

Aesthetic Options and Life Cycle Costs

DEPOT STREET BRIDGE

JAMAICA BO 1442(42)

TH 19, BRIDGE NO. 32 OVER WEST RIVER



Presentation Outline



- Purpose of Meeting
- Aesthetic Options
- Maintenance Costs
- Questions

Purpose of Meeting



- Provide an overview of Aesthetic Options for the Girder Bridge Alternative
- Provide a High Level Overview of Life Cycle Costs for Three Alternatives

Aesthetic Cost Discussion



- All Costs are in 2025 Dollars (does not include inflation)
- Aesthetic Options:
 - Concrete Form Liners
 - Concrete Staining
 - Rail Powder Coating
 - Girder Finish Options
 - Paved Deck Option

Concrete Form Liner



- Estimated at \$30,000 for the abutments
- Can be combined with concrete staining for an additional estimated \$50,000
- Several patterns and styles to choose from

Concrete Form Liner



Ashlar Form Liner used on the Richmond Interstate Project



Pattern: "SC Ashlar 1515" from ReCO

Concrete Form Liner



Ashlar Form
Liner with
Concrete
Staining

Concrete Form Liner

Stone Form
Liner



Concrete Form Liner

Stone Form
Liner



Concrete Form Liner



STONE DESIGNS



Available in	Sheet size	Shape
<input checked="" type="checkbox"/> UNI-CAST®	9'-10 3/4" x	Drystack
<input checked="" type="checkbox"/> MULTI-CAST®	3'-11 1/2"	random stone
<input type="checkbox"/> DURA-CAST®		

Relief: Varies 1/2" - 1-1/2"

Item # 328

STONE DESIGNS CONT'D

Sheet size	Shape	Available in
3'-10 3/4" x	Sierra drystack	<input type="checkbox"/> UNI-CAST®
7'-10 3/4"		<input checked="" type="checkbox"/> MULTI-CAST®
		<input type="checkbox"/> DURA-CAST®

Relief: Varies 1-1/2" maximum



Item # 439

Sheet size	Shape	Available in
4' x 10'	12" x 24" Running bond ashlar	<input checked="" type="checkbox"/> UNI-CAST®
		<input checked="" type="checkbox"/> MULTI-CAST®
		<input type="checkbox"/> DURA-CAST®

Relief: Varies 1-1/2" maximum



Item # 329

Sheet size	Shape	Available in
10'-1" x 4'-1/4"	River rock	<input checked="" type="checkbox"/> UNI-CAST®
		<input checked="" type="checkbox"/> MULTI-CAST®
		<input type="checkbox"/> DURA-CAST®

Relief: Varies 2" maximum



Item # 440



Available in	Sheet size	Shape
<input checked="" type="checkbox"/> UNI-CAST®	4' x 10'	Ashlar stone
<input checked="" type="checkbox"/> MULTI-CAST®		
<input checked="" type="checkbox"/> DURA-CAST®		

Relief: Varies 1/2" - 1-1/4"

Item # 330

Sheet size	Shape	Available in
8' x 4'	Spring creek stone	<input checked="" type="checkbox"/> UNI-CAST®
		<input checked="" type="checkbox"/> MULTI-CAST®
		<input type="checkbox"/> DURA-CAST®

Relief: 3/4" maximum, 1/2" - 3/4" avg



Item # 454

Concrete Form Liner



STONE DESIGNS CONT'D



Sheet size	Shape	Available in
10'-1" x 4'-1/2"	Ashlar cut stone	<input checked="" type="checkbox"/> UNI-CAST® <input checked="" type="checkbox"/> MULTI-CAST® <input type="checkbox"/> DURA-CAST®

Relief: 1-1/2" maximum

Item # 460

Sheet size	Shape	Available in
10'-1" x 4' - 1/2"	Zion stone	<input checked="" type="checkbox"/> UNI-CAST® <input checked="" type="checkbox"/> MULTI-CAST® <input type="checkbox"/> DURA-CAST®

Relief: 2" maximum



Item # 462



Sheet size	Shape	Available in
10'- 1/2"x 3'-3 1/4"	Willow wall stone	<input checked="" type="checkbox"/> UNI-CAST® <input checked="" type="checkbox"/> MULTI-CAST® <input type="checkbox"/> DURA-CAST®

Relief: 2" maximum

Item # 468

STONE DESIGNS CONT'D

Sheet size	Shape	Available in
10'- 3/4"x 4'-1/4"	Random cut stone 16"	<input checked="" type="checkbox"/> UNI-CAST® <input checked="" type="checkbox"/> MULTI-CAST® <input type="checkbox"/> DURA-CAST®

Relief: Varies 1.5" maximum



Item # 472



Sheet size	Shape	Available in
9' x 3'-3/8"	Running bond cut stone 18"	<input checked="" type="checkbox"/> UNI-CAST® <input checked="" type="checkbox"/> MULTI-CAST® <input type="checkbox"/> DURA-CAST®

Relief: 1-1/4" maximum
*Image shows two layers of formliner

Item # 476

Sheet size	Shape	Available in
10' x 4'	Meramec DryStack stone	<input checked="" type="checkbox"/> UNI-CAST® <input checked="" type="checkbox"/> MULTI-CAST® <input type="checkbox"/> DURA-CAST®

Relief: 1-1/8" maximum



Item # 477

Railing Powder Coat Paint



- Estimated at \$75,000 for VTrans 3 Bar Railing
- Many color options are available

Railing Powder Coat Paint



Brown Powder Coat Painted Rail



Railing Powder Coat Paint



Black Powder Coat
Painted Rail

Painting of Girders



- Estimated at \$100,000
- Several color options are available
- VTrans is flexible on color choice for town-owned bridges
- Maintenance costs would include touching up paint every 15-20 years and new full paint coat once: estimated \$250,000-\$300,000

Painted Girders



Metalizing of Girders



- Estimated at \$200,000
- VTrans has been utilizing this coating for about a decade
- Anticipated to last half the lifespan of the girder with minimal upkeep



Paved Deck



- Estimated at \$35,000
- Provides appearance of continuity from road to bridge

Paved Deck



Life Cycle Costs



- All costs are in 2025 dollars (no inflation included)
- All alternatives include
 - Pavement Crack Sealing and Pothole Repair
 - Repair of Concrete Deck and Concrete Abutments
 - Replacement of Deck
 - Bridge Expansion Joints
 - Field Painting
- Truss Alternatives include:
 - Bearing Replacement: \$185,000
 - Structural Steel Repairs: \$1,380,000
 - More extensive Field Painting: \$1,380,000

Life Cycle Costs



- For 75 Year Lifespan:
 - Alt 5: Girder Bridge: \$4.1M
 - Alt 6: Truss Bridge: \$6.4M
 - Alt 7: Thru Truss Bridge: \$7.6M

	GIRDER BRIDGE (ALT 5)	TRUSS BRIDGE (ALT 6)	THRU TRUSS BRIDGE (ALT 7)
EST. TOWN DESIGN SHARE	\$ 138,554.37	\$ 129,554.37	\$ 129,554.37
EST. TOWN MAINTENANCE SHARE	\$ 4,100,000.00	\$ 6,400,000.00	\$ 7,600,000.00
TOTAL EST. TOWN SHARE	\$ 4,238,554.37	\$ 6,529,554.37	\$ 7,729,554.37

THANK YOU!

Jamaica BO 1442(42)		Alternative 5	Alternative 6	Alternative 7
		New Steel Girder Bridge On-Alignment with Temporary Bridge	New Steel Truss Bridge On-Alignment with Temporary Bridge	New Steel Through Truss Bridge On-Alignment with Temporary Bridge
COST	Bridge Cost	\$3,833,000	\$5,417,000	\$5,627,000
	Removal of Structure	\$650,000	\$650,000	\$650,000
	Roadway	\$523,000	\$523,000	\$523,000
	Maintenance of Traffic	\$942,000	\$942,000	\$942,000
	Construction Costs	\$5,948,000	\$7,532,000	\$7,742,000
	Construction Engineering & Contingencies	\$1,190,000	\$1,190,000	\$1,190,000
	Accelerated Premium	\$0	\$0	\$0
	Total Construction Costs w CEC	\$7,138,000	\$8,722,000	\$8,932,000
	Preliminary Engineering	\$1,740,000	\$1,566,000	\$1,566,000
	Right of Way	\$10,000	\$10,000	\$10,000
	Total Project Costs	\$8,888,000	\$10,298,000	\$10,508,000
	Annualized Costs	\$118,500	\$137,300	\$140,100

FINANCE & MAINTENANCE AGREEMENT



The Finance and Maintenance Agreement is an overarching project agreement required for all municipally owned assets to define responsibilities and for VTrans to perform activities on behalf of the Town. E.g. Acquire Right-of-Way.

Bridge Rehabilitation: (Executed Agreement)

- Scoping / Preliminary Engineering
 - (80% Fed, 15% State, 5% Town)
- Right-of-Way
 - (80% Fed, 15% State, 5% Town)
- Construction Cost
 - (100% Fed, 0% State, 0% Town)

Bridge Replacement: (Amendment Required)

- Scoping / Preliminary Engineering
 - (80% Fed, 10% State, 10% Town)
- Right-of-Way
 - (80% Fed, 10% State, 10% Town)
- Construction Cost
 - (100% Fed, 0% State, 0% Town)

The costs presented are the current estimate including preliminary engineering, right-of-way, construction engineering and construction contingency. While developing each construction estimate, the most recent bid data is utilized and compared to the items in this project.

Please note, price escalations have been impacting project costs across the country. Also, unknown inflationary pressures and the competitive bidding climate cannot be accounted for. Construction cost estimate may fluctuate from this design phase (**Scoping**) to the next (**Preliminary**).



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PRELIMINARY PROJECT SCHEDULE



- Construction Start- TBD

