2012 KYTC Partnering Conference
September 11, 2012

Milton Madison Bridge: Construction Update

Aaron L. Stover, PE, SE
Michael Baker Jr., Inc.
Agenda

- Project Overview
- Bridge Construction Process
- Project Challenges
- Project Successes
- Upcoming Project Activities
Project Overview

Study Area
One of two Ohio River bridges between Cincinnati and Louisville

- I-65 Bridge - 46 miles
- Markland Dam - 26 miles
- I-275 Bridge – 65 miles
Project Timeline

- June 2008 – Kickoff Environmental Process
- Fall 2009 – Proposed Superstructure Replacement
- February 2010 – TIGER Grant Funding Announced
- September 2010 – Contractor Announced (Walsh)
- January 2011 – Construction Began
- April 25-29th 2012 – First Bridge Closure
- June 25-29th – First Bridge Lift
- Sept 10th – Second Bridge Lift
- 2013 – New bridge Open to Traffic
Project Purpose and Need

- KYTC Structurally Deficient List
- Weight Restriction

Functionally Obsolete   Structurally Deficient
Selected Alternative: Superstructure Replacement

- Milton Approach re-construction
- STR 1 replace KY Approaches
- STR 2 Truss replacement
  - Pier Strengthening and Scour Mitigation
  - Superstructure Replacement
- STR 3 – Replace IN Approaches
- STR 4 – Pedestrian Access to Park

No Right-of-Way required
Typical Section

- Existing 20 ft curb to curb – Becomes 40 ft
- 5 ft pedestrian walkway
- 8 ft shoulders will accommodate bicyclists
Selected Alternative

Existing Bridge

Proposed Bridge
Bridge Construction Process
Design – Build Letting Summary

- September 22, 2010
- Five Contractors submitted bids
- Formula for Effective Bid Price
  - lowest effective bid wins
- \[A + B - \text{Adjustment}\]
  - A = construction cost ($102-\$127 \text{ million})
  - B = closure days x $25,000/day. (365 days max)
  - Adjustment = \$3.75 million for early opening
  (Sept 2012 or May 2013)
Project Partners

INDEPENDENT DEPARTMENT OF TRANSPORTATION
DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA
KENTUCKY TRANSPORTATION CABINET

Walsh Construction
BUCKLAND & TAYLOR LTD.
a COWI company
BURGESS & NIPLE

Baker
CDM
WilburSmith
Construction Overview

- Strengthen existing piers
- Innovative construction process:
  - Build a new truss on downstream piers while the existing bridge remains open to traffic
  - Remove old truss and slide the new truss onto the strengthened existing piers
- Shorten closure periods *(approx 10 days)*
Construction Sequence

Step 1
- Pier strengthening and widening begins
- Detour approach ramps are built on Vaughn Dr and KY 36
- Existing bridge remains open to traffic
Pier Strengthening
Madison Temporary Access Ramp

Courtesy Debbie Crawford
Milton Temporary Access Ramp

Courtesy Debbie Crawford
Construction Sequence

Step 2
- Bridge closed to traffic for 5 days
- Approach ramps are connected to existing bridge
- Existing bridge reopens to traffic using approach ramps
- Pier strengthening work continues
Closure – Started off with a bang…
Truss Erection on Barges
Truss Assembly Yard
Span 2 Nearing Completion
Step 3

- Downstream bridge piers are constructed
- Truss Erected on Downstream Piers
Temporary Towers - P3 & P4
Sliding Girders
Step 3

- Downstream bridge piers are constructed
- Truss Erected on Downstream Piers
Span 2 Truss Float Out
Sidewalk Superintendents
Span 3 Float (*Animation*)
Span 3 Lift (Animation)
Step 4
- Downstream bridge is connected to US 421
- Traffic is rerouted onto downstream bridge
Step 5

Existing bridge is demolished
- Detour approach ramps are removed
- Pier strengthening and widening is completed
Construction Sequence
Bridge Slide

Step 6
- bridge closed for 5 days
- new truss superstructure is moved from downstream piers to its permanent place
- New Milton-Madison Bridge opens to traffic
- Downstream piers are removed
Project Challenges
8 flood events
131 Flood Days
20 days/yr allowed for in contract
Project Successes
Temporary Ramps Completed
Lifts of Span 2 and Span 3
Peregrine Falcons Hatched
Next Steps?

Stick Build out the end spans

Complete the Approach Spans

Cast the Deck

Switch Traffic to new Bridge
For More Information

Visit the project website
www.miltonmadisonbridge.com

Follow us on Twitter @MMBridgeProject