

The background features a light gray gradient with several large, overlapping geometric shapes in various shades of blue. A prominent dark blue triangle is positioned in the lower right, with a medium blue triangle overlapping its top edge. A large, light blue diagonal shape cuts across the center from the bottom left towards the top right. Other smaller blue shapes are scattered in the upper and lower portions of the frame.

# **APPENDIX E: COST ESTIMATE ASSUMPTIONS**

Segment Countermeasures and Cost Estimates

Variable Speed Limit Sign					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Variable Speed Limit Sign	Each	\$ 5,000.00	1	\$ 10,000.00	Assumes 1 sign each
Power Source	Each	\$ 30,000.00	1	\$ 30,000.00	Power for variable speed limit signs. Can service 2 signs
Power Conduit	Ft	\$ 10.00	1320	\$ 13,200.00	Conduit for variable speed limit signs.
Total/Each				\$	54,000.00

Driver Feedback Speed Limit Sign					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Driver Feedback Speed Limit Sign	Each	\$ 5,000.00	1	\$ 10,000.00	Assumes 1 sign each direction
Total/Each				\$	10,000.00

Medians - Back to Back Curb					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Type B5 Curb	ft	\$ 25.00	10560	\$ 264,000.00	Assumes center median with back to back B5 and no sidestreets
Total/Mile				\$	264,000.00

Bulbouts					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Type B1 Curb & Gutter	ft	\$ 40.00	100	\$ 4,000.00	Assumes 6 ft shoulder for parking, not for pedestrian crossings on both legs
Concrete Flatwork 6 Inch	sq ft	\$ 20.00	1000	\$ 20,000.00	Assumes 6 ft shoulder for parking, not for pedestrian crossings on both legs
Asphalt Pavement	sq ft	\$ 20.00	400	\$ 8,000.00	Assumes 6 ft shoulder for parking, not for pedestrian crossings on both legs
Roadway Excavation	cu yd	\$ 25.00	93	\$ 2,314.81	Assumes 6 ft shoulder for parking, not for pedestrian crossings on both legs
Remove Concrete Curb & Gutter	ft	\$ 9.00	100	\$ 900.00	Assumes 6 ft shoulder for parking, not for pedestrian crossings on both legs
Total/Each Bulbout Corner				\$	36,000.00

Bicycle Lane					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Message (Preformed Thermoplastic)	Each	\$ 300.00	42	\$ 12,672.00	Assumes no additional pavement needed. Bike rider/ arrow assumed every 500'
Sign Type A-1	Sq ft	\$ 42.00	30	\$ 1,260.00	Assumes signs every 1000' on both sides. Bike lane sign
Sign Type A-2	Sq ft	\$ 50.00	40	\$ 2,000.00	Assumes signs every 1000' on both sides. No parking sign
Sign Post P2	Each	\$ 150.00	10	\$ 1,500.00	Assumes signs every 1000' on both sides.
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	10	\$ 3,000.00	Assumes signs every 1000' on both sides.
Total/Mile				\$	21,000.00

Buffered Bicycle Lane					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Marking Paint	ft	\$ 0.30	24300	\$ 7,290.00	Assumes no sidestreets, 3' buffer both sides. Assumes no additional pavement needed.
Pavement Message	Each	\$ 300.00	42	\$ 12,672.00	Assumes bike rider/arrow assumed every 500'
Sign Type A-1	Sq ft	\$ 42.00	30	\$ 1,260.00	Assumes signs every 1000' on both sides. Bike lane sign
Sign Post P2	Each	\$ 150.00	10	\$ 1,500.00	Assumes signs every 1000' on both sides.
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	10	\$ 3,000.00	Assumes signs every 1000' on both sides.
Total/Mile				\$	26,000.00

Curb Separated Bicycle Lane					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Marking Paint	ft	\$ 0.30	21120	\$ 6,336.00	Assumes no sidestreets, 3' buffer both sides. Assumes no additional pavement needed.
Pavement Message	Each	\$ 300.00	42	\$ 12,672.00	Assumes bike rider/arrow assumed every 500'
Sign Type A-1	Sq ft	\$ 42.00	30	\$ 1,260.00	Assumes signs every 1000' on both sides. Bike lane sign
Sign Post P2	Each	\$ 150.00	10	\$ 1,500.00	Assumes signs every 1000' on both sides.
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	10	\$ 3,000.00	Assumes signs every 1000' on both sides.
Type B5 Curb	ft	\$ 25.00	21120	\$ 528,000.00	Assumes median with back to back B5 and no sidestreets. Both sides of road
Total/Mile				\$	553,000.00

Bicycle Lane Separated by Delineators					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Flexible Delineator Post	Each	\$ 85.00	528	\$ 44,880.00	Assumes delineators every 20' (<45 mph, otherwise 40') on both sides, no sidestreets.
Total/Mile				\$	45,000.00

4 to 3-Lane Road Diet with Addition of Bike Lanes					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Marking Paint 4" Solid	ft	\$ 0.30	42240	\$ 12,672.00	Assumes no change in pavement width, just re-striping
Pavement Marking Paint 4" Solid and Broken	ft	\$ 0.40	21120	\$ 8,448.00	Assumes no sidestreets
Sign Type A-1	Sq ft	\$ 42.00	30	\$ 1,260.00	Assumes signs every 1000' on both sides. Bike lane sign
Sign Post P2	Each	\$ 144.00	10	\$ 1,440.00	Assumes signs every 1000' on both sides.
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	10	\$ 3,000.00	Assumes signs every 1000' on both sides.
Pavement Message	Each	\$ 300.00	42	\$ 12,672.00	Assumes bike rider/arrow assumed every 500'
Total/Mile				\$	40,000.00

4 to 3-Lane Road Diet					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Marking Paint 4" Solid	ft	\$ 0.30	42240	\$ 12,672.00	Assumes no change in pavement width, just re-striping
Pavement Marking Paint 4" Solid and Broken	ft	\$ 0.40	21120	\$ 8,448.00	Assumes no sidestreets
Total/Mile				\$	22,000.00

Shared Sidewalk Sign					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Sign Type A-1	Sq ft	\$ 42.00	15	\$ 630.00	Assumes signs every 1000' on both sides.
Sign Post P2	Each	\$ 150.00	10	\$ 1,500.00	Assumes signs every 1000' on both sides.
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	10	\$ 3,000.00	Assumes signs every 1000' on both sides.
Total/Mile				\$	6,000.00

Floating Transit Island					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Curb Type B3	ft	\$ 30.00	170	\$ 5,100.00	Assumes 75 foot long, 10 foot wide island. Assumes enough room in existing roadway section. No curb removals.
Concrete Flatwork, 6 Inch Thick	sq ft	\$ 20.00	611	\$ 12,220.00	Assumes 75 foot long, 10 foot wide island. Assumes enough room in existing roadway section. No curb removals.
Bus Shelter	each	\$ 10,000.00	1	\$ 10,000.00	
Sign Type A-1	Sq ft	\$ 42.00	5	\$ 210.00	Keep Left sign to direct traffic
Sign Post P2	Each	\$ 150.00	1	\$ 150.00	
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	1	\$ 300.00	
Total/Mile				\$	28,000.00

Segment Countermeasures and Cost Estimates

Upgrade Existing Crosswalk to High-Visibility Crosswalk at Midblock locations					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Underground service pedestal - power source	each	\$ 660.00	1	\$ 660.00	Lighting
40' Signal Pole Luminaire	each	\$ 300.00	2	\$ 600.00	Lighting
15' Mast Arm	each	\$ 162.00	2	\$ 324.00	Lighting
LED Luminaire	each	\$ 312.00	2	\$ 624.00	Lighting
Foundation	each	\$ 3,137.00	2	\$ 6,274.00	Lighting
Junction Box	each	\$ 2,000.00	2	\$ 4,000.00	Lighting
Pavement Message (Preformed Thermoplastic)	each	\$ 300.00	26	\$ 7,800.00	Assumes 4 12-ft lanes and 2 4-ft shoulders (ladder style crosswalk)
RRFB	Lump	\$ 15,000.00	1	\$ 15,000.00	Enhanced signing
Remove Sign Less than 20 Square Feet	each	\$ 100.00	2	\$ 200.00	
Remove Pavement Message	each	\$ 120.00	12	\$ 1,440.00	
Total/Crossing				\$	37,000.00

New High-Visibility Crosswalk at Midblock locations					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Underground service pedestal - power source	each	\$ 660.00	1	\$ 660.00	Lighting
40' Signal Pole Luminaire	each	\$ 300.00	2	\$ 600.00	Lighting
15' Mast Arm	each	\$ 162.00	2	\$ 324.00	Lighting
LED Luminaire	each	\$ 312.00	2	\$ 624.00	Lighting
Foundation	each	\$ 3,137.00	2	\$ 6,274.00	Lighting
Junction Box	each	\$ 2,000.00	2	\$ 4,000.00	Lighting
Pavement Message (Preformed Thermoplastic)	each	\$ 300.00	26	\$ 7,800.00	Assumes 4 12-ft lanes and 2 4-ft shoulders (ladder style crosswalk)
RRFB	Lump	\$ 15,000.00	1	\$ 15,000.00	Enhanced signing
Total/Crossing				\$	36,000.00

Install Medians and Pedestrian Refuge Islands in Urban Areas					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Curb Type B5	ft	\$ 25.00	9120	\$ 228,000.00	Assumes 100' intersection every 750' and 10' crosswalks
Concrete Flatwork 6 Inch Thick	sq ft	\$ 20.00	36480	\$ 729,600.00	Assumes existing 12' TWLTL and Crosswalks
Total/Mile				\$	958,000.00

Install Medians and Pedestrian Refuge Islands in Suburban Areas					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Curb Type B5	ft	\$ 25.00	9840	\$ 246,000.00	Assumes 100' intersection every 1320' and 10' crosswalks
Concrete Flatwork 6 Inch Thick	sq ft	\$ 20.00	39360	\$ 787,200.00	Assumes existing 14' TWLTL and Crosswalks
Total/Mile				\$	1,034,000.00

Install Medians with Marked Crosswalks					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Curb Type B5	ft	\$ 25.00	9120	\$ 228,000.00	Assumes 100' intersection every 750' and 10' crosswalks
Concrete Flatwork 6 Inch Thick	sq ft	\$ 20.00	36480	\$ 729,600.00	Assumes existing 12' TWLTL and Crosswalks
Pavement Message (Preformed Thermoplastic)	each	\$ 300.00	312	\$ 93,600.00	Assumes 4 12-ft lanes and 2 4-ft shoulders (ladder style crosswalk) - 12 crosswalks along 1 mile segment
Total/Mile				\$	1,052,000.00

Install Raised Medians on Roads with TWLTL					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Curb Type B5	ft	\$ 25.00	9120	\$ 228,000.00	Assumes 100' intersection every 750' and 10' crosswalks
Concrete Flatwork 6 Inch Thick	sq ft	\$ 20.00	35000	\$ 700,000.00	Assumes existing 12' TWLTL and Crosswalks
Total/Mile				\$	928,000.00

Install Sidewalk or Walkway					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Sidewalk	sq ft	\$ 10.00	63360	\$ 633,600.00	Assumes 6' sidewalk, no sidestreets both sides
Total/Mile				\$	634,000.00

Median Barriers on Divided Highways (Concrete Barrier)					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Cast-In-Place Concrete Constant Slope Barrier - 42 Inch	ft	\$ 180.00	10456	\$ 1,882,080.00	Assumes no sidestreets both sides
42 Inch Trailing Sloped End Section	Each	\$ 7,500.00	4	\$ 30,000.00	Assumes end sections on both sides
Total/Mile				\$	1,913,000.00

Median Barriers on Divided Highways (Metal Guardrail)					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Midwest 31 Inch W-Beam Guardrail 6 ft Steel Post	ft	\$ 35.00	10560	\$ 369,600.00	Assumes no sidestreets both sides
End Treatment Type G (MASH)	Each	\$ 6,000.00	4	\$ 24,000.00	Assumes end treatments on both sides
Total/Mile				\$	394,000.00

Median Barriers on Divided Highways (Cable Barrier)					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
High Tension Cable Barrier 10 ft Post Spacing (MASH)	ft	\$ 40.00	10560	\$ 422,400.00	Assumes no sidestreets both sides
MASH Cable Barrier Gating Terminal	Each	\$ 8,500.00	4	\$ 34,000.00	
Tension Gauge	Each	\$ 4,500.00	2	\$ 9,000.00	Assumes one each side of road
Total/Mile				\$	466,000.00

6" Edgeline					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Marking Paint	ft	\$ 0.30	21120	\$ 6,336.00	Assumes no sidestreets and painting over existing
Total/Mile				\$	7,000.00

Edgeline Rumblestrips					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Longitudinal Rumble Strip - Asphalt	ft	\$ 1.00	8448	\$ 8,448.00	Assumes no sidestreets, both sides
Total/Mile				\$	9,000.00

Post-Mounted Delineators					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Delineator Type 1	Each	\$ 100.00	20	\$ 2,000.00	Assumes no sidestreets, no curves, delineators on both sides of road
Flexible Delineator Post - Type 1	Each	\$ 85.00	20	\$ 1,700.00	
Total/Mile				\$	4,000.00

Install or Upgrade Curve Signage					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Sign Type A-1	sq ft	\$ 42.00	11	\$ 472.50	Includes W1-2 warnings signs and W13-1 Speed Advisory Plaque
Sign Post P2	Each	\$ 150.00	1	\$ 150.00	For above signs
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	1	\$ 300.00	For above signs
Sign Type A-1	sq ft	\$ 42.00	5	\$ 210.00	Added cost per W1-8 Chevron
Sign Post P2	Each	\$ 150.00	1	\$ 150.00	Added cost per W1-8 Chevron
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	1	\$ 300.00	Added cost per W1-8 Chevron
Total/Curve				\$	2,000.00

Segment Countermeasures and Cost Estimates

Lane Curve Warning Pavement Markings					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Pavement Message (Preformed Thermoplastic)	Each	\$ 300.00	7	\$ 2,100.00	Two bars, four letters (SLOW) and an arrow
Total/Curve				\$	3,000.00
Retroreflective Strips on curve signage					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Retroreflective strip	Each	\$ 50.00	11	\$ 550.00	Two bars, four letters (SLOW) and an arrow
Total/Curve				\$	1,000.00
Safety Edge					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
HMA 1/2 Inch	Ton	\$ 200.00	117.487	\$ 23,497	Assumes 5" HMA safety edge section, assumes both sides of road, no sidestreets
UTBC (Plan Quantity)	cu yd	\$ 100.00	971	\$ 97,139.50	Assumes a 4 ft x 7 inch UTBC section behind the safety edge, assumes both sides of the road
Total/Mile				\$	121,000.00
High Friction Surface Treatment (HFST) on Curve					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
High Friction Pavement	Ton	\$ 250.00	172	\$ 43,094	Assumes 2-lane highway with 2' shoulders. Assumes 1000' curve with 1000' radius. Assumes 150 lb/cu ft
Rotomilling - 1 Inch	sq yd	\$ 3.00	3064	\$ 9,193.33	Assumes 2-lane highway with 2' shoulders. Assumes 1000' curve with 1000' radius
Total/Mile				\$	53,000.00
Shoulder Extension on Rural Roads					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
UTBC Shouldering	cu yd	\$ 3.00	10560	\$ 31,680.00	Assumes a 2 ft x 10 inch UTBC shoulder, assumes no sidestreets
Total/Mile				\$	32,000.00
2 Foot Paved Shoulder on Rural Roads					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
UTBC (Plan Quantity)	cu yd	\$ 80.00	652	\$ 52,148.15	Assumes 10" section, both sides of road. Assumes no sidestreets
HMA 1/2 Inch	Ton	\$ 200.00	912	\$ 182,336.00	Assumes 7" section, both sides of road. Assumes no sidestreets
Granular Borrow	cu yd	\$ 80.00	782	\$ 62,577.78	Assumes 12" section, both sides of road. Assumes no sidestreets
Total/Mile				\$	298,000.00
Highway Lighting					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Highway Lighting	Lump	\$ 300,000.00	1	\$ 300,000.00	Assumes 20 poles each side of road, junction box wiring, and power source (From Bao)
Total/Mile				\$	300,000.00
Lane Narrowing					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Remove Pavement Marking	ft	\$ 3.00	10560	\$ 31,680.00	Striping on Both Sides of Road. Assumes no sidestreets - 2 Lanes
Pavement Marking Paint	ft	\$ 0.30	21120	\$ 6,336.00	
Total/Mile				\$	39,000.00
Install Raised Crosswalk					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Flatwork 7 Inch Thick	sq ft	\$ 20.00	3360	\$ 67,200.00	4 Lanes
Pavement Message (Preformed Thermoplastic)	Each	\$ 300.00	12	\$ 3,600.00	4 Lanes
Total/Mile				\$	71,000.00

Intersection Countermeasures and Cost Estimates

Close Slip Lane					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Remove Concrete Sidewalk	sq yd	\$ 15.00	78	\$ 1,163.33	
Remove Concrete Curb	ft	\$ 10.00	139	\$ 1,390.00	
Remove Concrete Curb and Gutter	ft	\$ 10.00	357	\$ 3,570.00	
Remove Pavement Marking Paint	ft	\$ 3.00	120	\$ 360.00	
Roadway Excavation	cu yd	\$ 35.00	329	\$ 11,507.87	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
Concrete Curb and Gutter Type B1	ft	\$ 40.00	385	\$ 15,400.00	
Relocate Sign	Each	\$ 175.00	5	\$ 875.00	
Items not estimated	lump	\$ 5,000.00	1	\$ 5,000.00	
Total/Lane				\$	40,000.00

Centerline Hardening					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Curb Type M2	ft	\$ 45.00	2	\$ 90.00	Assumes Type M2 curb back to back
Total/ft				\$	1,000.00

Intersection Lighting					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Underground service pedestal - power source	each	\$ 660.00	1	\$ 660.00	
40' Signal Pole Luminaire	each	\$ 300.00	4	\$ 1,200.00	
15' Mast Arm	each	\$ 162.00	4	\$ 648.00	
LED Luminaire	each	\$ 312.00	4	\$ 1,248.00	
Foundation	each	\$ 3,137.00	4	\$ 12,548.00	
Junction Box	each	\$ 2,000.00	4	\$ 8,000.00	
Items not Estimated	lump	\$ 6,000.00	1	\$ 6,000.00	
Total/Intersection				\$	31,000.00

Implement Corridor Access Management Principles on Urban Roadways					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Remove Concrete Driveway	sq yd	\$ 30.00	30	\$ 900.00	Assumes 30' flared concrete driveway
Concrete Sidewalk	sq ft	\$ 10.00	180	\$ 1,800.00	Assumes 30' flared concrete driveway, Assumes 6' sidewalk
Curb and Gutter Type B1	ft	\$ 40.00	30	\$ 1,200.00	Assumes 30' flared concrete driveway
Items not estimated	lump	\$ 3,000.00	1	\$ 3,000.00	
Total/Driveway Removal				\$	7,000.00

Provide Right Turn Lane					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Concrete Sidewalk	sq ft	\$ 10.00	1765	\$ 17,648.74	
Remove Concrete Curb and Gutter	ft	\$ 10.00	385	\$ 3,854.70	
Pavement Marking Paint	ft	\$ 0.30	300	\$ 90.00	
Clearing and Grubbing	acre	\$ 15,000.00	0.1	\$ 1,222.74	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
Concrete Curb and Gutter Type B1	ft	\$ 40.00	357	\$ 14,267.56	
Relocate Sign	Each	\$ 175.00	5	\$ 875.00	
UTBC (Plan Quantity)	cu yd	\$ 80.00	110	\$ 8,765.43	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
HMA 1/2 Inch	Ton	\$ 200.00	175	\$ 35,026.67	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
Granular Borrow	cu yd	\$ 80.00	131	\$ 10,518.52	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
Items not estimated	lump	\$ 15,000.00	1	\$ -	Signal Pole Relocate and new foundation. Doesn't account for ROW
Total/Lane				\$	93,000.00

Install Reduced Left-Turn Conflict Control Intersection Type (RCUT, MUT, Etc.)					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
UTBC (Plan Quantity)	cu yd	\$ 80.00	1235	\$ 98,765.43	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
HMA 1/2 Inch	Ton	\$ 200.00	1973	\$ 394,666.67	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
Granular Borrow	cu yd	\$ 80.00	1481	\$ 118,518.52	Assumes a 30" Pavement Section (8" HMA, 10" UTBC, 12" GB)
Roadway Excavation	cu yd	\$ 25.00	4074	\$ 101,851.85	Assumes a 5 lane, 575 foot long section of reconstruction for intersection construction
Concrete Curb Type B5	ft	\$ 25.00	1145	\$ 28,625.00	
Pavement Marking Paint	ft	\$ 0.30	4500	\$ 1,350.00	
Pavement Message (Preformed Thermoplastic)	each	\$ 300.00	10	\$ 3,000.00	
Signaling	lump	\$ 20,000.00	1	\$ 20,000.00	
Total/Intersection				\$	767,000.00

Convert Existing Intersection to Modern Roundabout					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Huntsville ICE Concept	Lump	\$ 1,930,000.00	1	\$ 1,930,000.00	
Cedar City ICE Concept	Lump	\$ 1,620,000.00	1	\$ 1,620,000.00	
Tremonton ICE Concept	Lump	\$ 2,850,000.00	1	\$ 2,850,000.00	
Total/Intersection				\$	2,134,000.00

Change a permissive only to Flashing Yellow Arrow					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Type Type IV Signal Head	Each	\$ 1,760.00	4	\$ 7,040.00	Includes removal of existing head
Total/Intersection				\$	8,000.00

Change permissive left-turn phasing to protected only or protected/permissive					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Type Type IV Signal Head	Each	\$ 1,760.00	4	\$ 7,040.00	Includes removal of existing head
Total/Intersection				\$	8,000.00

Change a 5-section "doghouse" protected/permissive left turn to flashing yellow arrow protected/permissive left turn					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Type Type IV Signal Head	Each	\$ 1,760.00	4	\$ 7,040.00	Includes removal of existing head
Total/Intersection				\$	8,000.00

Exclusive Bike Phase					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Traffic signal foundation 2' x 3'	each	\$ 750.00	1	\$ 750.00	From UDOT Signal Procurement Cost Estimate
Type A Junction Box	each	\$ 1,660.00	2	\$ 3,320.00	From UDOT Signal Procurement Cost Estimate
11' Traffic Signal Pole	each	\$ 300.00	2	\$ 600.00	From UDOT Signal Procurement Cost Estimate
Type III Signal Head	each	\$ 1,260.00	2	\$ 2,520.00	From UDOT Signal Procurement Cost Estimate
Concrete Curb Type B5	ft	\$ 25.00	40	\$ 1,000.00	
Concrete Flatwork 6 inch thick	sq ft	\$ 20.00	20	\$ 400.00	
Sign Type A-1	sq ft	\$ 42.00	17	\$ 693.00	
Sign Post P2	Each	\$ 150.00	2	\$ 300.00	
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	2	\$ 600.00	
Items not estimated	lump	\$ 10,000.00	1	\$ 10,000.00	wiring, installing boxes, etc.
Total/Intersection				\$	21,000.00

Intersection Countermeasures and Cost Estimates

Bicycle Treatments at Intersections					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Green Epoxy (Bike Box)	sq ft	\$ 10.00	255	\$ 5,100.00	\$2550+2 messages @ \$300/each = \$3150/box (Assume 2 Boxes)
Green Epoxy (Crossing Markings)	Each	\$ 300.00	2	\$ 600.00	
Green Epoxy (Two Stage Queue Boxes)	sq ft	\$ 10.00	90	\$ 1,800.00	\$900+2 messages @ \$300/each = \$1500 per box (Assume 2 Boxes)
Sharrow Pavement Message	each	\$ 300.00	2	\$ 600.00	
				\$ -	
Total/Intersection				\$	9,000.00

Apply Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Sign Type A-2	sq ft	\$ 50.00	32	\$ 1,600.00	Advanced Warning Sign (Oversized W3-1)
Sign Post P2	Each	\$ 150.00	4	\$ 600.00	Advanced Warning Sign
Small Sign Tubular Steel Post Base (B1)	Each	\$ 300.00	4	\$ 1,200.00	Advanced Warning Sign
Retroreflective strip	each	\$50	4	\$ 200.00	
RRFB	lump	\$ 15,000.00	1	\$ 15,000.00	
Total/Assembly				\$	19,000.00

Modify Signal Phasing and Add No Right Turn on Red Signage					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Sign Type A-2	sq ft	\$ 50.00	48	\$ 2,400.00	
Total/Intersection				\$	3,000.00

Create Positive Off-Set of Existing Left-Turn Lanes at an Intersection					
Item	Unit	Unit Cost	Quantity	Total Cost	Notes
Remove Pavement Marking	ft	\$ 3.00	1345	\$ 4,035.00	Assumes 2' offset and no new pavement required
Pavement Marking Paint	ft	\$ 0.30	1334	\$ 400.20	Assumes paint
Pavement Message (Preformed Thermoplastic)	Each	\$ 300.00	2	\$ 600.00	
Remove Pavement Message	Each	\$ 120.00	2	\$ 240.00	
Remove Concrete Curb	ft	\$ 10.00	190	\$ 1,900.00	
Concrete Curb Type M2	ft	\$ 45.00	185	\$ 8,325.00	
Total/Lane				\$	16,000.00