Mabey, It’s a Bridge
10-year success story with temporary modular bridges
What is a temporary modular bridge?

- Generally any pre-engineered, prefabricated bridge system that can be quickly installed and removed

- For this discussion it is a steel pre-engineered, prefabricated truss panel/floor beam/deck bridge system
History of Temporary Modular Bridges

- Born out on the need to transport heavier loads during World War II (think tanks)
- Sir Donald Bailey, a British military engineer, developed a steel panelized system that has been the basis of most all other panelized systems used today
Major Manufactures

- Acrow Corporation
- Bailey Bridges, Inc
- Mabey Bridge and Shore
Cattaraugus County Projects that utilized our Mabey Bridge

- **1998-1999** - Ashford Culvert #54, CR 85
- **2000** - Carrollton Bridge #11, River Street over Tuna Creek
- **2002** - Allegany Bridge #4, CR 19 over Five Mile Creek
- **2004-2005** - Humphrey Bridge #6, CR 18 over Wrights Creek
- **2008 to ?** - Ashford Bridge #53, CR 12 over Buffalo & Pittsburgh Railroad
Bridge Acquisition

- **1998 Purchased for Ashford Culvert #54**
  - Single Span 88-ft long Two Lanes Wide
  - Bridge Cost $117,430
  - Foundation Cost $20,000
  - FEMA reimbursement of $103,054

- **2000 Additional parts for Carrollton Bridge #11**
  - Single Span 132-ft long Single Lane Wide
  - Additional Bridge Parts $69,435
  - Additional Foundation costs $3,000
County Temporary Bridge Capacities

- **Single Lane Bridge Capacity**
  - Design load HS-20
  - Horizontal Traffic Clearance of 14-ft
  - Span from 29-ft to 132-ft

- **Two Lane Bridge Capacity**
  - Design Load HS-20
  - Horizontal Traffic Clearance of 29-ft
  - Span from 29-ft to 88-ft

- **Precast foundation system that will fit any arrangement**
Precast Foundation System

- County Design
- Reusable footings (minimum 4 times)
- Reusable Backwalls and Cheek Walls
Utilization by County Forces

- Emergency Bridge - Ashford Culvert #54
- On-site Detour - Carrollton Bridge #11
- Rehabilitation
- Temporary Replacement Structure - Ashford Bridge #53
Federal Aid Project Utilization

- Used on two federal aid projects Allegany Bridge #4 and Humphrey Bridge #6
- Alternate bid items
  - Standard State Temporary Bridge Item
  - County revised Temporary Bridge Item
  - 4 of the 6 bidders used the County item
  - Both low bidders used the County item
- Decreased overall project costs
- Increased competitiveness in bidding
- Provided income to County
Ashford Bridge #53

- BIN 7320610, County Road 12 over Buffalo & Pittsburgh Railroad
- Originally Built in 1930
- 104-ft long x 20-ft wide, 5 span structure
- 42 degree skew
- All wood construction: deck, superstructure, railings, piers, abutments and footings
- Posted for 5 tons
- NYSDOT Condition Rating (2007) of 3.58
Ashford Bridge 53

Issues

- Railings in poor condition
- Decaying sill beams and footings
- Rotting columns
- Excessive settlement and rotation
Ashford Bridge 53 - Federal Aid Project

- January 2004, Submitted to NYSDOT for LAFAP
- April 2006, Erdman Anthony designated as design consultant
- July 2006, Initial Project Proposal was signed
- August 2006, Received Request for Resolution
- October 2006, Completed Scope & Fee negotiations
- November 2006, Received executed project agreement
- December 2006, Awarded design contract
Ashford Bridge 53 - Federal Aid Project

- January 2007 to January 2008 preliminary design
- July 2007 to December 2007 rumors of railroad plans to abandon the line
- January 2008 rumors of the abandonment were finally confirmed by the vice-president of the railroad
- January 10, 2008 County instructed Erdman Anthony to cease engineering activities
Ashford Bridge #53 - Conundrum

Issues

- Federal Aid Project
- Disposition of the Railroad unknown
- Project parameters are in flux
- Bridge in poor condition that can’t be closed
- Bridge that can’t be effectively repaired

What to do?
Wait, but mitigate
Ashford Bridge #53 - Mitigation

Mitigation Parameters

- Need to keep the bridge open
- Need a bridge that will last a minimum of two years without major maintenance
- Want a legal load capacity for a future project

Solution:

Temporary Bridge
Ashford Bridge #53 - Construction
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Questions ??