Art S.’s Bridge Adventure

My experiences and some suggestions for increasing the survival rate of PA’s historic truss bridges
 Agenda

• Background
  – Why buy a bridge?!?

• Projects
  – Carlton Road
  – Beatty Mills
  – Mead Avenue Bridge

• Lessons Learned
Background

- Bought land in NJ with a desire to build a house
- A stream runs across the property
- Best house site on far side of stream
- Need to have access to the house site even if stream is flooded
- DEP required no additional restriction of floodplain and property is in a historic district.
Where do I find an old bridge?

• One the web, of course!
  – Bridgehunter.com
  – Historicbridges.org
  – Historicbridgefoundation.com

• These sites helped me:
  – learn about how to determine what I needed,
  – gave me initial guidance on how to go about getting a bridge
  – Pointed me to available bridges, including PA’s program.
Selecting

I decided to be as flexible as possible

• My first choice was the Beatty Mills Bridge
  – Its size (85’), historic period (1875) and style (bowstring pony truss) appealed to me.
  – It wasn’t available.

• My second and third choices were
  – Carlton Bridge (two 136’ Pratt truss spans from 1888)
  – Mead Avenue Bridge (two 132’ Whipple truss spans from 1871 surrounded by two 132’ Baltimore truss spans from 1912)
Pursuit

• Initially pursued multiple bridges as I figured there would be complications along the way.
• Mead Avenue seemed like a very costly and complex project with others working to save it.
• Carlton was very costly but was very decorative and since I only needed one span, it came with a ‘parts bridge’
• Beatty Mills still looked like the best option but was already designated for reuse.
Carlton Bridge
My vision for Carlton Bridge

A restored example, one of about ten bridges remaining by this builder

Photo by Rick McOmber
Courtesy of Historic Bridges.org
Beatty Mills Bridge

Original Location

Photo by Nathan Holth
Courtesy of Historic Bridges.org
Beatty Mills Bridge

In storage at Armstrong County, PA

Photo by Christopher T. Jaros
Courtesy of Armstrong County, PA
My Vision for Beatty Mills Bridge

Similar bridge, restored and placed near the Indianapolis Museum of Art

Photo by J.P.
Courtesy of Bridgehunter.com
Mead Avenue Bridge

Original Location

Photo by Nathan Holth
Courtesy of Historic Bridges.org
My Vision for Mead Avenue Bridge

Azuma Bashi Bridge in Tokyo (removed in the 1920s)

Research shows the Mead Avenue Bridge was originally similar in style to this bridge, including the decorative castings and spires.
Game Plan

• Contacted Nathan Holth and Julie Bowers to determine if this was doable
• Contacted Kara Russell of PENNDOT to express interest, learn what needed to be done and what help was available.
• Learned that $80k was available for Carlton’s preservation but the removal and disassembly cost would be over $250k
Game Plan Pt. 2

• I focused on reducing costs and increasing the available funds and coming up with terms that I could manage.
  – I reduced my initial out-of-pocket costs down to the price of a good used car
  – I also negotiated terms that allowed me to use the best parts of the two spans in the restoration and 10 years to complete the restoration (reducing my upfront costs and extending the restoration period made the project financially viable)
Game Plan Pt. 3

• Find someone who Knows what they are doing! Through Nathan Holth and Vern Messler, I was introduced to Nels Raynor who
  – instructed PENNDOT and the Prime Contractor how to rig the bridge for craning off French Creek without destroying it. Brian Yedinak made sure the instructions followed
  – was willing to do the disassembly for the funds available.

• KEEP THE DECK – Brian kept offering to dispose of the 20+ year old wooden deck for me. To me the 2000+ 20’ long pressure treated 2X6s had charm, were adequate for my needs and were much cheaper than 2000+ NEW 20’ long 2X6s
Beatty Mills Bridge becomes available

• Julie Bowers made me aware that the plans for Beatty Mills had fallen through and it had become available

• I decided to pursue it as well as Carlton still seemed risky and, to me, this bridge seemed like a sure thing.
Bought the Bridges

• My plan was approved and my bid of $552.52 was the winning (and only) bid.
• Everyone wondered why I bid more than $1.
• I figured that considering the amount of time I had invested, the bid was minimal compared to the value of my time to prepare the bid!
• It turned out to be a wise approach as there were multiple bids on Beatty Mills
• Now I had two bridges!
Fortunately, the property has 3 stream crossings!

• I decided to continue to pursue all three bridges
  – While originally pursued as a practical solution to a problem, I’d come really admire these early bridges as art.
  – The group pursuing the preservation Mead Avenue Bridge had given up
  – I had come to believe that the Mead Avenue Bridge was actually built by the Keystone Bridge Co. and merely erected by the Penn Bridge Co. – Making it the oldest bridge by Andrew Carnegie
Carlton Bridge Flies

Photo Courtesy of Brian Yedinak
Carlton Bridge Disassembly

Nels Raynor of Bach Steel disassembling Carlton Bridge
Carlton Bridge In Storage

Photo Courtesy of Ellen Thompson
Last Minute Save

• Worked through multiple approaches with PENNDOT (especially Brian Yedinak) to come up with an acceptable approach to save Mead Ave. Bridge
• Found a craftsman that was willing to take the challenge of saving the bridge – Ross Brown
• The prime contractor for the replacement bridge was supportive of the rescue
• The bridge now awaiting restoration
Shipping

• Carlton Bridge – 6 full semi trucks (3½ trucks for the iron 2 ½ trucks for the wood deck)
• Beatty Mills Bridge – fit on one truck!
• Mead Avenue Bridge 7 truck so far; 5 trucks anticipated.

• Shipping defined by weight not size
Status of Projects

• Carlton Bridge in storage in NJ awaiting restoration – one span will go on my property

• Beatty Mills Bridge in Storage in Indiana awaiting restoration – also to be placed on my property

• Mead Avenue Bridge ¾ in storage ¼ being disassembled – I hope to find a home for this bridge; preferably in western PA
Lessons Learned

• People (within PENNDOT and in the preservation community) want to help!
• Be patient, there are lots of hurdles but if you are flexible and creative you have a good chance of finding a solution or having one come along
• Being an engineer or having one willing to help makes things much easier
Observations that may increase the number of bridges saved

• Things may be improving
• The current system is not geared to save or maintain old truss bridges
• There is a nascent cottage industry of bridge restorers that, if allowed to bid, could restore these bridges for a fraction of current estimates or replacement costs while maintaining a charming piece of history
Observations that may increase the number of bridges saved 2

• Environmental issues have draconian rules
  – Lead paint is bad but the current protocol is so expensive that remediation is infrequent. Instead, the paint is allowed to flake off into the water and the bridge is not properly maintained

• A pretty, well maintained coat of paint does wonders toward changing the publics opinion of a bridge from eyesore to charming historic structure
Observations that may increase the number of bridges saved 3

- Many repairs currently being implemented are costly and counterproductive
- These bridges are not as fragile and prone to failure as everyone seems to think.
- Proper repairs and some creative solutions can result in a bridge that is adequate, appropriate and cost effective for use on lightly traveled back roads.
Observations that may increase the number of bridges saved

- Truss bridges are like giant erector sets when disassembled, they can be stored in a small space.
- Timing is everything - if PENNDOT is willing to change its policy of only saving bridges that have a sponsor and a home to one where a historic bridge is disassembled and stored until a home can be found, the preservation success rate will jump
Thank You