Building Bridges.
Connecting People.

Division Street Bridge Replacement and Temp Bridge use/ I-5 recovery

2/4/15
Existing Bridge

- Original build 1900-1903

- Trunnion Bascule (Chicago Style) Bridge found throughout the City

- Designed by City of Chicago Engineer and Chief Bridge Engineer

- 1932 Rehab Reinforced Leaf Trusses and rebuilt counterweights/trusses/floor
- 1953 Rehab Grid deck installed
- 1969 Rehab Similar to ‘32
- 1983 Rehab Extensive rehab of structural steel in trusses

- Current ADT 25,000

- Flagged for emergency replacement after inspection March 14 unfavorable

- Removed from Service 29 June 14
Modular Bridging
Modular Bridging

- 2500 BAILEY BRIDGES WHERE BUILT BETWEEN 1943-1945 IN THE ITALIAN CAMPAIGN

- 1500 BAILEY BRIDGES CONSTRUCTED DURING THE ADVANCE INTO EUROPE FOR A TOTAL OF 29 MILES OF BRIDGING!

- THE FREEMAN BRIDGE IN DUSSELDORF WAS 2,390 FEET IN LENGTH
MODULAR BRIDGES

Three Basic Parts

1. Truss panels
2. Floorbeams
3. Steel decking
• TRUSS PANELS
• FLOORBEAMS
• ORTHOTROPIC STEEL DECK

• HL-93 Highway loading Design Compliant (Bi-Directional)
Temp Bridge 3 Veins of work

• Emergency Recovery Works

• Planned Temporary Applications/Interim Bridges

• Permanent Structures
• I – 5 Washington
May 30, 2013
• WSDOT PLAN

- 2 Twin 160ft 24ft wide bridges
- Hs 25 Loading requirement
- Epoxy deck
- Acrow supplied Guardrail
- Cantilever Launch
- 5 month rental estimate
- Relieved Millions/day because of closure
Acrow provides 1 mile of bridge to LADOT and 10000 LF to FLDOT for hurricane recovery
• GROUND ZERO
1990 – Hurricane Utah over Virgin River
Acrow provides bridge to UDOT “temporary”
Acrow Panel Bridge Features and Benefits
Why was it a fit for Division?

• Rapid Construction – Most are done in Days not Months
  • Components available immediately

• No cutting or field welding required – Components are ready to assemble

• Minimal Machinery Tool and Manpower Required

• Manufactured in the USA with Pennsylvania Steel

• 100 percent reusable components

• Meets standards for AASHTO’s design for permanent bridging

• Galvanized to ASTM 123 for 70 year life
Applicable Timeline for Division Project

- LNL done for CDOT April 11, CDOT has possible application
- Lift bridge specific presentation April 12
- Quote for site in various configurations April/May 13
- Emergency contract exercised and final quote with revised span length April 14
- Verbal commitment May 14
- LOI/Lease June 14
- Delivery Aug 7th 14
- Finish build 30 Sept 14
Acrow Hurdles

Hurdles getting project:
• Long span/Independent span requirement
• HTNB plans call for open grid deck
• How to maintain vertical clearance requirement
• Site profile sloped; not conducive for “typical” cantilevered launch
• Site not suitable for lift in/crane assist
• Design not first choice by CDOT or consultant (Rolled Beam)
• Of 3 manufacturers, not the lowest cost in initial comparison

Hurdles during project:
• Special procurement/Specials manufactured/out of cycle demands for shipping deadlines
• Project Site difficulties/Extremely complex launch
• Unique requirements from CDOT including deck drain analysis and mfg certs requirement for everything
• Tight project window 90 days total from shut of old bridge to first traffic on new
• Extremely laborious from an engineering perspective
Stage 1:
Continue pushing forward to engage on East Pier Balancer.

Stage 2:
If necessary adjust roller station 2 to achieve deck down.

Stage 3:
Continue pushing forward to engage on East Pier Balancer.

Stage 4:
Roller station 3 on balance roller station 1.

Stage 5:
Continue pushing forward to position shown.

Stage 6:
Roller station 3 on balance roller station 1.

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3/4/2015
JJS
Stage 16:
Push forward to position shown
Lower roller station 1 by 90mm before main span runs off the
supporting girders.
Remove 2 hogs from the front of the same so as not to impact
on the west abutment.
Decking may be removed.

Stage 17:
Push forward to final position.

Stage 18:
Install piling posts at all locations listed on drawings at the East &
West Piers (refer to details).

Building Bridges, Connecting Nations,
ACROW Corporation of America,
181 New Road, Parsippany, NJ 07054

ACROW BRIDGE
E2

ACROW PANEL POOLS BRIDGE
LARIVA HOUSE, LTD.
SHEET 21 OF 57 APPROACH SPANS
& 80' WIDE FOOTPATHS
MURPHY STREET TEMPORARY BRIDGE
MURPHY NORTH BRANCH CANAL
GCT OF CHICAGO, IL.

P.M. PASCHEN
CHICAGO, IL.
Stage 19:
- Jack up of East & West Piers and Abutments under the transoms & remove of Roller Equipment & lower onto blocking
- Remove 1st Day of East Span

Stage 20:
- Lower the Bridge uniformly onto 6" timber blocking under the lower area of all 3 locations (East & West Piers, East Abutment) as shown in detail.

Stage 21:
- Disconnect the pin braces (ABSD) and unpinches between Bay 6 of the West Span (North) and Bay 1 of the Main Span.
- Attach rigging to the 6" Day "Cable" and lift the segment from the West Approach and land behind the Creek.

ACROW BRIDGE
Building Bridges, Connecting People.
Cross Corporation of America
1181 Main Street, P.O. Box 1653
Encinitas, CA 92024-1653

ACROW PANS BRIDGE LAUNCHING SEQUENCE
LEFT = BLIND LEFT & RIGHT APPROACH SPANS & HT W/T W/ FOOTPLATE
OWN - NORTH BRANCH CREEK
CITY OF CHICAGO, IL

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Stage 27:
- Demolish Roadways 3 & 4.
- Construct Roads 3 & 4 of the West Span & torque all bolts.
- Push the West Pier as a unit, and install on launchings of the
  Main & East Piers.

Stage 28:
Install deck, guardrail & electrical system.

Stage 29:
Disconnect the guy bracing and scaffolding between Bays 18 of
the Main Span, and Bays 1 of the East Span.
LOOK AT THAT CAMBER!!!!!
• I-95 CT

• Bridgeport

• 90ft 3L36

• HL-93

• 72 hrs
37 States own Acrow Bridge to handle emergency work and reduce costs in rehab projects
• Planned Temporary
- I-81 PN
- 60k ADT
- 35% Truck Traffic
- Installed for 2.5 years
- Interstate
• OUTSIDE WITH RAMPS
OTHER APPLICATIONS FOR PANEL BRIDGING

- Not just Detour Bridges
- Permanent Bridges
- Beam Launches
- Railroad Bridges
  - Mining, Oil & Gas
  - Construction
- Heavy Haul Bridges
  - Special Beam Lifts
  - Beam Bridges
- Moveable Bridges
  - Lift & Bascule

HEAVY DUTY SHORING
False work support
Roof Lifts
Special Beam Lifts
Beam Bridges
• FORE RIVER – Quincy MA
Rail Bridge

- Location: Columbus, OH
- Span: 125’
- Width: 1 Track
- Cooper E-80 loading
• FALSEWORK
• ROOF LIFTS _ BEAM LIFTS
• TEMPORARY PEDESTRIAN
INSTALLATION METHODS

• LIFT IN
• CRANE ASSISTED LAUNCHING
• FULL CANTILEVERED LAUNCH
• LIFT IN
- Counter balanced
• Crane Assisted Launch
• ROLLER STATIONS
• Rocking Rollers at abutments
• Full Launch Example
• Full Cantilevered Launch
  – Kaltag Alaska
FABRICATION

- AISC Certified Major Bridge
- Quality US made steel
- All hot dipped Galvanized
- ISO 9001
- AWS inspected
Thank you!

www.acrowusa.com