$140,000.00*
			SUBTOTAL	$350,000
Mobilization	25%			*$90,000.00*
Traffic Control	7%			*$30,000.00*
Surveying (Construction)	3%			*$20,000.00*
Right-of-Way	Lump	$0.00	0	$0.00
Contingency (Items not accounted for)	40%			*$200,000.00*
			SUBTOTAL	$690,000
Preliminary/Final Engineering	10%		1	*$70,000.00*
			SUBTOTAL	$760,000
Construction Engineering	10%			*$ 70,000.00*
UDOT Contingency	10%			*$ 70,000.00*
			TOTAL	**$900,000**
			ROUNDED TOTAL	***$900,000***

Italics denote rounding