

Classification Number 2 - RECONSTRUCTION, WIDENING & DUALIZATION - English

Township	Hopewell/Lawrence	Section/Contract #	2007BPP643C Bike Ped T.O. #11 (118183)
PM	Del Vecchio	UPC No.	CR 546 Intersection Striping

**EARTHWORK** (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, <b>See (J)</b>	C.Y.	0	85	0
Removal of Conc. Base & Conc. Surface Courses	S.Y.	0	15	0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, <b>See (J)</b>	C.Y.	0	20	0
		0		0
<b>EARTHWORK TOTAL</b>	=			0

Suggested procedure for calculating earthwork:

- A) Determine Typical section (number of lanes, median widths, side slopes, etc.).
- B) Get latest topography map available.
- C) Plot proposed alignment on topo map.
- D) Develop profile using topo controls such as existing roads, streams, rivers and design manual.
- E) Calculate Areas for the typical section in 1 foot increments of cut or fill.
- F) At 10 to 60 foot intervals (depending on frequency of X-section changes) calculate the earthwork.
- G) Calculate any other significant earthwork (ramps, cross-roads, etc.).
- H) Make appropriate earthwork corrections for the pavement box and striping. Use 21 inch depth for rigid pavement, 26 inch depth for all flexible pavement and 4 inch depth for striping.
- I) Deduct any roadway excavation from borrow required to calculate Borrow Excavation Zone 3.

J) See Construction Cost Estimate Work Sheet (Section 3.1). This worksheet must be utilized for the most recent price information.

**PAVEMENT**

12 FOOT WIDE LANE (from subgrade up)

Pav't. Type	Description of Pavement	Cost/Linear Foot
A	10 inch R.C. Pavement	156
B	2 inch HMA Surf. Crs. & 8 inch HMA	61
C	3 inch HMA Surf. Crs. & 4 inch HMA	46
D	2 inch HMA Surf. Crs. & 2 inch HMA	22
E	Bridge Approach & Transition Slabs	156
	(Resurfacing Portion only F & G)	
F	2 inch HMA Surface Course	8.25
G	3 inch HMA Surface Course	12
H	Milling 2 inch	3

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
				0
				0
				0
				0
				0
				0
				0
				0
				0
				0
<b>PAVEMENT TOTAL</b>	=			0

\*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

Example = actual pavement width = 25 foot = 25/12 = 2.08 W.F.

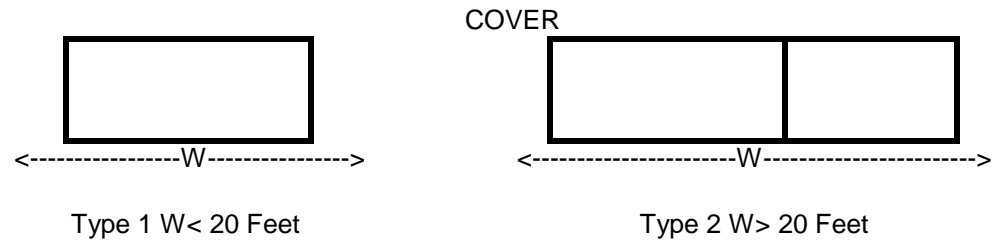
**CONTEXT SENSITIVE DESIGN**

Attach additional sheet detailing items and costs of context sensitive design work =

**CULVERTS**

//////////////////////////////////// //////////////////////////////////////

Class 2 - Reconstruction, Widening Dualization



Type	Layout (3)	Skew (1)	Cover (2)	Cost Per Sq. Foot
Type 1	Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	114.75
			10' to 20'	147.25
	Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
			10' to 20'	235.00
Type 2	Area w x L exceeds 1000 Sq. Feet	0-60 degrees	0 to 10'	121.75
			10' to 20'	152.50
	Short Culverts Difficult Conditions under 1000 Square Feet	0-60 degrees	0 to 10'	203.50
			10' to 20'	235.00

For skews over 60 degrees it will be necessary to make a special analysis and establish a square meter price comparable to above.

Description	Area Computation	x Cost per Sq. Foot	= Amount
			0
			0
			0
			0
Culvert Total =			0

**BRIDGES**

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual

1 to 3 spans and 2 side spans (Max. Span 100 feet)

H = Clear Height 14 To 23 feet (4)

L = 100 to 400 feet & all viaducts over 400 feet (5)

Class	Layout	Skew (1)	Foundation (2)	Cost per Sq. Foot
I	Width at Least 45 feet	0 to 40 Degrees	No Piles	134.75
			Piles at Stub Abut.	159.75
			Piles at Piers & Stu	174.75
		40 to 60 Degrees	No Piles	145
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual

1 to 3 spans and 2 side spans (Max. Span 100 feet) (3)

H = Clear Height 14 feet (4)

L = under 400 feet

Class	Layout	Skew (1)	Foundation (2)	Cost per Sq. Foot
II	L exceeds W Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	176.5
			On Piles	187.25
		40 to 60 Degrees	No Piles	219.75
			On Piles	273.25
III	W exceeds L Area L x W exceeds 4500 Sq. Feet	0 to 40 Degrees	No Piles	226.75
			On Piles	299.25
		40 to 60 Degrees	No Piles	241.5
			On Piles	310
IV	Width 30 - 45 feet Area W x L under	0 to 40 Degrees	No Piles	295.5
			On Piles	396.75
		40 to 60	No Piles	318.25



Class 2 - Reconstruction, Widening Dualization

0	55	0
length of ramp or frontage rd. in feet	x cost per foot	= Amount
DRAINAGE TOTAL =		0

**INCIDENTAL ITEMS**

Item	Units	Cost	x Quantity	= Amount
Removal of Striping - CR546 + BTR (CR579)	LF		4.5	1980
Removal of Pavement Markings - CR546 +BTR	SQFT		8	496
Traffic Stripes, Long Life Epoxy	LF		4	1760
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT		6	427.5
Removal of Striping - CR546 + SR (CR611)	LF		4.5	2655
Removal of Pavement Markings	SQFT		8	368
Traffic Stripes, Long Life Epoxy	LF		4	2812
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT		6	342
Removal of Striping - CR546 + CR 632	LF		4.5	585
Removal of Pavement Markings	SQFT		8	896
Traffic Stripes, Long Life Epoxy	LF		4	660
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT		6	672
Removal of Striping - CR546 + FCR/STPH	LF		4.5	1125
Removal of Pavement Markings	SQFT		8	0
Traffic Stripes, Long Life Epoxy	LF		4	1000
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT		6	138
Removal of Striping - CR546 + FCR/KEEFE	LF		4.5	720
Removal of Pavement Markings	SQFT		8	2920
Traffic Stripes, Long Life Epoxy	LF		4	640
Traffic Markings (Bicycle, Stop Bar, Turn Arrows)	SQFT		6	138
				0
INCIDENTAL ITEMS TOTAL		=		20334.5

**LANDSCAPE**

	Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles	0	112,815	0
Planting (Mainline) Length of Project in miles	0	64,500	0
Topsoil, Seeding, Planting (Finger Ramp) Number of Finger Ramps	0	12,500	0
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps	0	20,000	0
Topsoil, Seeding (Access Road) Length of Access Road in Feet	0	7.9	0
LANDSCAPE TOTAL	=		0

**NOISE ABATEMENT**

	Unit	Quantity	x Cost	= Amount
			305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

**GENERAL ITEMS**

Item	Project Length (mile)	x Cost/Mile	= Amount
Field Office	0	44,260	0
Materials Field Laboratory	0	28,970	0
Erosion Control during Construction	0	64,375	0
GENERAL ITEMS TOTAL	=		0

**SUMMARY**

Class 2 - Reconstruction, Widening Dualization

Route	Hopewell/Lawrence	Section/Proj. Id. #	2007BPP643C Bike Ped T.O. #11 (118183)
PM	Del Vecchio	UPC No.	CR 546 Intersection Striping

Work Type	Totals from other pages
Earthwork	0
Pavement	0
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	0
Incidental Items	20334.5
Landscape	0
Noise Abatement	0
General Items	0
<b>PROJECT SUBTOTAL</b>	<b>20334.5</b>

Other Items	Proj. Subtotal Range	Choice	Amount
Lighting, Traffic Stripes, Signs and Delineators		0% of Proj. Subtotal	0
Maintenance of Traffic		10% of Proj. Subtotal	2033
Training		1% of Proj. Subtotal	203.345
Mobilization			1830.105
Progress Schedule	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal	1830
	Project Cost 5.0 & above	10% of Proj. Subtotal	0
	Project Cost(Mil.)	\$	0
	Less than 2.0		0
	2.0 to 5.0	6,000	0
	5.0 to 10.0	8,000	0
	10.0 to 20.0	15,000	0
	20.0 to 30.0	30,000	0
Clearing Site	Project Cost (Mil.)	\$	5000
	Less than 1.0	15,000	15000
	1.0 to 2.0	30,000	0
	2.0 to 5.0	45,000	0
	5.0 to 10.0	115,000	0
	10.0 to 20.0	220,000	0
	20.0 to 30.0	240,000	0
	30.0 to 40.0	250,000	0
Construction Layout	Project Cost(Mil.)	\$	2000
	Less than 1.0	7,000	7000
	1.0 to 2.0	20,000	0
	2.0 to 5.0	42,000	0
	5.0 to 10.0	87,000	0
	10.0 to 20.0	160,000	0
	20.0 to 30.0	220,000	0
	30.0 to 40.0	490,000	0
40.0 & above	890,000	0	
<b>PROJECT TOTAL</b>			<b>31401</b>

CONTINGENCIES & ESCALATION

Y = Number of Years until midpoint of construction duration plus number of years until construction start. If midpoint is less than 2 years from the date of this estimate, no escalation is required.  
Maximum value = 10%

Y

3.00 1.04

31401.4	1.030	3.00	1.04	33637
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Class 2 - Reconstruction, Widening Dualization

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.030
10-20	2.50%	2	0.000
Over 20	2%	3	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)	% of Construction Cost	
Less than 1.0	31.10%	10461
1.0 to 5.0	20.30%	0.00
5.0 to 10.0	16.20%	0.00
10.0 & above	12.20%	0
<b>CONSTRUCTION ENGINEERING AMOUNT</b>		<b>\$10,461.16</b>

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of \$	Construction Change Order Contingency Amount	
\$0 to 0.1	\$6,000	6000
0.1 to 0.5	25,000	25000
0.5 to 5.0	25,000 + 4% of amount in excess of \$500,000	0
5.0 to 10.0	205,000 + 3% of amount in excess of \$5,000,000	0
10.0 to 15.0	355,000 + 2% of amount in excess of \$10,000,000	0
15.0 and above	455,000 + 1.5% of amount in excess of \$15,000,000 - max \$:	0
For State Funded Projects, Contingencies for Change orders = 0		
<b>CHANGE ORDER CONTINGENCY AMOUNT</b>	<b>=</b>	<b>6000</b>

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

33637	0	NO UTILITIES
-------	---	--------------

for Urban use 0.12,  
Rural 0.055 or +  
Estimate =  
Utility Relocation  
Cost for Initial  
Estimate

Construction Cost for Initial Estimate Use % or utilities detailed estimate

If there are no utility relocations on the project indicate "No Utilities" in the box above.

<u>RIGHT OF WAY COST</u>	NO ROW
--------------------------	--------

If there is no ROW cost on the project indicate "No ROW" the box

SUMMARY

Construction Estimate for Initial	33637
Construction Engineering (CE)	10461
Contingencies	6000
Utilities Relocations	NO UTILITIES
<b>Total Construction Cost</b>	<b>50098</b>
Right of Way Cost	NO ROW