I-85 VIADUCT RECONSTRUCTION

2018 AASHTO COMMITTEE ON CONSTRUCTION

John Hancock, P.E.,
State Construction Engineer
March 30, 2017

Thursday
March 30, 2017
Partnership

Transportation.gov
U.S. Department of Transportation

marta

SCP
STANDARD CONCRETE PRODUCTS

GDOT
Georgia Department of Transportation

C.W. Matthews CONTRACTING CO., INC.

GEORGIA/CAROLINAS
PCI

Federal Highway Administration

Georgia Department of Public Safety
GDOT Office of Bridge Design
Traffic Management Center Response

Initially

• Keeping cameras trained on fire. Passing info to management.
• Using message signs to route traffic away from fire area
• Dispatching HERO’s to areas needing road and ramp closures
• Publishing info on social media, website and 511

Long Term

• Keeping motorists informed via message signs, social media and 511
• Reporting traffic shift data on a daily basis
• Participating in operational improvement discussions. Making recommendations
• Incident Management Staging Locations
The Response - Detours

I-85 DETOURS
Atlanta Travel Advisory: I-85 is closed between I-75 and SR 400. Motorists are advised to use I-75, I-285 and I-20 until further notice.

I-85 NORTHBOUND DIVERTED TO BUFORD-SPRING CONNECTOR FOR LOCAL TRAVEL ONLY

I-85 Bridge Closure Detours
April 12, 2017

UPDATE: 4-1-2017
Traveler Information

• Website Usage
  • Week prior to collapse: 28,000 visitors
  • 1st week after collapse: 83,000
  • 2nd week after collapse: 79,500
  • 3rd week after collapse: 56,000
  • 4th week after collapse: 52,100
  • 5th week after collapse: 39,600
Preserving Substructure

C. W. Matthews and D. H. Griffin

- Cap demolition without damaging columns
Reduce, Re-use

- Rebar and concrete transported to recycling facilities
Preserving Substructure

- Kept as much as the column as possible
Demolition complete, April 6 – Day 7
Cleaning of substructure
Reduce, Re-use

- Existing bridge foundations were re-used
Reduce, Re-use
Reduce, Re-use

- New columns 1-ft wider than originals
- 13 Columns completed April 11, Day 12
Four New Caps

- Inverted “Tee” Cap
- Field Issues Addressed
- 4 Caps completed April 17, Day 18
Shipping and Setting Beams
Shipping and Set Beams

- Specialized trailers haul beams from Standard Concrete (ATL)
- 61 Beams Set April 25, Day 26
I-85 Rebuild

13 Columns
4 Caps
61 Beams
6 Spans
42 Days
I-85 REBUILD BY THE NUMBERS

13 columns
61 beams
4 caps

$3.1 million incentive = 6 weeks earlier opening = $27 million benefit to motorists

13 million pounds of debris removed
505,296 pounds of steel
2,103 cubic yards of concrete

54,000 hours of manpower*
6 weeks from start to completion
243,000 cars per day when open

*Estimated time from start to finish of the project.
Opening of I-85

Northbound May 12, 2017, Day 43

Southbound May 13, 2017, Day 44
National Transportation Safety Board (NTSB) Report

- Seventy-six reels of high-density polyethylene conduit and nine racks of fiberglass conduit
- Requested data on the source of the conduit
- Samples taken from the site
National Transportation Safety Board Report

GDOT Response

- Provide a list of all other locations in which materials were being stored under bridge structures
- GDOT Commissioner requested assistance from the Office of Insurance and Safety Fire Commissioner
National Transportation Safety Board Report

Other locations

• GDOT determined that there were no other such instances
• One work unit has offices under I-85 Bridge
  • Highway Emergency Response Operators (HERO)
  • Vehicles stored under bridge
• The HERO unit was found to comply with all state requirements
National Transportation Safety Board Report

Office of Insurance and Safety Fire Commissioner

- GDOT should consider developing rules for storing material under bridges, taking into account the quantity, nature and burning characteristics of the material.

- If those characteristics can’t be determined, GDOT should consider limiting all storage under a particular bridge to only noncombustible material.

- If storage of combustible material cannot be avoided under a particular bridge, it should be limited and contained to secure, noncombustible containers and not placed in concentrated piles.

- If the stored material is unattended, the area should be locked or otherwise protected from unauthorized entry.

- If such guidelines can’t be met, the stored material should be moved or GDOT should conduct a fire hazard analysis to assure a reasonable level of safety.
National Transportation Safety Board Report

GDOT Response

• Updated Policy for Storing material under bridges
• Update Specification 106
• Updated legislation for “camping” on Right of Way
Updated Policy for Storing material under bridges

- Reference is made to the Rules and Regulations of the Office of the Safety Fire Commissioner
- Flammable materials are defined as those materials capable of being easily ignited and of burning quickly.
- Combustible materials are those materials capable of producing a usually rapid chemical process that creates heat and usually light
National Transportation Safety Board Report

GDOT Response

Update Specification 106

• 106.08 Storage of Materials (original)

• No inflammable materials or harmful chemicals shall be stored within 200 ft (60 m) of a structure nor within 200 ft (60 m) of a roadway open to traffic. Such materials shall be stored in accordance with directions from the manufacturer.
Update Specification 106

- 106.08 Storage of Materials (revised)
- No flammable or combustible materials or harmful chemicals shall be stored within 200 ft (60 m) of a structure, to include but not limited to bridges nor within 200 ft (60 m) of a roadway open to traffic. Such materials shall be stored in accordance with directions from the manufacturer and any applicable requirements of the Georgia Office of the Safety Fire Commissioner, Georgia Department of Community Affairs and current edition of the International Fire Code.
National Transportation Safety Board Report

Word History

- Flammable
- Inflammable

- Both *flammable* and *inflammable* mean "capable of being easily ignited and of burning quickly"
- *inflammable* from the Latin verb *inflammare*, which combines *flammare* ("to catch fire") with a Latin prefix *in-*, which means "to cause to."
National Transportation Safety Board Report

Word History
National Transportation Safety Board Report

GDOT Response

Updated legislation for “camping” on Right of Way

- Define “camping”
- Unlawful to use State Right of Way camping
Questions