

APPENDIX N

PRELIMINARY COST ESTIMATES

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APPENDIX N.1

Summary Matrix of Preliminary Costs

Summary of Preliminary Cost Estimates⁽¹⁾
US Route 1 Corridor Study - Stafford County, VA

Item	Intersection / Location	Recommended Improvements				Comments
		Near-Term: 0 - 5 Years		Long-Term: 5 - 20 Years		
		Description of Improvement	Cost	Description of Improvement	Cost	
Signalized Intersections						
1	US Route 1 / I-95 NB On-Ramp	- Convert SB Through to Shared Through/Right	\$25,000	N/A	N/A	Cost reflects minimal signing/stripping and detection improvements. To be constructed in conjunction with 2nd SB RTL at 1/610
2	US Route 1 / Route 610 (Garrisonville Rd.) / Washington Dr.	- Construct 2nd SB Right-turn lane (to be constructed within exist. R/W in conjunction with improvements at US 1/I-95 NB Ramp)	\$600,000	Construct following - 3rd NB + SB through lane on US 1 - unsplit E-W phasing - Separate EB through and left into dedicated lanes - Add 2 add'l EB lefts (for triple lefts) - Add 2nd EB Right-turn lane - Add 3rd NB left-turn lane w/receiving lane on WB 610	\$20,000,000	Long-Term cost is high-level estimate; further refinement required.
3	US Route 1 / I-95 NB Off-Ramp / Aquia Towne Center Dr.	N/A	N/A	- Add 2nd EB left-turn lane - Add NB + WB right-turn overlap phases	\$350,000	Long-Term cost is high-level estimate; further refinement required. Traffic signal modifications may be required.
4	US Route 1 / Aquia Park Commercial Entrance / Hotel Entrance	N/A	N/A	- Widen NB/SB throughs to 6-lanes	See Comment	Cost estimate included below (Item 17) for widening of entire corridor to 6-lane divided section.
5	US Route 1 / Foreston Woods Drive / Austin Park Drive	N/A	N/A	- Add 3rd NB and SB through lanes - Add 2nd NB left-turn lane	\$5,000,000	Long-Term cost is high-level estimate; further refinement required.
6	US Route 1 / Bells Hill Road / Coal Landing Road	N/A	N/A	- Extend SB left-turn lane across existing bridge	\$1,500,000	Long-Term cost is high-level estimate; further refinement required. To meet LOS C, 3rd NB and SB through lanes required; see item 17 below.
7	US Route 1 / Bells Hill Road / Hope Road	Construct dedicated NB and SB left-turn lanes on US Rte. 1; unsplit side-street signal phasing	\$4,700,000	If widening to 6 lanes required, see item 17 below.	N/A	Improvements can be constructed as later phase of 1/630; however, cost estimate assumes constructed in conjunction with US 1/630.
8	US Route 1 / Rte. 630 (Courthouse Road)	Construct dedicated NB and SB left-turn lanes on US Rte. 1; unsplit side-street signal phasing	\$6,300,000	If widening to 6 lanes required, see item 17 below.	N/A	Alleviates congestion at County's highest delay intersection. Cost estimate assumes constructed in conjunction with US 1/Bells Hill/Hope.
9	US Route 1 / Hospital Center Boulevard	N/A	N/A	Construct following - 3rd NB + SB through lane on US 1 - 2nd NB left-turn lane - Add WB right-turn lane, convert shared WB through/right to dedicated through lane - Add 2nd WB left-turn lane - Add right-turn overlap phasing to NB, SB & WB approach - Add 2nd EB left-turn lanes (winterchange project) - Add 2 EB through lanes (winterchange project) - Convert EB right-turn lane (by interchange project) to a Free-Flow operation with an additional SB receiving lane along US Rte. 1	\$15,000,000	Long-Term cost is high-level estimate; further refinement required.
10	All Signalized Intersections in Corridor	Upgrade communication equipment (9 intersections) Clearance intervals (9 intersections)	\$675,000 \$22,500	N/A	\$0	Communication upgrades assumes \$75,000 / intersection. Clearance interval calculations assumes \$2,000 / intersection.
Unsignalized Intersections						
11	US Route 1 / Jason Lane	N/A	N/A	N/A	N/A	
12	US Route 1 / Allatoona Lane	Extend taper to 200' length.	\$45,000	N/A	N/A	Existing taper is sub-standard (135' long)
13	US Route 1 / Austin Run Boulevard	Add stop bar striping on median approaches.	\$2,000	N/A	N/A	No stop bars present at stop signs in median.
14	US Route 1 / Tamar Creek Lane	N/A	N/A	N/A	N/A	To accommodate triple southbound lefts
15	US Route 1 / Landmark Drive	N/A	N/A	N/A	N/A	
16	US Route 1 / Stafford Courthouse Entrance / Upton Lane	Upgrade SB right-turn taper to 200' standard.	See comments	N/A	N/A	Will be performed with US 1/Route 630 improvements (see above).
Other Corridor Improvements, Etc.						
17	Widen US 1 to 6-lanes (entire 3.7 mi. length)	N/A	N/A	Create 6-lane divided typical section	\$60,647,000	Assumes \$15M / mile for 4-lane to 6-lane widening, derived from FAMPO 2040 LRTP. Costs include PE, RW and utility relocation costs. Does not include deduction for 1/630 R/W acquisition.
18	Construct 2nd Aquia Harbour Entrance on US Route 1	N/A	N/A	Provide new connection to US Route 1 north of existing Washington Dr. entrance.	\$3,000,000	Planning estimate; no detailed estimate has been prepared.
19	Upgrade rural roadside shoulder to minimum VDOT standard (from Bells Hill Rd/Hope Rd north through Bells Hill/Coal Landing)	N/A	N/A	1.6 miles of shoulder improvements (4' left and 8' right paved)	\$1,090,000	Assumed at \$75,000 / mile for each 4' width equivalent, per 2000 Iowa DOT planning figures, escalated at 3%/year.
20	Sidewalk construction to fill in gaps in corridor (one side only)	N/A	N/A	Assume 3 miles needed x 1 side only.	\$335,000	Assumed at \$112,000 / mile, 5' width, 4" depth, per VDOT 2011 planning figures, escalated at 3%/year. May be accomplished in part through new development or redev.
21	Shared-use path construction	N/A	N/A	Assume 1 side only, 3.7 miles.	\$664,000	12' wide for 2-way travel, per VDOT 2011 planning figures escalated at 3%/yr.
22	Construct full bus pullouts for FRED bus stops in corridor	N/A	N/A	Six (6) bus pullouts for long term corridor mobility and safety.	\$1,020,000	Cost estimate based on FAMPO 2010 planning costs @ \$150,000 / pullout, escalated at 3% / year.
23	Effective Management of Build-Out of Stafford Courthouse Area	N/A	N/A	Build-out to be implemented primarily by development community per Courthouse Redev. Plan	N/A	Development of mixed-use, pedestrian friendly Courthouse area will reduce demand for vehicular traffic.
24	Extend I-95 Express Lanes through Stafford to Spotsylvania Co. (From Exit 140 to Exit 126, 18 miles)	N/A	N/A	Construct two (2) High Occupancy Toll (HOT) Lanes	See Comments ⁽²⁾	\$735,000,000 per FAMPO 2040 Long Range Transportation Plan
		Subtotal 1 of Near-Term Costs =	\$12,369,500	Subtotal 1 of Long-Term Costs =	\$108,606,000	
		Contingency (20%) =	\$2,473,900	Contingency (20%) =	\$21,721,200	
		Subtotal 2 of Near-Term Costs =	\$14,843,400	Subtotal 2 of Long-Term Costs =	\$130,327,200	
				Subtotal 2 of Near-Term Costs =	\$14,843,400	
				Grand Total of Near-Term + Long-Term Costs =	\$145,170,600	

⁽¹⁾ All costs are in 2014 dollars (\$\$).

⁽²⁾ I-95 HOT/HOV lane construction costs not included in overall cost estimate summary due to size of project, potential for private PPTA funding, and location along separate facility.

APPENDIX N.2

US 1/Route 630 Detailed Costs

Engineer's Opinion of Probable Construction Costs - US-1 Widening Concept 2-C

Item Description	Quantity	Unit(s)	Unit Cost	Sub Total	Notes
Construction Costs					
Mobilization					
Mobilization	1	L.S.	\$ 60,000.00	\$ 60,000	
				Mobilization Subtotal	\$ 60,000
Traffic Control					
Temporary Traffic Management Plan	1	Ea.	\$ 250,000.00	\$ 250,000	
				Traffic Control Subtotal	\$ 250,000
Demolition					
Pavement/Sidewalk	18,750	CY	\$ 15.00	\$ 281,250	2625 LF, 12' wide, average 8" depth - 2,350 cy topsoil
Buildings	6	Ea.	\$ 10,000.00	\$ 60,000	Per ROW take workbook
Storm Sewer	8	Ea.	\$ 5,000.00	\$ 40,000	Per inlet, includes 60 LF pipe
				Demolition Subtotal	\$ 381,250
Clearing & Rough Grading					
Construction Staking	1	L.S.	\$ 25,000.00	\$ 25,000	
Clearing	2	ac	\$ 15,000.00	\$ 30,000	
Topsoil Strip & Stockpile	2,350	CY	\$ 15.00	\$ 35,250	2625 LF at 12' wide with 8" topsoil
Cut/Fill	7,500	CY	\$ 15.00	\$ 112,500	Average 4:1 cut/fill for 2625 LF for one new 12' lane
				Clearing & Rough Grading Subtotal	\$ 202,750
Road Paving					
Fine Grading/Proof Roll	13,125	L.F.	\$ 25.00	\$ 328,125	2,625 CL Length x 5 lanes
21-B Aggregate Base	3,500	S.Y./in.	\$ 2.00	\$ 70,000	assumed 10" depth; 1 new 12' lane at 2625 LF
BM-25.0 Asphalt Base	3,500	S.Y./in.	\$ 2.00	\$ 35,000	assumed 5" depth
SM-9.5 Asphalt	13,125	S.Y./in.	\$ 5.00	\$ 131,250	assumed 2" depth; 5 lanes of surface coat
Striping	5,150	S.F.	\$ 5.00	\$ 25,750	14,750 LF at 4" width + 250 sf symbols
CG-6 Curb & Gutter	5,100	L.F.	\$ 18.00	\$ 91,800	TLEN Count
CG-2, Median	3,600	L.F.	\$ 12.00	\$ 43,200	
CG-12 Ramps	40	Ea.	\$ 750.00	\$ 30,000	
Concrete Entrances	112	SY	\$ 75.00	\$ 8,400	7-8" Slabs at 24' Ea.
Sidewalk	15,000	S.F.	\$ 6.00	\$ 90,000	2500 LF @ 6' width
				Road Paving Subtotal	\$ 853,525
Traffic Signals					
Signal Reconstruction	2	Ea.	\$ 200,000.00	\$ 400,000	Courthouse Rd and Bells Hill/Hope Rd.
					(Includes removal and demolition)
				Traffic Signals Subtotal	\$ 400,000
E&S					
Temporary Construction Entrance	1	Ea.	\$ 2,000.00	\$ 2,000	
Wash Rack	1	Ea.	\$ 2,000.00	\$ 2,000	
Super Silt Fence	5,250	L.F.	\$ 20.00	\$ 105,000	
Inlet Protection	20	Ea.	\$ 175.00	\$ 3,500	
Soil Stabilization/Matting	3	SY	\$ 1,350.00	\$ 4,050	
Sediment Traps (<1 ac.)	1	Ea.	\$ 800.00	\$ 800	
				E&S Subtotal	\$ 117,350
Misc.					
Signage and Monument Relocaton	1	L.S.	\$ 20,000.00	\$ 20,000	
Landscaping/Seeding	1	L.S.	\$ 35,000.00	\$ 35,000	
				Misc. Subtotal	\$ 55,000
				Construction Costs Subtotal	\$ 2,319,875
Utility Addition and Relocation Costs					
Hydrant Relocation	2	Ea.	\$ 3,500.00	\$ 7,000	
Water Meter Relocation	10	Ea.	\$ 750.00	\$ 7,500	
Storm Inlet Relocation	8	Ea.	\$ 5,000.00	\$ 40,000	
Storm Drain Relocation - 30"	535	LF	\$ 65.00	\$ 34,775	Sizes vary from 15" to 48"; Assume 30" average
Manhole Top Relocation	1	LS	\$ 2,500.00	\$ 2,500	
Underground Fiber Relocation	1	LS	\$ 50,000.00	\$ 50,000	
Gas Line Relocation	1	LS	\$ 30,000.00	\$ 30,000	
Overhead Utility Relocation	20	Ea.	\$ 3,500.00	\$ 70,000	
New Storm Inlets	10	Ea.	\$ 5,000.00	\$ 50,000	Curb Inlets
New Storm Drain	2,650	LF	\$ 65.00	\$ 172,250	Assume 30" average
Stormwater BMP facility	2	Ea.	\$ 30,000.00	\$ 60,000	
				Utility Addition and Relocation Costs Subtotal	\$ 524,025
Design and Professional Services Costs					
Surveying	1	L.S.	\$ 20,000.00	\$ 20,000	
Civil Engineering, Landscape Arch, and Road Design	1	L.S.	\$ 669,000.00	\$ 669,000	Includes geotech, dry utils, historical/cultural/enviro
Traffic Engineering Services	1	L.S.	\$ 50,000.00	\$ 50,000	Signal design
ROW Acquisition Services	1	L.S.	\$ 160,000.00	\$ 160,000	
				Design and Professional Services Costs Subtotal	\$ 899,000
				Construction & Utilities Subtotal	\$ 2,843,900
				Design and Professional Svcs Subtotal	\$ 899,000
				ROW Acquisition Subtotal	\$ 4,777,500
				30% Contingency	2,556,120
				Total Improvement Costs	\$ 11,076,520
				<i>Additive Alternate #1: Relocate OH to UG Electric</i>	\$ 1,500,000

APPENDIX N.3

US 1/Allatoona Lane Detailed Costs

Table 8-3: Engineer's Opinion of Probable Construction Costs - Right Turn Lane Improvements, US-1 & Allatoona Lane

Item Description	Quantity	Unit(s)	Unit Cost	Sub Total	Notes
Improvement #1: Widen right turn lane to Allatoona Lane to a full 12' lane and increase taper length by 35'					
Right of Way					
Right of Way/Easement Acquisition	1	L.S.	\$ -	\$ -	
Right of Way Subtotal				\$ -	
Mobilization					
Mobilization	1	Ea.	\$ 3,152.50	\$ 3,153	
Mobilization Subtotal				\$ 3,153	
Traffic Control					
Temporary Traffic Management Plan	1	Ea.	\$ 5,000.00	\$ 5,000	
Traffic Control Subtotal				\$ 5,000	
Utility Relocation					
Waterline Relocation			\$ -	\$ -	
Sanitary Sewer Relocation			\$ -	\$ -	
Utility Relocation Subtotal				\$ -	
Clearing & Rough Grading					
Construction Staking	1	L.S.	\$ 5,000.00	\$ 5,000	
Clearing	1	L.S.	\$ 2,500.00	\$ 2,500	
Topsoil Strip & Stockpile	25	CY	\$ 15.00	\$ 375	
Cut/Fill	40	CY	\$ 25.00	\$ 1,000	
Clearing & Rough Grading Subtotal				\$ 8,875	
Road Paving					
Fine Grading/Proof Roll	200	L.F.	\$ 25.00	\$ 5,000	
21-B Aggregate Base	60	S.Y./in.	\$ 2.00	\$ 1,200	assumed 10" depth
BM-25.0 Asphalt Base	60	S.Y./in.	\$ 2.00	\$ 600	assumed 5" depth
SM-9.5 Asphalt	60	S.Y./in.	\$ 5.00	\$ 600	assumed 2" depth
Striping	400	S.F	\$ 5.00	\$ 2,000	
CG-6 Curb & Gutter	0	L.F.	\$ 18.00	\$ -	
CG-12 Ramps	0	Ea.	\$ 750.00	\$ -	
Sidewalk	0	S.F	\$ 6.00	\$ -	
Road Paving Subtotal				\$ 9,400	
E&S					
Lump Sum	1	Ea.	\$ 7,500.00	\$ 7,500	
E&S Subtotal				\$ 7,500	
Misc.					
Sign Relocaton	1	Ea.	\$ 250.00	\$ 250	
Misc. Subtotal				\$ 250	
Administrative					
VDOT Acceptance Fees	1	Ea.	\$ 500.00	\$ 500	
Administrative Subtotal				\$ 500	
Subtotal				\$ 34,678	
30% Contingency				\$ 10,403	
Total Improvement Costs				\$ 45,081	

APPENDIX N.4

VDOT Planning Costs

ESTIMATED COSTS PER MILE

(REVISED JULY 2012)

THIS SHEET IS INTENDED TO AID PLANNERS IN OBTAINING A ROUGH ESTIMATE FOR PROJECTS IN EARLY PLANNING PHASES. THE FIGURES ARE AVERAGES FOR THE PAST 2 YEARS AND SHOULD BE ADJUSTED IF YOUR JOB IS OUTSIDE THE ORDINARY SCHEME OF WORK. **CALL AMY KING AT 2525 FOR ASSISTANCE.**

NOTE: CHECK THE LABEL ON THE FIGURE YOU ARE USING. SOME ARE "PER LANE MILE."

NEW ROADS (TURNKEY PROJECTS ON NEW LOCATION WITH "AVERAGE" DRAINAGE WITHOUT BRIDGE QUANTITIES) PER MILE

<u>ROAD TYPE</u>	<u>URBAN AREAS</u>	<u>RURAL-MOUNTAINS</u>	<u>RURAL-OTHER</u>
6 LANE FREEWAY	\$ 10,850,000	N/A	N/A
4 LANE FREEWAY	\$ 8,800,000	\$ 10,400,000	\$ 6,750,000
4 LANE WITH PAINTED MEDIAN	N/A	\$ 5,675,000	\$ 4,725,000
4 LANE UNDIVIDED	\$ 5,525,000	N/A	N/A
4 LANE DIVIDED	\$ 5,675,000	\$ 6,400,000	\$ 4,725,000
4 LANE ARTERIAL*	N/A	N/A	\$ 10,375,000
2 LANE ARTERIAL	\$ 3,175,000	\$ 2,975,000	\$ 2,750,000
2 LANE COLLECTOR	\$ 2,100,000	\$ 1,900,000	\$ 1,700,000

* IN A FLOODPLAIN WITH BORROW DITCHES

BRIDGES AND BOX CULVERTS (DOES NOT INCLUDE APPROACH ROADS. USE SQ. FT. OF FINAL STRUCTURE.)

NEW BRIDGE	\$ 112 PER SQ. FT. DECK AREA
WIDEN EXISTING BRIDGE	\$ 69 PER SQ. FT. DECK AREA (OLD DECK REMOVED & REPLACED)
REPLACE EXIST. DECK	\$ 63 PER SQ. FT. DECK AREA (NO NEW SUBSTRUCTURE)
REMOVAL OF BRIDGE	\$ 14 PER SQ. FT. DECK AREA
BOX CULVERT	\$ 69 PER SQ. FT. BOX TOP AREA
DETOUR BRIDGES	\$ 65 PER SQ. FT. (MORE IN SEISMIC AREAS)

WIDENING EXISTING ROADWAY

	<u>URBAN</u>	<u>RURAL</u>
2 LANES TO 3 LANES (PASSING LANES-RURAL)	\$ 3,450,000 PER MILE	\$ 1,850,000 PER MILE
2 LANES TO 4 LANES	\$ 4,450,000 PER MILE	\$ 3,175,000 PER MILE
2 LANES TO 4 LANES DIVIDED*	\$ 4,560,000 PER MILE	\$ 3,875,000 PER MILE
2 LANES TO 5 LANES	\$ 4,725,000 PER MILE	\$ 3,375,000 PER MILE
2 LANES TO 5 LANES**	N/A PER MILE	\$ 8,075,000 PER MILE
3 LANES TO 5 LANES	\$ 4,675,000 PER MILE	N/A
4 LANES TO 5 LANES	\$ 3,150,000 PER MILE	N/A
3R WIDENING (2 LANES)	\$ 1,500,000 PER MILE	\$ 1,050,000 PER MILE

* 4 LANE DIVIDED HWY. USING EXISTING LANES AS TWO OF THE LANES ** IN A FLOODPLAIN WITH BORROW DITCHES EXISTING

RECONSTRUCTION (NEW DRAINAGE, BASE, SURFACING, MINOR WIDENING)

NON-FREEWAY	\$ 1,650,000 PER LANE MILE	\$ 1,500,000 PER LANE MILE
FREEWAY (BOND ISSUE JOBS)	\$ 1,100,000 PER LANE MILE (RUBBLIZE & OVERLAY - NO BRIDGES)	
	\$ 125,000 PER LANE MILE (COLD MILL & INLAY - NO BRIDGES)	

FREEWAY PATCHING & REHABILITATION (FULL DEPTH PATCHING, MINOR DRAINAGE & BASE REPAIRS, SHOULDER REPAIR, CLEAN & FILL JOINTS, ETC.)

\$ 895,000 PER LANE MILE

OVERLAYS (11 - 12 FOOT LANES, AVERAGE ACHM DEPTH = 2")

	<u>PG 64-22</u>	<u>PG 70-22 & PG 76-22</u>
PERFORMANCE GRADE ACHM	\$ 88,000 PER LANE MILE	\$ 93,000 PER LANE MILE
	<u>SINGLE</u>	<u>DOUBLE</u>
ASPHALT SURFACE TREATMENT	\$ 13,500 PER LANE MILE	\$ 16,000 PER LANE MILE

PHASE WORK BREAKOUTS (USE WHEN PROJECTS WILL BE DONE IN PHASES OR PARTS OF A PROJECT ARE COMPLETE AND ADDITIONAL WORK IS BEING PROGRAMMED: PAVE GRAVEL ROAD, PLACE BASE & SURFACING, ETC.)

GRADING AND DRAINAGE (NO STRUCTURES, BASE OR SURFACING - NEW LOCATIONS)

	<u>MOUNTAINOUS AREAS</u>	<u>OTHER AREAS</u>
FREEWAY & PRIMARY	\$ 1,425,000 PER LANE MILE	\$ 1,025,000 PER LANE MILE
OTHER ROADS	\$ 950,000 PER LANE MILE	\$ 815,000 PER LANE MILE

SURFACING (INCLUDES BASE & SHOULDERS ON NEW LOCATION. INCLUDES BASE PREPARATION, DRAINAGE & MINOR WIDENING ON EXISTING GRAVEL ROADS)

	<u>PG 64-22</u>	<u>PG 70-22 & PG 76-22</u>
FREEWAY & PRIMARY	\$ 700,000 PER LANE MILE	\$ 1,000,000 PER LANE MILE
	<u>PG 64-22</u>	<u>DOUBLE A.S.T.</u>
OTHER ROADS	\$ 570,000 PER LANE MILE	\$ 450,000 PER LANE MILE

INTERCHANGES (TRUMPET OR DIAMOND LAYOUT)

ADDED TO EXISTING	\$ 9,450,000 EACH	\$ 160,000 PER INTERSECTION
NEW ROUTE	\$ 5,850,000 EACH	

SIGNALS

SIGNALS WITH IMPROVEMENTS

\$ 475,000 WITH ADDITIONAL CAPACITY
\$ 280,000 WITH NO ADDITIONAL CAPACITY

CABLE BARRIER PROJECTS - \$235,000 PER MILE (\$45) PER FT.

Generic Cost Per Mile Models

Disclaimer: These models are generic in nature, and not based on actual construction projects. They are for reference purposes only, and are not intended to predict or support future estimates.

	<u>Models</u>	<u>Cost Per Mile</u>
OTHER	Two Directional 12' Shared Use Path	\$163,320.58
	Rails to Trails project 12' width	\$150,915.48
	Sidewalk construction ` 5' one side 4 inch depth	\$102,284.97
	Mid-Block Crossing	\$80,110.37
RURAL	New Construction Undivided 2 Lane Rural Road with 5' Paved Shoulders	\$1,472,830.90
	New Construction Undivided 3 Lane Rural Road with 5' Paved Shoulders Center Turn Lane	\$1,801,411.96
	New Construction Undivided 4 Lane Rural Road with 5' Paved Shoulders	\$2,228,883.11
	New Construction 4 Lane Divided Rural Road with 2' Paved Shoulders Inside and 5' Paved Shoulders Outside	\$2,917,832.94
	New Construction Divided Rural 4 Lane Interstate with Paved Shoulders 10' Outside and 4' Inside	\$3,657,029.14
	New Construction Undivided 5 Lane Rural Road with 5' Paved Shoulders Center Turn Lane	\$2,623,677.21
	New Construction 6 Lane Divided Rural Road with 5' Paved Shoulders Inside and Out	\$3,664,042.62
	New Construction Divided Rural 6 Lane Interstate with 10' Paved Shoulders Inside and Out	\$4,492,389.83
	New Construction Extra Cost for 1 Single Additional Lane on Rural Arterial	\$384,339.39
	New Construction Extra Cost for 1 Single Additional Lane on a Rural Interstate	\$447,258.74
	Milling and Resurfacing 2 Lane Rural Road with 5' Paved Shoulders	\$381,214.82
	Milling and Resurfacing 3 Lane Rural Road with 5' Paved Shoulders and Center Turn Lane	\$534,223.42
	Milling and Resurfacing 4 Lane Rural Road with 5' Paved Shoulders	\$839,613.64
	Mill + Resurface 4 Lane Divided Rural Arterial with 5' Outside Shoulders and 2' Inside	\$880,586.96
	Mill + Resurface 4 Lane Divided Rural Interstate with Paved Shoulders 10' Outside and 4' Inside	\$1,033,754.78
	Milling and Resurfacing 5 Lane Rural Road with 5' Paved Shoulders and Center Turn Lane	\$1,022,233.30
	Mill + Resurface 6 Lane Divided Rural Arterial with 5' Paved Shoulders Inside and Out	\$1,259,767.24
	Mill + Resurface 6 Lane Divided Rural Interstate with 10' Paved Shoulders Inside and Out	\$1,474,183.59
	Mill + Resurface 1 Additional Lane Rural Interstate	\$226,343.17
	Mill + Resurface 1 Additional Lane Rural Arterial	\$192,241.64
	Widen Existing 2 Lane Arterial to 4 Lanes Undivided` Add 1 Lane to Each Side` 5' Paved Shoulders	\$1,730,566.53
	Widen Existing 2 Lane Arterial to 4 Lane Divided` Resurface Existing 2 Lanes` 5' Paved Shoulders Inside + Out	\$1,991,137.87
	Widen Existing 4 Lane Divided Arterial to 6 Lane Divided` Resurface Existing 4 Lanes` 5' Paved Shoulders Inside + Out	\$1,989,598.65
	Widen 4 Lane Interstate to 6 Lanes In Median ` Mill + Resurface Existing` 10' Paved Shoulders Inside + Out	\$2,975,524.16
	Widen 4 Lane Interstate to 6 Lanes Outside ` Mill + Resurface Existing` 10' Shoulders Outside` Widen Existing 4' Inside Shoulders to 10'	\$2,862,612.84
	Widen Existing 6 Lane Divided Arterial to 8 Lane Divided` Resurface Existing 4 Lanes` 5' Paved Shoulders Inside + Out	\$2,233,463.18
	Widen 6 Lane Interstate to 8 Lanes in Median ` Mill + Resurface Existing` 10' Paved Shoulders Inside and Out	\$3,362,433.04
Widen Divided Rural 4-Lane for Right Turn Lane 300'	\$141,018.33	
SUBURBAN	New Construction Suburban 4 Lane with Paved Shoulders Outside and Curb Median	\$2,954,414.92
	Widen Existing Rural Facility to the Inside with Addition of Closed Drainage System and Median Barrier Wall	\$2,249,630.97
	Widen 4 Lane Suburban Roadway with 6~5' Paved Shoulder and Convert to C+G Out` Stripe for Bike Lane	\$1,886,901.62
	Add 2 Lanes with C+G Out to Existing 4 Lane Urban or Suburban Roadway with C+G Out	\$1,965,704.95
URBAN	New Construction 2 Lane Undivided Urban Arterial with 4' Bike Lanes	\$3,363,882.19
	New Construction 3 Lane Undivided Urban Arterial with Center Lane and 4' Bike Lanes	\$3,774,078.45
	New Construction Undivided Urban Arterial with 4' Bike Lanes	\$4,080,986.31
	New Construction 4 Lane Urban Road with 22' Median and 4' Bike Lanes	\$4,837,011.48

Generic Cost Per Mile Models

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	<u>Models</u>	<u>Cost Per Mile</u>
URBAN	New Construction 4 Lane Divided Urban Interstate Closed 22' Median with Barrier Wall 10' Shoulders Inside + Out	\$7,539,756.52
	New Construction 5 Lane Undivided Urban Arterial with Center Turn Lane and 4' Bike Lanes	\$4,664,511.63
	New Construction 6 Lane Urban Road with 22' Median and 4' Bike Lanes	\$5,537,010.93
	New Construction Divided Urban 6 Lane Interstate with 22' Closed Median with Barrier Wall 10' Shoulders Inside + Out	\$8,346,988.43
	New Construction Extra Cost for Additional Lane on Urban Arterial	\$436,229.97
	New Construction Extra Cost for Additional Lane on Urban Interstate	\$477,819.47
	Mill + Resurface 2 Lane Urban Road with 4' Bike Lanes	\$469,381.99
	Mill + Resurface 3 Lane Urban Road with Center Turn Lane and 4' Bike Lanes	\$643,441.51
	Mill + Resurface 4 Lane Undivided Urban Roadway with 4' Bike Lanes	\$897,568.94
	Mill + Resurface 4 Lane Divided Urban Roadway with 4' Bike Lanes	\$906,939.57
	Mill + Resurface 5 Lane Urban Roadway with Center Turn Lane and 4' Bike Lanes	\$1,078,325.74
	Mill + Resurface 6 Lane Divided Urban Arterial with 4' Bike Lanes	\$1,388,550.92
	Mill + Resurface 1 Additional Lane Urban Arterial	\$189,454.43
	Add 2 Lanes to Existing 2 Lane Undivided Arterial 1 Lane Each Side with 4' Bike Lanes	\$3,327,726.17
	Widen 2 Lane Urban Arterial to 4 Lane Divided with 22' Median + 4' Bike Lanes	\$3,747,223.64
	Add 2 Lanes to Existing 3 Lane Undivided Arterial 1 Lane Each Side with Center Turn Lane and 4' Bike Lanes	\$3,501,224.35
	Widen 4 Lane Urban Divided Arterial to 6 Lane Urban Divided with 22' Median and 4' Bike Lanes	\$3,525,726.11
	Widen 4 Lane Urban Interstate with Closed Median to 6 Lanes Outside ` Mill + Resurface Existing ` 10' Shoulders Outside	\$5,303,381.28
	Widen 6 Lane Urban Divided Arterial to 8 Lane Urban Divided with 4' Bike Lanes	\$3,785,988.93
	Widen 6 Lane Urban Interstate with Closed Median to 8 Lanes Outside ` Mill + Resurface Existing ` 10' Shoulders Outside	\$5,717,299.94