Critical Bridges Over Water (CBOW)

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Background

Proposed Funding:
- 100% FEMA Hazard Mitigation Grant Program (HMGP)
- Program Objective: To Upgrade and Enhance the Resiliency of Bridges that are Scour Critical/Flood Prone
Selection Criteria

- Deficient Bridges Over Water
- Scour Critical and/or Flood Prone
- Spread Footing
- Improve the Hydraulic Opening
- Statewide Representation
Scope of Work

To upgrade and enhance the resiliency of these structures:

- Upgrade bridge foundations to withstand the scour caused by an extreme flood event.

- Upgrade existing bridges constructed with concrete abutments but without piles to foundations on steel or concrete piles. Piles will extend deeper than the calculated scour depth.
Scope of Work (cont’)

- Increase the size of the waterway opening to meet the 100 year flood projections.

- Eliminate or reduce considerably the number of bridge piers in the water to prevent ice jams causing flooding of the surrounding neighborhood.

- Greatly reduce the need and associated high cost for post flood inspections.
CBOW Program

- 105 Bridges for $518 million, Distributed as Follows:
  - Region 1 – 29 Bridges, $117 M
  - Region 2 – 8 Bridges, $18.6 M
  - Region 3 – 3 Bridges, $5.3 M
  - Region 4 – 3 Bridges, $7.7 M
  - Region 5 – 5 Bridges, $20.8 M
  - Region 7 – 4 Bridges, $16.9 M
  - Region 8 – 32 Bridges, $245.5 M
  - Region 9 – 13 Bridges, $38.5 M
  - Region 10 – 8 Bridges, Scour Mitigation, $47.7 M
NYSDOT Implementation Plan

Coordinators:

- Regional
- Geotechnical
- Hydraulics
- Environment
- ROW
NYSDOT Implementation Plan

Starting Late October 2013
Finishing Phase I-IV Tax Day 2014
Utilizing In-House Staff and Consultants:

- Soil Borings
- Field Survey & Mapping
- Hydraulic Analysis
- Design Approval Documents
- FEMA Funding Application (New)
Soil Borings

Starting Late October 2013:

- Soil Borings:
  Completed 110 Bridges Using Regions 1, 4, 6, 7, 9, GEB Crews
  One Private Contractor.

Utilized OT for Field Staff
Field Survey & Mapping

- Bergman Associates: 18 Bridges-R 8
- MJ Engineering: 19 Bridges in R-1, 8
- Shumaker: 13 Bridges in R-2, 9
- LaBella: 7 Bridges in R-3
- Erdman Anthony: 6 Bridges in R-4, 5

- Consultants – 63 Bridges
- NYSDOT’s In-House Staff – 53 Bridges
- Utilized OT for Field Staff
Hydraulic Analysis

- MO Structures: 51 Bridges
- Region 8 Staff: 22 Bridges
- Region 5 Staff: 5 Bridges
  - LaBella: 7 Bridges
  - C&S: 3 Bridges
  - Watts: 1 Bridge
  - WSP(Sells): 10 Bridges

NYSDOT In-House: 78 Bridges
Consultants: 21 Bridges
Design Approval Documents (PSR/FDR)

- **RDSA East:**
  - Creighton Manning – Prime
  - Delta, MJE and Prudent – Subs
  - 44 Bridges – Regions 1, 2 and 9

- **RDSA West:**
  - LaBella – Prime
  - C & S, HMM and Watts – Subs
  - 17 Bridges – Regions 3, 4 and 5
  - All were Lump Sum Agreements
Design Approval Documents (PSR/FDR)

- **Region 7:**
  - 4 Bridges, All In-House

- **Region 8 In-House:**
  - 32 Bridges
  - Michael Baker Eng. – Traffic Studies, Alignment Work
  - WSP – Alignment Work, 10 Bridges

- **Region 10**
  - 8 Scour Mitigation Design Report, Stantec & AECOM
Design Approval Documents
(PSR/FDR)

- NYSDOT In-House Staff:
  - 15 Bridges by Regional Staff
  - 1 Bridge by Design Services Bureau
Design Approval Documents (PSR/FDR)

- DEC, FHWA, SHPO, State Ed……etc Coordination Was Done Superbly by Office of Environment
- Timely Reviews by All
HMGP Application – Information Required

- Design Report
- Bridge Narrative
- Benefit/Cost Analysis (BCA)
Design Report, PSR/FDR

- Contains general information as well as environmental information required for application.
Bridge Narrative

- Project Description
- Traffic Counts and Populations Affected
- Consequences of Repeated Bridge Closures
- Bridge Location Maps
- Bridge Detour Maps
- Bridge Photos
Bridge Narrative

- Bridge History (Descriptions, Dates, and Costs)
  - Historical Damage due to Scour/Flooding
  - Maintenance Activities to Address Hydraulic Issues
  - Bridge Closures
  - Work History
Benefit Cost Analysis

- Total Project Cost (ROW, Eng., CI, Const.)
- Annual Maintenance Costs for Proposed Bridge
- Traffic Counts
- Detour Distance
- Detour Time
- Emergency Replacement Costs (ROW, PE, CI, Construction)
- Duration of Emergency Bridge Closure due to Extreme Event (includes design and const. time)
- Normal Construction Duration
Program Current Status

- Funded 95 Bridges, $420 M
- Remaining 10 Bridges, $98 M
- Design/Bid/Build 67 Bridges, Awarded 41 Bridges, $138 M in 15 Contracts
- Design/Build 38 Bridges, Awarded 32 bridges worth $118 M
- $53 M -12 Bridges (6 contracts) Advertized to be let this Fall as DBB
Question 3

What are some of the Factors that are Needed for BCA Calculations?

- Total Project Cost (ROW, Eng., CI, Const.)
- Annual Maintenance Costs for Proposed Bridge
- Traffic Counts, Detour Distance & Time
- Emergency Replacement Costs
- Duration of Emergency Bridge Closure due to Extreme Event
- Normal Construction Duration
Any Questions?

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