APPENDIX F – PRELIMINARY CONSTRUCTION COST ESTIMATES

In advance of an economic impact analysis to be conducted as part of the next stage of the Portway Extensions program, preliminary construction cost estimates were prepared for the roadway infrastructure improvement concepts presented in Section X of this report. The cost estimates follow the NJDOT preliminary estimation procedures. Following is a summary table of the infrastructure improvement costs (exclusive of any required right-of-way acquisition or extensive environmental remediation that may be required). Also presented are the computation sheets detailing the construction items, estimated quantities and unit costs for each recommended alternative concept.

Table F-1

Portway Extensions Concept Development Study
Recommended Infrastructure Improvements

Preliminary Construction Cost Estimates

Figure Number	Alternative Concept Description	Cost Estimate
X.3	Northern Extensions	$ 65,000,000
X.4	NJ Turnpike Interchange 15-W Area	$ 109,000,000
X.5	Hackensack River Bridge	161,000,000
X.6	NJ Turnpike Interchange 14-A Scheme 1	65,000,000
X.7	NJ Turnpike Interchange 14-A Scheme 2	110,000,000
X.8	NJ Turnpike Interchange 14	5,000,000
X.9	Interim Newark Bay Bridge Improvement	186,000,000
X.10	Bayonne Bridge	4,000,000
X.11	Routes 1&9 Northbound at Delancy Street	8,000,000
X.12	NJ Turnpike Interchange 13-A - Kapkowski Road Area	48,000,000
X.13	NJ Turnpike Interchange 13	40,000,000
X.14	NJ Turnpike Interchange 12 Area	7,000,000
X.15	NJ Turnpike Interchange 10 Area	11,000,000
	Total (w/14-A Scheme 1)	$ 709,000,000
	Total (w/14-A Scheme 2)	$ 754,000,000

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**NORTHERN EXTENSIONS**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	26	4,050	105,300
Roadway Exc. Unclassified, **See (J)**	C.Y.	0	15	0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	104,948	12	1,259,376
		0		0
EARTHWORK TOTAL	=			$1,364,676

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 stripping.

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.

K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	56,672	2.08	7,190,543
E	156	800	4.17	520,416
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$7,710,959

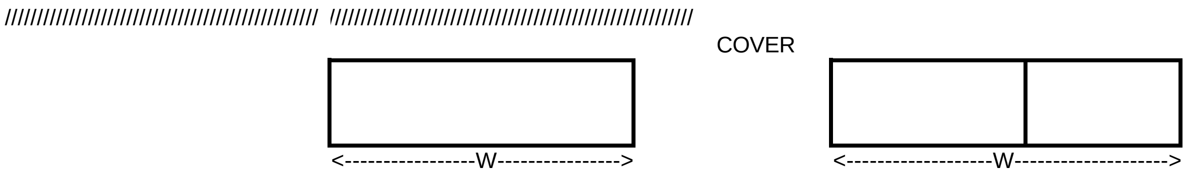
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
	70,400	225	15,840,000
	17,500	225	3,937,500
	17,500	225	3,937,500
	17,500	225	3,937,500
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$27,652,500
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$27,652,500

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

56,672	55	3,116,960
length of ramp or frontage rd. in feet	x cost per foot	= Amount
DRAINAGE TOTAL	=	$3,116,960

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	78,336	1,312,128
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	113,344	1,558,480
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$2,870,608

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	56,672	7.9	447,709
LANDSCAPE TOTAL	=		$447,709

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	10.7	44,260	473,582
Materials Field Laboratory	10.7	28,970	309,979
Erosion Control during Constructio	10.7	64,375	688,813
GENERAL ITEMS TOTAL	=		$1,472,374

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NORTHERN EXTENSIONS
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	1,364,676
Pavement	7,710,959
Context Sensitive Design	0
Culverts	0
Bridges	27,652,500
Drainage	3,116,960
Incidental Items	2,870,608
Landscape	447,709
Noise Abatement	0
General Items	1,472,374
PROJECT SUBTOTAL	$44,635,786

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	1,339,074	
Maintenance of Traffic		1.5% of Proj. Subtotal	669,537	
Training		1% of Proj. Subtotal	446,358	
Mobilization			4,463,579	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		4463579
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$52,992,332	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
52992332.44	1.015	1.00	$53,787,217	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	5109786
CONSTRUCTION ENGINEERING AMOUNT		$5,109,785.66	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		1036800

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$53,787,217	0.09	$4,840,850
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	53,787,217
Construction Engineering (CE)	5,109,786
Contingencies	500,000
Utilities Relocations	4,840,850
Total Construction Cost	$64,237,853

Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**NJ TURNPIKE INTERCHANGE 15W**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	17.8	4,050	72,090
Roadway Exc. Unclassified, **See (J)**	C.Y.	113,472	15	1,702,080
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	57,778	12	693,336
		0		0
EARTHWORK TOTAL	=			$2,467,506

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	31,914	4	7,787,016
B	61	6,888	2.08	873,949
E	156	800	4	499,200
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$9,160,165

*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

// //

COVER

<-----------------W----------------> <-------------------W-------------------->

Type 1 W< 20 Feet Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
	17,500	225	3,937,500
	17,500	225	3,937,500
	17,500	225	3,937,500
	200,900	225	45,202,500
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$57,015,000
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$57,015,000

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	6	544280	3,265,680
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

6,888	55	378,840
length of ramp or frontage rd. in feet	x cost per foot	= Amount
DRAINAGE TOTAL	=	$3,644,520

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	38,802	649,934
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	77,604	1,067,055
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$1,716,989

LANDSCAPE

	Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles	6	112,815	676,890
Planting (Mainline) Length of Project in miles	6	64,500	387,000
Topsoil, Seeding, Planting (Finger Ramp Number of Finger Ramps	4	12,500	50,000
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps	1	20,000	20,000
Topsoil, Seeding (Access Road) Length of Access Road in Feet	0	7.9	0
LANDSCAPE TOTAL	=		$1,133,890

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	7.3	44,260	323,098
Materials Field Laboratory	7.3	28,970	211,481
Erosion Control during Constructio	7.3	64,375	469,938
GENERAL ITEMS TOTAL	=		$1,004,517

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 15W
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	2,467,506
Pavement	9,160,165
Context Sensitive Design	0
Culverts	0
Bridges	57,015,000
Drainage	3,644,520
Incidental Items	1,716,989
Landscape	1,133,890
Noise Abatement	0
General Items	1,004,517
PROJECT SUBTOTAL	$76,142,586

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	2,284,278	
Maintenance of Traffic		1.5% of Proj. Subtotal	1,142,139	
Training		1% of Proj. Subtotal	761,426	
Mobilization			7,614,259	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		7614259
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$89,382,687	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
89382687.34	1.015	1.00	$90,723,428	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	8618726
CONSTRUCTION ENGINEERING AMOUNT		$8,618,725.63	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		1590900

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$90,723,428	0.09	$8,165,108
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	90,723,428
Construction Engineering (CE)	8,618,726
Contingencies	500,000
Utilities Relocations	8,165,108
Total Construction Cost	$108,007,262
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	PORTWAY EXTENSIONS	Section/Contract #	HACKENSACK RIVER BRIDGE
PM		UPC No.	

EARTHWORK (must be calculated)

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

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.

K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
E	156	200	6	187,200
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$187,200

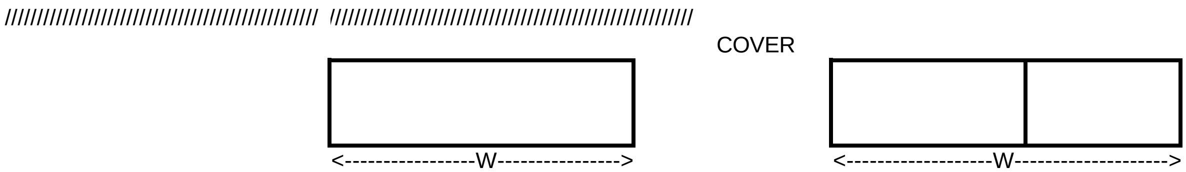
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
	40 to 60 Degrees	No Piles	166.50
Minimum Length 100 feet		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
5,263	72	300	$113,680,800

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	0
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

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

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	0	0
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	0	0
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		0

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
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	1	44,260	44260
Materials Field Laboratory	1	28,970	28970
Erosion Control during Constructio	1	64,375	64375
GENERAL ITEMS TOTAL	=		$137,605

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	HACKENSACK RIVER BRIDGE
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	0
Pavement	187,200
Context Sensitive Design	0
Culverts	0
Bridges	113,680,800
Drainage	0
Incidental Items	0
Landscape	0
Noise Abatement	0
General Items	137,605
PROJECT SUBTOTAL	$114,005,605

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	3,420,168	
Maintenance of Traffic		1.5% of Proj. Subtotal	1,710,084	
Training		1% of Proj. Subtotal	1,140,056	
Mobilization			11,400,561	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		11400561
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$133,114,474	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

Y

2.00

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%		0.00	
133114473.8	1.015	1.00	$135,111,191
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	12835563
CONSTRUCTION ENGINEERING AMOUNT		$12,835,563.13	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		2256700

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$135,111,191	0.09	$12,160,007
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	135,111,191
Construction Engineering (CE)	12,835,563
Contingencies	500,000
Utilities Relocations	12,160,007
Total Construction Cost	$160,606,761

Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	PORTWAY EXTENSIONS	Section/Contract #	NJTP INT 14A - SCHEME 1
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	22.9	4,050	92,745
Roadway Exc. Unclassified, **See (J)**	C.Y.	110,672	15	1,660,080
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	90,130	12	1,081,560
		0		0
EARTHWORK TOTAL	=			$2,834,385

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	60	900	20.83	1,125,000
B	60	620	6.25	232,500
B	60	7,010	4.17	1,752,500
B	60	11,888	2.08	1,486,000
				0
				0
				0
				0
				0

Class 1 - New Construction

PAVEMENT TOTAL = $4,596,000

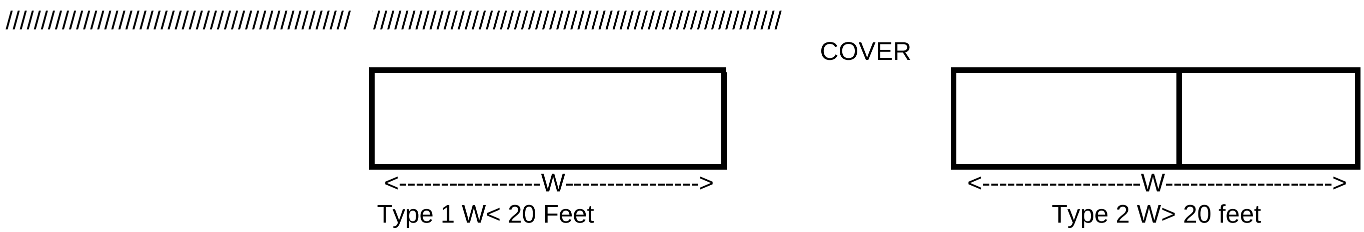
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



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	145.00
			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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
	26,000	225	5,850,000
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$5,850,000
Clearing Site Bridge *0-3% of Sub Total	%		0
		BRIDGE TOTAL	$5,850,000

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

	project length (miles)	x cost per mile	= Amount
Rural	0	364356	0
Urban	1.6	544280	870,848

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

length of ramp or frontage rd. in feet	x cost per foot	= Amount
12,338	55	678,590

DRAINAGE TOTAL = $1,549,438

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	2500	41,875
Fence 6 Foot High	18.25		0
9" X 16" Conc. Vertical Curb	13.75	22,970	315,838
15" X 41" Conc. Barrier Curb	50.25		0
24" X 41" Conc. Barrier Curb	73.25	4410	323,033
24" X Variable Conc. Barrier Curb	46		0

Sign Bridge	308,000	5	1540000
Cantilever Sign Structure	60,500	3	181500
INCIDENTAL ITEMS TOTAL	=		$2,402,245

LANDSCAPE

	Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles	1.6	112,815	180,504
Planting (Mainline) Length of Project in miles	1.6	64,500	103,200
Topsoil, Seeding, Planting (Finger Ramp Number of Finger Ramps	3	12,500	37,500
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps	2	20,000	40,000
Topsoil, Seeding (Access Road) Length of Access Road in Feet		7.9	0
LANDSCAPE TOTAL	=		$361,204

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	3.9	44,260	172,614
Materials Field Laboratory	3.9	28,970	112,983
Erosion Control during Constructio	3.9	64,375	251,063
GENERAL ITEMS TOTAL	=		$536,660

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJTP INT 14A - SCHEME 1
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	2,834,385
Pavement	4,596,000
Context Sensitive Design	0
Culverts	0
Bridges	5,850,000
Drainage	1,549,438
Incidental Items	2,402,245
Landscape	361,204

Class 1 - New Construction

Walls	12500*675+2290*1710	12,353,400
General Items		536,660
Traffic Signals	4*120000+150000	630,000
Toll	15*900000	13,500,000
PROJECT SUBTOTAL		$44,613,332

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	1,338,400	
Maintenance of Traffic		1.5% of Proj. Subtotal	669,200	
Training		1% of Proj. Subtotal	446,133	
Mobilization			4,461,333	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		4461333
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$52,966,398	

CONTINGENCIES & ESCALATION

		Y			
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%		0.00		2.00	1.00
52966397.88	1.015	1.00	$53,760,894		
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD		

Class 1 - New Construction

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	5107285
CONSTRUCTION ENGINEERING AMOUNT		$5,107,284.92	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		1036400

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$53,760,894	0.09	$4,838,480
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	53,760,894
Construction Engineering (CE)	5,107,285
Contingencies	500,000
Utilities Relocations	4,838,480
Total Construction Cost	$64,206,659
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	PORTWAY EXTENSIONS	Section/Contract #	NJTP INT 14A - SCHEME 2
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	32.1	4,050	130,005
Roadway Exc. Unclassified, **See (J)**	C.Y.	155,579	15	2,333,685
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	113,999	12	1,367,988
		0		0
EARTHWORK TOTAL	=			$3,831,678

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 stripping.

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.

K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	60	940	20.83	1,175,000
B	60	1100	6.25	412,500
B	60	9200	4.17	2,300,000
B	60	2552	2.50	382,800
B	60	17752	2.08	2,219,000
				0
				0
				0
				0

				$6,489,300

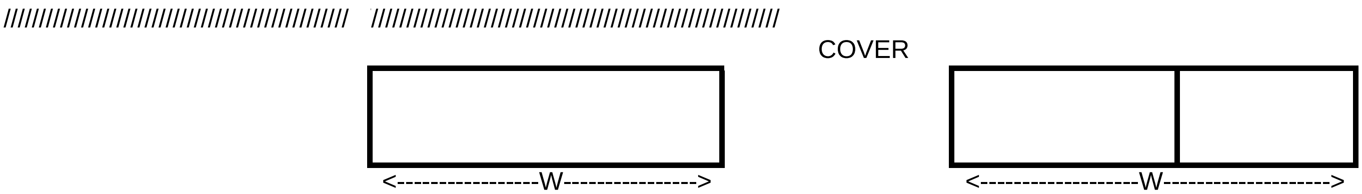
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
	140,000	225	31,500,000
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$31,500,000
Clearing Site Bridge *0-3% of Sub Total	%		0
		BRIDGE TOTAL	$31,500,000

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

	project length (miles)	x cost per mile	= Amount
Rural	0	364356	0
Urban	2.7	544280	1,469,556

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

length of ramp or frontage rd. in feet	x cost per foot	= Amount
14,800	55	814,000

DRAINAGE TOTAL = $2,283,556

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	2200	36,850
Fence 6 Foot High	18.25		0
9" X 16" Conc. Vertical Curb	13.75	37,164	511,005
15" X 41" Conc. Barrier Curb	50.25		0
24" X 41" Conc. Barrier Curb	73.25	2750	201,438
24" X Variable Conc. Barrier Curb	46		0

Sign Bridge	308,000	11	3388000
Cantilever Sign Structure	60,500		0
INCIDENTAL ITEMS TOTAL	=		$4,137,293

LANDSCAPE

	Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles	2.7	112,815	304,601
Planting (Mainline) Length of Project in miles	2.7	64,500	174,150
Topsoil, Seeding, Planting (Finger Ramp Number of Finger Ramps	6	12,500	75,000
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps		20,000	0
Topsoil, Seeding (Access Road) Length of Access Road in Feet		7.9	0
LANDSCAPE TOTAL	=		$553,751

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	5.4	44,260	239,004
Materials Field Laboratory	5.4	28,970	156,438
Erosion Control during Constructio	5.4	64,375	347,625
GENERAL ITEMS TOTAL	=		$743,067

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJTP INT 14A - SCHEME 2
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	3,831,678
Pavement	6,489,300
Context Sensitive Design	0
Culverts	0
Bridges	31,500,000
Drainage	2,283,556
Incidental Items	4,137,293
Landscape	553,751

Class 1 - New Construction

Walls	10700*675+3560*1710	13,310,100
General Items		743,067
Traffic Signals	3*120000+150000	510,000
Toll	15*900000	13500000
PROJECT SUBTOTAL		$76,858,744

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	2,305,762	
Maintenance of Traffic		1.5% of Proj. Subtotal	1,152,881	
Training		1% of Proj. Subtotal	768,587	
Mobilization			7,685,874	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		7685874
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$90,209,849	

CONTINGENCIES & ESCALATION

		Y			
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%		0.00		2.00	1.00
90209849.32	1.015	1.00	$91,562,997		
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD		

Class 1 - New Construction

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	8698485
CONSTRUCTION ENGINEERING AMOUNT		$8,698,484.72	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		1603400

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$91,562,997	0.09	$8,240,670
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	91,562,997
Construction Engineering (CE)	8,698,485
Contingencies	500,000
Utilities Relocations	8,240,670
Total Construction Cost	$109,002,152

Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**NJ TURNPIKE INTERCHANGE 14**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	3.5	4,050	14,175
Roadway Exc. Unclassified, **See (J)**	C.Y.	0	15	0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	57,037	12	684,444
		0		0
EARTHWORK TOTAL	=			$698,619

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	7,700	2.08	976,976
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$976,976

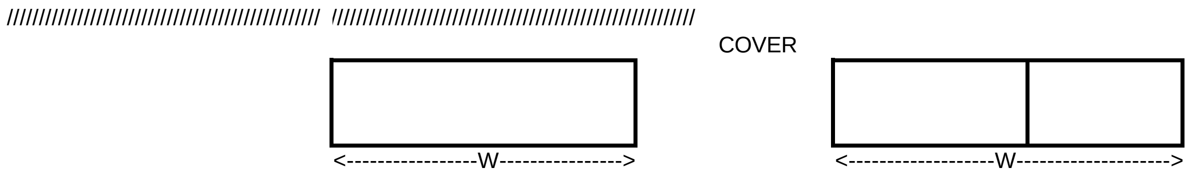
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$0
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

	project length (miles)	x cost per mile	= Amount
Rural	0	364356	0
Urban	0	544280	0

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

length of ramp or frontage rd. in feet	x cost per foot	= Amount
7,700	55	423,500

DRAINAGE TOTAL = $423,500

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	3,850	64,488
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	15,400	211,750
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$276,238

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	5	20,000	100,000
Topsoil, Seeding (Access Road) Length of Access Road in Feet	0	7.9	0
LANDSCAPE TOTAL	=		$100,000

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	1.46	44,260	64,620
Materials Field Laboratory	1.46	28,970	42,296
Erosion Control during Constructio	1.46	64,375	93,988
GENERAL ITEMS TOTAL	=		$200,903

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 14
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	698,619
Pavement	976,976
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	423,500
Incidental Items	276,238
Landscape	100,000
Noise Abatement	0
General Items	200,903
PROJECT SUBTOTAL	$2,676,236

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	80,287	
Maintenance of Traffic		1.5% of Proj. Subtotal	40,144	
Training		1% of Proj. Subtotal	26,762	
Mobilization			240,861	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		240861
	Project Cost 5.0 & above	10% of Proj. Subtotal		0
Progress Schedule	Project Cost(Mil.)	$	6,000	
	Less than 2.0	0		0
	2.0 to 5.0	6,000		6000
	5.0 to 10.0	8,000		0
	10.0 to 20.0	15,000		0
	20.0 to 30.0	30,000		0
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		0
Clearing Site	Project Cost (Mil.)	$	45,000	
	Less than 1.0	15,000		0
	1.0 to 2.0	30,000		0
	2.0 to 5.0	45,000		45000
	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
	40.0 & above	490,000		0
Construction Layout	Project Cost(Mil.)	$	42,000	
	Less than 1.0	7,000		0
	1.0 to 2.0	20,000		0
	2.0 to 5.0	42,000		42000
	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
		PROJECT TOTAL	$3,157,290	

Class 1 - New Construction

CONTINGENCIES & ESCALATION		Y		
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%		0.00		2.00
3157289.991	1.030	1.00	$3,252,009	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.030
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	572354
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	0
CONSTRUCTION ENGINEERING AMOUNT		$572,353.53	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
0.5 to 5.0	25,000 + 4% of amount in excess of $500,000	135100
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 - $500,000 max	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $135,100

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$3,252,009	0.09	$292,681
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	3,252,009
Construction Engineering (CE)	572,354
Contingencies	135,100
Utilities Relocations	292,681
Total Construction Cost	$4,252,143
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	PORTWAY EXTENSIONS	Section/Contract #	NEWARK BAY BRIDGE
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, **See (J)**	C.Y.	0		0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	0		0
		0		0
EARTHWORK TOTAL	=			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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
E	156	200	8	249,600
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$249,600

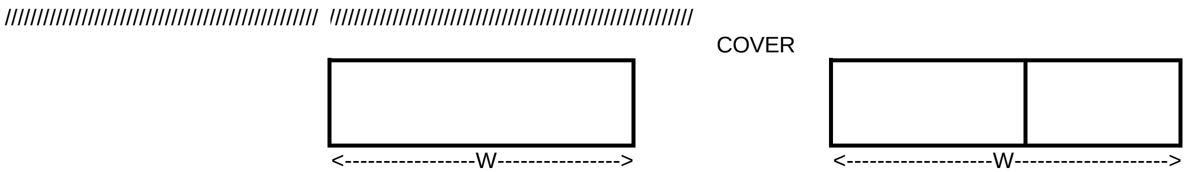
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet   Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
	40 to 60 Degrees	No Piles	166.50
Minimum Length 100 feet		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
4,564	96	300	$131,443,200

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	0
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

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

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	0	0
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	0	0
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		0

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
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	0.86	44,260	38063.6
Materials Field Laboratory	0.86	28,970	24914.2
Erosion Control during Constructio	0.86	64,375	55362.5
GENERAL ITEMS TOTAL	=		$118,340

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NEWARK BAY BRIDGE
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	0
Pavement	249,600
Context Sensitive Design	0
Culverts	0
Bridges	131,443,200
Drainage	0
Incidental Items	0
Landscape	0
Noise Abatement	0
General Items	118,340
PROJECT SUBTOTAL	$131,811,140

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	3,954,334	
Maintenance of Traffic		1.5% of Proj. Subtotal	1,977,167	
Training		1% of Proj. Subtotal	1,318,111	
Mobilization			13,181,114	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		13181114
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$153,679,867	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
153679867	1.015	1.00	$155,985,065	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	14818581
CONSTRUCTION ENGINEERING AMOUNT		$14,818,581.18	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		2569800

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$155,985,065	0.09	$14,038,656
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	155,985,065
Construction Engineering (CE)	14,818,581
Contingencies	500,000
Utilities Relocations	14,038,656
Total Construction Cost	$185,342,302
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**BAYONNE BRIDGE**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	0	4,050	0
Roadway Exc. Unclassified, **See (J)**	C.Y.	0		0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	0		0
		0		0
EARTHWORK TOTAL	=			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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
E	156	200	8	249,600
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$249,600

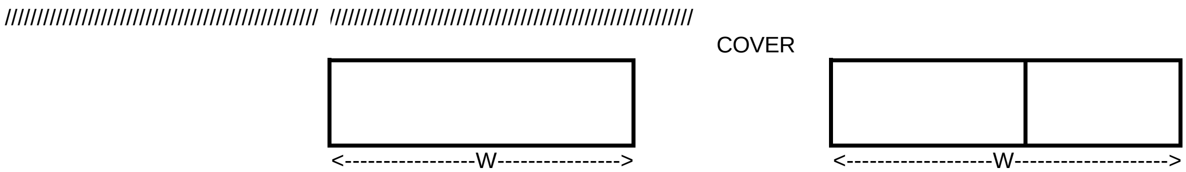
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
4,818	96	300	$138,758,400

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	0
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

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

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	0	0
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	0	0
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		0

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
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	0.91	44,260	40276.6
Materials Field Laboratory	0.91	28,970	26362.7
Erosion Control during Constructio	0.91	64,375	58581.25
GENERAL ITEMS TOTAL	=		$125,221

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	BAYONNE BRIDGE
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	0
Pavement	249,600
Context Sensitive Design	0
Culverts	0
Bridges	138,758,400
Drainage	0
Incidental Items	0
Landscape	0
Noise Abatement	0
General Items	125,221
PROJECT SUBTOTAL	$139,133,221

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	4,173,997	
Maintenance of Traffic		1.5% of Proj. Subtotal	2,086,998	
Training		1% of Proj. Subtotal	1,391,332	
Mobilization			13,913,322	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		13913322
Progress Schedule	Project Cost(Mil.)	$	58,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		58000
Clearing Site	Project Cost (Mil.)	$	490,000	
	Less than 1.0	15,000		0
	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
	40.0 & above	490,000		490000
Construction Layout	Project Cost(Mil.)	$	890,000	
	Less than 1.0	7,000		0
	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		890000
		PROJECT TOTAL	$162,136,870	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
162136869.7	1.015	1.00	$164,568,923	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.015

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	15634048
CONSTRUCTION ENGINEERING AMOUNT		$15,634,047.66	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		2698500

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$164,568,923	0.09	$14,811,203
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	164,568,923
Construction Engineering (CE)	15,634,048
Contingencies	500,000
Utilities Relocations	14,811,203
Total Construction Cost	$195,514,173
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	PORTWAY EXTENSIONS	Section/Contract #	ROUTES 1/9 & DELANCY ST
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	2.5	4,050	10,125
Roadway Exc. Unclassified, **See (J)**	C.Y.	0	15	0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	37,667	12	452,004
		0		0
EARTHWORK TOTAL	=			$462,129

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	845	2.08	107,214
B	61	845	2.5	128,863
B	61	344	3	62,952
E	156	200	3.33	103,896
				0
				0
				0
				0
				0

PAVEMENT TOTAL = $402,924

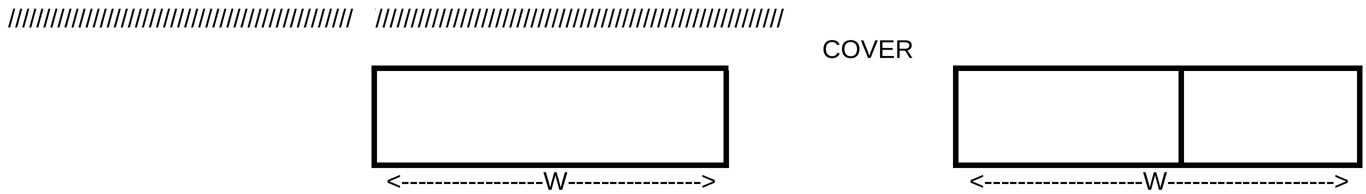
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
100	40	225	$900,000

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
	13,000	225	2,925,000
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$2,925,000
Clearing Site Bridge *0-3% of Sub Total	%		0

BRIDGE TOTAL $2,925,000

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

	project length (miles)	x cost per mile	= Amount
Rural	0	364356	0
Urban	0	544280	0

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

length of ramp or frontage rd. in feet	x cost per foot	= Amount
2,034	55	111,870

DRAINAGE TOTAL = $111,870

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	2,034	34,070
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	4,068	55,935
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0

Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$90,005

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	1	12,500	12,500
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps	1	20,000	20,000
Topsoil, Seeding (Access Road) Length of Access Road in Feet	0	7.9	0
LANDSCAPE TOTAL	=		$32,500

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	0.39	44,260	17,261
Materials Field Laboratory	0.39	28,970	11,298
Erosion Control during Constructio	0.39	64,375	25,106
GENERAL ITEMS TOTAL	=		$53,666

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	ROUTES 1/9 & DELANCY ST
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	462,129
Pavement	402,924
Context Sensitive Design	0
Culverts	0
Bridges	3,825,000
Drainage	111,870
Incidental Items	90,005
Landscape	32,500

Class 1 - New Construction

Noise Abatement	0
General Items	53,666
PROJECT SUBTOTAL	$4,978,094

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	149,343	
Maintenance of Traffic		1.5% of Proj. Subtotal	74,671	
Training		1% of Proj. Subtotal	49,781	
Mobilization			448,028	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		448028
	Project Cost 5.0 & above	10% of Proj. Subtotal		0
Progress Schedule	Project Cost(Mil.)	$	6,000	
	Less than 2.0	0		0
	2.0 to 5.0	6,000		6000
	5.0 to 10.0	8,000		0
	10.0 to 20.0	15,000		0
	20.0 to 30.0	30,000		0
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		0
Clearing Site	Project Cost (Mil.)	$	45,000	
	Less than 1.0	15,000		0
	1.0 to 2.0	30,000		0
	2.0 to 5.0	45,000		45000
	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
	40.0 & above	490,000		0
Construction Layout	Project Cost(Mil.)	$	42,000	
	Less than 1.0	7,000		0
	1.0 to 2.0	20,000		0
	2.0 to 5.0	42,000		42000
	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
		PROJECT TOTAL	$5,792,917	

CONTINGENCIES & ESCALATION

		Y			
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%		0.00		2.00	1.00
5792917.115	1.030	1.00	$5,966,705		
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD		

Class 1 - New Construction

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.030
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	727938
10.0 & above		9.50%	0
CONSTRUCTION ENGINEERING AMOUNT		$727,937.96	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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	234000
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 - $500,000 max	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $234,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$5,966,705	0.09	$537,003
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	5,966,705
Construction Engineering (CE)	727,938
Contingencies	234,000
Utilities Relocations	537,003
Total Construction Cost	$7,465,646

Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**NJ TURNPIKE INTERCHANGE 13A**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	15	4,050	60,750
Roadway Exc. Unclassified, **See (J)**	C.Y.	0	15	0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	97,437	12	1,169,244
		0		0
EARTHWORK TOTAL	=			$1,229,994

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	13,154	2.08	1,668,980
E	156	1,600	2.08	519,168
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$2,188,148

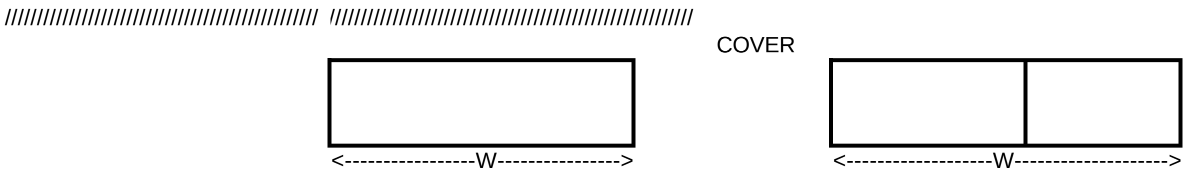
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
	40 to 60 Degrees	No Piles	166.50
Minimum Length 100 feet		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
#1	22,200	225	4,995,000
#2	11,100	225	2,497,500
#3	27,750	225	6,243,750
#4	13,875	225	3,121,875
#5	8,325	225	1,873,125
#6	33,300	225	7,492,500
#7	3,000	225	675,000
#8	5,550	225	1,248,750
			0
			0
			0
			0
		Sub Total	$28,147,500
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$28,147,500

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

13,154		55	723,470
length of ramp or frontage rd. in feet		x cost per foot	= Amount
	DRAINAGE TOTAL	=	$723,470

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	13,154	220,330
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	26,308	361,735
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$582,065

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	13,154	7.9	103,917
LANDSCAPE TOTAL	=		$103,917

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	2.5	44,260	110,650
Materials Field Laboratory	2.5	28,970	72,425
Erosion Control during Constructio	2.5	64,375	160,938
GENERAL ITEMS TOTAL	=		$344,013

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 13A
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	1,229,994
Pavement	2,188,148
Context Sensitive Design	0
Culverts	0
Bridges	28,147,500
Drainage	723,470
Incidental Items	582,065
Landscape	103,917
Noise Abatement	0
General Items	344,013
PROJECT SUBTOTAL	$33,319,105

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	999,573	
Maintenance of Traffic		1.5% of Proj. Subtotal	499,787	
Training		1% of Proj. Subtotal	333,191	
Mobilization			3,331,911	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		3331911
Progress Schedule	Project Cost(Mil.)	$	40,000	
	Less than 2.0	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
	30.0 to 40.0	40,000		40000
	40.0 & above	58,000		0
Clearing Site	Project Cost (Mil.)	$	250,000	
	Less than 1.0	15,000		0
	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		250000
	40.0 & above	490,000		0
Construction Layout	Project Cost(Mil.)	$	490,000	
	Less than 1.0	7,000		0
	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		490000
	40.0 & above	890,000		0
		PROJECT TOTAL	$39,263,566	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
39263566.41	1.000	1.00	$39,263,566	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	3730039
CONSTRUCTION ENGINEERING AMOUNT		$3,730,038.81	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		819000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$39,263,566	0.09	$3,533,721
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	39,263,566
Construction Engineering (CE)	3,730,039
Contingencies	500,000
Utilities Relocations	3,533,721
Total Construction Cost	$47,027,326

Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 13
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	3.8	4,050	15,390
Roadway Exc. Unclassified, **See (J)**	C.Y.	0	15	0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	27,496	12	329,952
		0		0
EARTHWORK TOTAL	=			$345,342

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	3,700	2.08	469,456
E	156	900	2.08	292,032
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$761,488

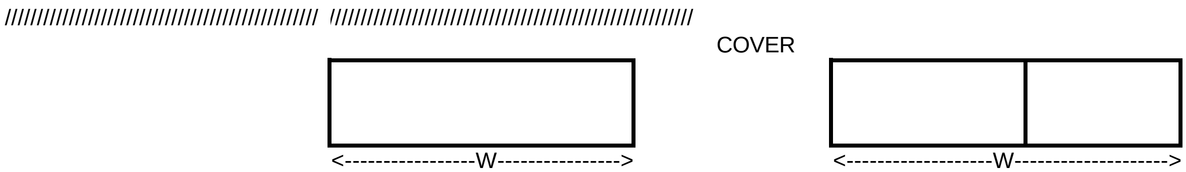
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
	40 to 60 Degrees	No Piles	166.50
Minimum Length 100 feet		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

			$0
Length	Width	Cost per SF	Bridge Total

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
	7,500	225	1,687,500
	15,000	225	3,375,000
	60,000	225	13,500,000
	35,000	225	7,875,000
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$26,437,500
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$26,437,500

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

3,712	55	204,160
length of ramp or frontage rd. in feet	x cost per foot	= Amount
DRAINAGE TOTAL	=	$204,160

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	1,856	31,088
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	7,424	102,080
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$133,168

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	4	12,500	50,000
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps	3	20,000	60,000
Topsoil, Seeding (Access Road) Length of Access Road in Feet	0	7.9	0
LANDSCAPE TOTAL	=		$110,000

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	0.7	44,260	30,982
Materials Field Laboratory	0.7	28,970	20,279
Erosion Control during Constructio	0.7	64,375	45,063
GENERAL ITEMS TOTAL	=		$96,324

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 13
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	345,342
Pavement	761,488
Context Sensitive Design	0
Culverts	0
Bridges	26,437,500
Drainage	204,160
Incidental Items	133,168
Landscape	110,000
Noise Abatement	0
General Items	96,324
PROJECT SUBTOTAL	$28,087,982

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	842,639	
Maintenance of Traffic		1.5% of Proj. Subtotal	421,320	
Training		1% of Proj. Subtotal	280,880	
Mobilization			2,808,798	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		2808798
Progress Schedule	Project Cost(Mil.)	$	30,000	
	Less than 2.0	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		30000
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		0
Clearing Site	Project Cost (Mil.)	$	240,000	
	Less than 1.0	15,000		0
	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		240000
	30.0 to 40.0	250,000		0
	40.0 & above	490,000		0
Construction Layout	Project Cost(Mil.)	$	220,000	
	Less than 1.0	7,000		0
	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		220000
	30.0 to 40.0	490,000		0
	40.0 & above	890,000		0
		PROJECT TOTAL	$32,931,619	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
32931618.63	1.000	1.00	$32,931,619	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.000
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	0
10.0 & above		9.50%	3128504
CONSTRUCTION ENGINEERING AMOUNT		$3,128,503.77	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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 - $500,000 max	500000
		724000

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $500,000

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$32,931,619	0.09	$2,963,846
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	32,931,619
Construction Engineering (CE)	3,128,504
Contingencies	500,000
Utilities Relocations	2,963,846
Total Construction Cost	$39,523,968
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**NJ TURNPIKE INTERCHANGE 12**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	4	4,050	16,200
Roadway Exc. Unclassified, **See (J)**	C.Y.	32,593	15	488,895
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	0	12	0
		0		0
EARTHWORK TOTAL	=			$505,095

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	8,800	4.17	2,238,456
				0
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$2,238,456

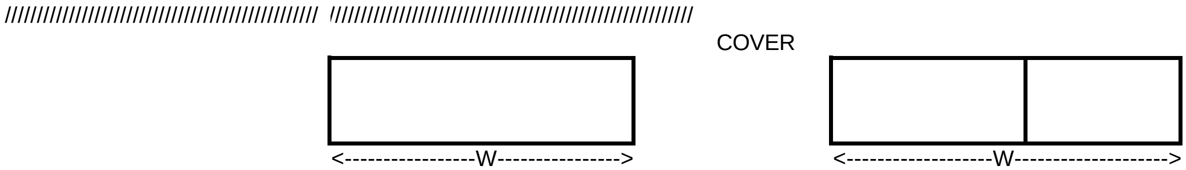
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet

Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
			$0

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$0
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	1.7	544280	925,276
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

0	55	0
length of ramp or frontage rd. in feet	x cost per foot	= Amount
DRAINAGE TOTAL	=	$925,276

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	0	0
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	17,600	242,000
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$242,000

LANDSCAPE

	Quantity	x Unit Prices	= Amount
Topsoil and Seeding (Mainline) Length of Project in miles	1.7	112,815	191,786
Planting (Mainline) Length of Project in miles	1.7	64,500	109,650
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	=		$301,436

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	1.7	44,260	75,242
Materials Field Laboratory	1.7	28,970	49,249
Erosion Control during Constructio	1.7	64,375	109,438
GENERAL ITEMS TOTAL	=		$233,929

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 12
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	505,095
Pavement	2,238,456
Context Sensitive Design	0
Culverts	0
Bridges	0
Drainage	925,276
Incidental Items	242,000
Landscape	301,436
Noise Abatement	0
General Items	233,929
PROJECT SUBTOTAL	$4,446,191

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	133,386	
Maintenance of Traffic		1.5% of Proj. Subtotal	66,693	
Training		1% of Proj. Subtotal	44,462	
Mobilization			400,157	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		400157
	Project Cost 5.0 & above	10% of Proj. Subtotal		0
Progress Schedule	Project Cost(Mil.)	$	6,000	
	Less than 2.0	0		0
	2.0 to 5.0	6,000		6000
	5.0 to 10.0	8,000		0
	10.0 to 20.0	15,000		0
	20.0 to 30.0	30,000		0
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		0
Clearing Site	Project Cost (Mil.)	$	45,000	
	Less than 1.0	15,000		0
	1.0 to 2.0	30,000		0
	2.0 to 5.0	45,000		45000
	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
	40.0 & above	490,000		0
Construction Layout	Project Cost(Mil.)	$	42,000	
	Less than 1.0	7,000		0
	1.0 to 2.0	20,000		0
	2.0 to 5.0	42,000		42000
	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
		PROJECT TOTAL	$5,183,889	

Class 1 - New Construction

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
5183888.695	1.030	1.00	$5,339,405	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.030
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	651407
10.0 & above		9.50%	0
CONSTRUCTION ENGINEERING AMOUNT		$651,407.45	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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	215200
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 - $500,000 max	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $215,200

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$5,339,405	0.09	$480,546
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	5,339,405
Construction Engineering (CE)	651,407
Contingencies	215,200
Utilities Relocations	480,546
Total Construction Cost	$6,686,559
Right of Way Cost	0

Classification Number 1 - NEW CONSTRUCTION - English

Route	**PORTWAY EXTENSIONS**	Section/Contract #	**NJ TURNPIKE INTERCHANGE 10**
PM		UPC No.	

EARTHWORK (must be calculated)

	Unit	Quantity	x Unit Price	Amount
Stripping (4 - 6" Depth)	Acre	5.8	4,050	23,490
Roadway Exc. Unclassified, **See (J)**	C.Y.	0	15	0
Removal of Conc. Base & Conc. Surface Courses, **See (K)**	S.Y.	0		0
Channel Excavation	C.Y.	0	12.25	0
Ditch Excavation	C.Y.	0	10	0
Borrow Excavation Zone 3, **See (J)**	C.Y.	93,541	12	1,122,492
		0		0
EARTHWORK TOTAL	=			$1,145,982

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 stripping.
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.
K) 11.2 to 12.5, based on the quantity, location and type of project.

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 Base	61
C	3 inch HMA Surf. Crs. & 4 inch HMA Base	46
D	2 inch HMA Surf. Crs. & 2 inch HMA Base	22
E	Bridge Approach & Transition Slabs	156

Computation Table for Pavement. Cost

Type	Cost from table above	x Length	x Pavement *W.F.	= Amount
B	61	12,628	2.08	1,602,241
E	156	200	2.08	64,896
				0
				0
				0
				0
				0
				0
				0
PAVEMENT TOTAL			=	$1,667,137

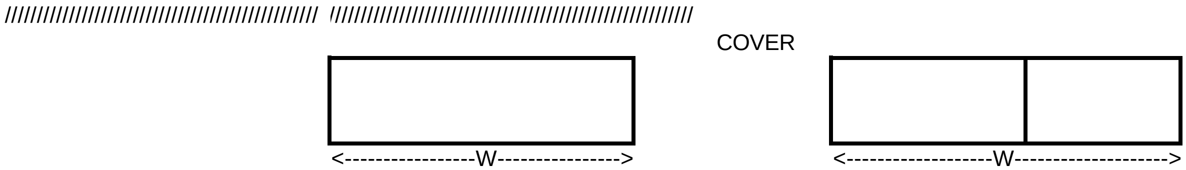
*Width Factors = Ratio of 12 foot wide lane to actual pavement width.

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



Type 1 W< 20 Feet   Type 2 W> 20 feet

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	145.00
			Piles at Stub Abut.	168.25
			Piles at Piers & Stu	181.25

Class 1 - New Construction

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	176.50
			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	241.50
			On Piles	310.00
IV	Width 30 - 45 feet Area W x L under 4500 Sq. Foot	0 to 40 Degrees	No Piles	295.50
			On Piles	396.75
		40 to 60 Degrees	No Piles	318.25
			On Piles	416.25

For the Bridge Sketch see the Construction Cost Estimation Preparation Manual
1 to 2 spans (Max. Span 125 feet)
H = Clear Height 14 feet (4)
L = 100 to 250 feet

Layout	Skew (1)	Foundation (2)	Cost/ Sq. Foot
Width at Least 40 feet	0 to 40 Degrees	No Piles	157.00
		Piles at Semi-Stub Abut.	182.00
		Piles at Piers & Semi-Stub Abut.	204.50
Minimum Length 100 feet	40 to 60 Degrees	No Piles	166.50
		Piles at Semi-Stub Abut.	194.75
		Piles at Piers & Semi-Stub Abut.	217.50

Length	Width	Cost per SF	Bridge Total
250	50	225	$2,812,500

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

2. For very bad foundation conditions requiring unusual lengths or spacing of piles, it will be necessary to establish a square foot price.

3. For longer spans, adjust the cost per square foot to reflect increased cost of structural members.

4. For span bridges, it is expected the length of the side span will be in- creased in proportion to any increase in height. Because of the resultant increase in deck area, the square foot price will remain approximately the same in the range of heights shown. For extremely high structures (particularly for viaducts), square foot prices will have to be increased.

5. For structures over 400 foot long (viaducts), reduce the cost per square foot if repetitive span length and forming can be used. Reduce by $0.50 for lengths from 400 to 600 feet and by $1.00 for lengths over 600 feet. (Do not forget adjustments (3) and (4) above on viaducts).

6. For statically indeterminate structures, square foot prices will have to be established.

Structure Description	Calculated Sq. Foot of Bridge Deck	x Cost Per Square Foot	= Amount
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
			0
		Sub Total	$0
Clearing Site Bridge *0-3% of Sub Total			0
	%		
		BRIDGE TOTAL	$0

*Pick appropriate percent based on the size, type and materials of existing structure

DRAINAGE (includes inlets and cross drains)

Rural	0	364356	0
	project length (miles)	x cost per mile	= Amount
Urban	0	544280	0
	project length (miles)	x cost per mile	= Amount

The above are the total costs of basins, manholes, longitudinal and transverse pipes, underdrains, headwalls, protecting curbs, aprons, etc. for a divided highway with a depressed median. The costs are assumed to apply to 4, 6 or 8 lane sections since there will be no appreciable difference in the number of basins or the sizes or lengths of pipes.

Frontage Road & Ramp Drainage

12,628	55	694,540
length of ramp or frontage rd. in feet	x cost per foot	= Amount

DRAINAGE TOTAL = $694,540

INCIDENTAL ITEMS

Item	Cost / L.F.	x Quantity	= Amount
Beam Guide Rail	16.75	6,314	105,760
Fence 6 Foot High	18.25	0	0
9" X 16" Conc. Vertical Curb	13.75	25,256	347,270
15" X 41" Conc. Barrier Curb	50.25	0	0
24" X 41" Conc. Barrier Curb	73.25	0	0
24" X Variable Conc. Barrier Curb	46	0	0
Sign Bridge	308,000	0	0
Cantilever Sign Structure	60,500	0	0
INCIDENTAL ITEMS TOTAL	=		$453,030

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	2	12,500	25,000
Topsoil, Seeding, Planting (Loop Ramp) Number of Loop Ramps	1	20,000	20,000
Topsoil, Seeding (Access Road) Length of Access Road in Feet	0	7.9	0
LANDSCAPE TOTAL	=		$45,000

NOISE ABATEMENT

	Unit	Quantity	x Cost	= Amount
Noise Wall	L.F.	0	305	0
				0
				0
				0
NOISE ABATEMENT TOTAL	=			0

GENERAL ITEMS

Item	Project Length (miles)	x Cost/Mile	= Amount
Field Office	2.4	44,260	106,224
Materials Field Laboratory	2.4	28,970	69,528
Erosion Control during Constructio	2.4	64,375	154,500
GENERAL ITEMS TOTAL	=		$330,252

SUMMARY

Route	PORTWAY EXTENSIONS	Section/Contract #	NJ TURNPIKE INTERCHANGE 10
PM	0	UPC No.	0

Work Type	Totals from other pages
Earthwork	1,145,982
Pavement	1,667,137
Context Sensitive Design	0
Culverts	0
Bridges	2,812,500
Drainage	694,540
Incidental Items	453,030
Landscape	45,000
Noise Abatement	0
General Items	330,252
PROJECT SUBTOTAL	$7,148,440

Class 1 - New Construction

Other Items	Proj. Subtotal Range	Choice	Amount	
Lighting, Traffic Stripes, Signs and Delineators		3% of Proj. Subtotal	214,453	
Maintenance of Traffic		1.5% of Proj. Subtotal	107,227	
Training		1% of Proj. Subtotal	71,484	
Mobilization			714,844	
	Project Cost < 5.0 (Mil.)	9% of Proj. Subtotal		0
	Project Cost 5.0 & above	10% of Proj. Subtotal		714844
Progress Schedule	Project Cost(Mil.)	$	8,000	
	Less than 2.0	0		0
	2.0 to 5.0	6,000		0
	5.0 to 10.0	8,000		8000
	10.0 to 20.0	15,000		0
	20.0 to 30.0	30,000		0
	30.0 to 40.0	40,000		0
	40.0 & above	58,000		0
Clearing Site	Project Cost (Mil.)	$	115,000	
	Less than 1.0	15,000		0
	1.0 to 2.0	30,000		0
	2.0 to 5.0	45,000		0
	5.0 to 10.0	115,000		115000
	10.0 to 20.0	220,000		0
	20.0 to 30.0	240,000		0
	30.0 to 40.0	250,000		0
	40.0 & above	490,000		0
Construction Layout	Project Cost(Mil.)	$	87,000	
	Less than 1.0	7,000		0
	1.0 to 2.0	20,000		0
	2.0 to 5.0	42,000		0
	5.0 to 10.0	87,000		87000
	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
		PROJECT TOTAL	$8,466,448	

CONTINGENCIES & ESCALATION

		Y		
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%		0.00		2.00
8466448.362	1.030	1.00	$8,720,442	
Project Total	Contingencies (1+C)	1 + [0.01 (Y+1) (Y-2)]	Construction Estimate for PD	

Project Cost(Mil.)	Contingencies (C) Percent	Average Construction Duration in Years	
0-10	3%	1	0.030
10-20	2.50%	2	0.000
20-50	2%	3	0.000
Over 50	1.50%	4	0.000

CONSTRUCTION ENGINEERING (CE)

Project Cost (Mil.)		% of Construction Cost	
Less than 1.0		28.40%	0
1.0 to 5.0		17.60%	0
5.0 to 10.0		12.20%	1063894
10.0 & above		9.50%	0
CONSTRUCTION ENGINEERING AMOUNT		$1,063,893.90	

CONSTRUCTION CHANGE ORDER CONTINGENCIES

Total Federal Participating Items in Millions of $	Construction Change Order Contingency Amount	
$0 to 0.1	$6,000	0
0.1 to 0.5	25,000	0
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	316600
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 - $500,000 max	0
		0

For State Funded Projects, Contingencies for Change orders = 0

CHANGE ORDER CONTINGENCY AMOUNT = $316,600

UTILITIES RELOCATIONS BY COMPANIES/OWNERS

$8,720,442	0.09	$784,840
	x % or + Estimate	=
Construction Cost for Initial Estimate	Use % or utilities detailed estimate	Utility Relocation Cost for Initial Estimate

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

RIGHT OF WAY COST

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

SUMMARY

Construction Estimate for Initial	8,720,442
Construction Engineering (CE)	1,063,894
Contingencies	316,600
Utilities Relocations	784,840
Total Construction Cost	$10,885,775
Right of Way Cost	0

Table F-1

Portway Extensions Concept Development Study
Recommended Infrastructure Improvements

Preliminary Construction Cost Estimates

Figure Number	Alternative Concept Description	Cost Estimate
X.3	Northern Extensions	$ 64,237,853
X.4	NJ Turnpike Interchange 15-W Area	$ 108,007,262
X.5	Hackensack River Bridge	160,606,761
X.6	NJ Turnpike Interchange 14-A Scheme 1	13,805,127
X.7	NJ Turnpike Interchange 14-A Scheme 2	37,581,289
X.8	NJ Turnpike Interchange 14	4,252,143
X.9	Interim Newark Bay Bridge Improvement	185,342,302
X.10	Bayonne Bridge	3,292,356
X.11	Routes 1&9 Northbound at Delancy Street	3,292,356
X.12	NJ Turnpike Interchange 13-A - Kapkowski Road Area	47,027,326
X.13	NJ Turnpike Interchange 13	39,523,968
X.14	NJ Turnpike Interchange 12 Area	6,686,559
X.15	NJ Turnpike Interchange 10 Area	10,885,775
	Total (w/14-A Scheme 1)	$ 646,959,788
	Total (w/14-A Scheme 2)	$ 670,735,950