Historic Bridge Solutions Through Compromise

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Our Goals At HistoricBridges.org

Promote Preservation

Photo-Document Historic Bridges: Focus On Recording “Doomed” Bridges

Why? Heritage At Risk!

The fate of the vast majority of historic bridges is demolition!

Preservationists/Historians

A Need For Compromise

Successful preservation projects require a great deal of cooperation between multiple parties who often have different priorities.

Compromise Tips For: Preservationists/Historians

Preservationists/Historians

Tip #1: Understand Bridge Conditions

Preservationists and historians often hurt their own efforts, while also often frustrating agencies and engineers when they insist that a particular form of preservation is feasible when in fact it truly is not.

Preservationists/Historians

Tip #1: Understand Bridge Conditions

Certified bridge inspectors examine bridges routinely to ensure they are safe, and to identify and potential problems on bridges and offer possible courses of action to correct problems.

Preservationists/Historians

Tip #1: Understand Bridge Conditions

Bridge conditions include both structural condition and functional condition for its current use.

Preservationists and historians can learn to recognize common problems with bridges and their severity to help see and better understand what certified bridge inspectors are seeing.

Preservationists/Historians

Tip #1: Understand Bridge Conditions

Recognizing problems on a bridge can help preservationists and historians work more effectively to develop appropriate preservation solutions that are based on facts, not speculation.

Preservationists/Historians

Tip #1: Understand Bridge Conditions

Case Study: Burroughs Road Bridge, Kent County, MI

- Existing Bridge too narrow and not structurally sufficient for continued vehicular use on the two-lane road.
- Existing Bridge was sufficient for non-motorized use.

Result

Existing Bridge relocated and preserved for non-motorized use.

Preservationists/Historians

Tip #1: Understand Bridge Conditions

Case Study: Burroughs Road Bridge, Kent County, MI

Result

A larger two-lane historic bridge from another county that was insufficient for its busy roadway, but was structurally sound was found to be sufficient for the less busy Burroughs Road, and was installed for vehicular use.

Tip #2: Understand the Requirements For Different Uses

Different preservation solutions will have different benefits and challenges.

Tip #2: Understand the Requirements For Different Uses

Preservation for vehicular use will require crash-resistant guardrails that protect both bridge users and the historic bridge itself.

Retaining any original railings behind modern guardrails is usually an appropriate course of action.

Tip #3: Be Willing To Explore Alternatives

Do not get stuck on one preferred option, such as continued vehicular use, when another solution like relocation for pedestrian use might be better.

Preservationists/Historians

Tip #4: Look For Low-Cost Options

Agencies are always tight on available funding. Be prepared to propose low or near-zero cost options such as storing the bridge, or non-functional on-land exhibit.

Tip #4: Look For Low-Cost Options

Case Study: Mary Street Bridge, Luzerne County, PA

No third party interest in taking ownership and restoring the bridge.

Could cost of demolition instead be used to preserve?

Cost and effort to relocate this bridge and place on ground in a park or welcome center would likely be minimal.

Preservationists/Historians

Tip #5: Be Flexible For Vehicular Use

If a bridge is to remain in vehicular use, expect that greater restrictions and requirements exists to make that proposal a reality.

Tip #5: Be Flexible For Vehicular Use

Case Study: Washington Crossing Bridge, NJ/PA

Preservation for vehicular use may require a number of alterations and additions.

Examples: Replacement of floorbeams, building up of members, replacement of some rivets with bolts.

Tip #6: Understand the Responsibility of the Engineer

The engineer for a project has to put their stamp on final project plans that certify that a project is safe and will work. They are putting their reputation on the line.

Keep this in mind when working with the engineer to develop a preservation solution.

Preservationists/Historians

Tip #6: Understand the Responsibility of the Engineer

Listen to the concerns that the engineer has about a proposed preservation project.

Finding preservation examples elsewhere that address an engineer's concerns may be helpful to the cause of the historian and preservationist.

Tip #7: Engage Section 106 Mitigation

When preservation fails, work for good mitigation!

Good mitigation is unique, responding to the unique significance of a particular historic bridge.

Good mitigation helps future visitors and/or researchers determine what was lost.

Tip #7: Engage Section 106 Mitigation

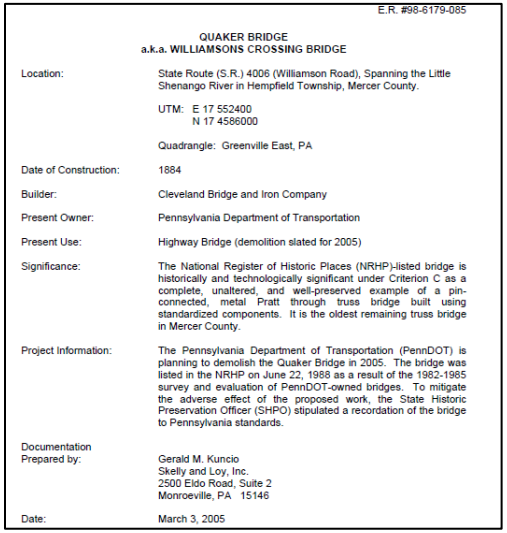
Case Study: Lynch Village Bridge on Blue Jay Road, Forest County, PA

Stone-shaped form liners for substructure on a replacement bridge, and other aesthetic treatment of a replacement bridge may look nice, but does little to help interpret the history that has been lost.

Preservationists/Historians

Tip #7: Engage Section 106 Mitigation

When preservation fails, work for good mitigation!



E.R. #98-6179-085

QUAKER BRIDGE
a.k.a. WILLIAMSONS CROSSING BRIDGE

Location:	State Route (S.R.) 4006 (Williamson Road), Spanning the Little Shenango River in Hempfield Township, Mercer County. UTM: E 17 552400 N 17 4586000 Quadrangle: Greenville East, PA
Date of Construction:	1884
Builder:	Cleveland Bridge and Iron Company
Present Owner:	Pennsylvania Department of Transportation
Present Use:	Highway Bridge (demolition slated for 2005)
Significance:	The National Register of Historic Places (NRHP)-listed bridge is historically and technologically significant under Criterion C as a complete, unaltered, and well-preserved example of a pin-connected, metal Pratt through truss bridge built using standardized components. It is the oldest remaining truss bridge in Mercer County.
Project Information:	The Pennsylvania Department of Transportation (PennDOT) is planning to demolish the Quaker Bridge in 2005. The bridge was listed in the NRHP on June 22, 1988 as a result of the 1982-1985 survey and evaluation of PennDOT-owned bridges. To mitigate the adverse effect of the proposed work, the State Historic Preservation Officer (SHPO) stipulated a recordation of the bridge to Pennsylvania standards.
Documentation Prepared by:	Gerald M. Kuncio Skelly and Loy, Inc. 2500 Eldo Road, Suite 2 Monroeville, PA 15146
Date:	March 3, 2005

Interpretive signage on the site describing the bridge.

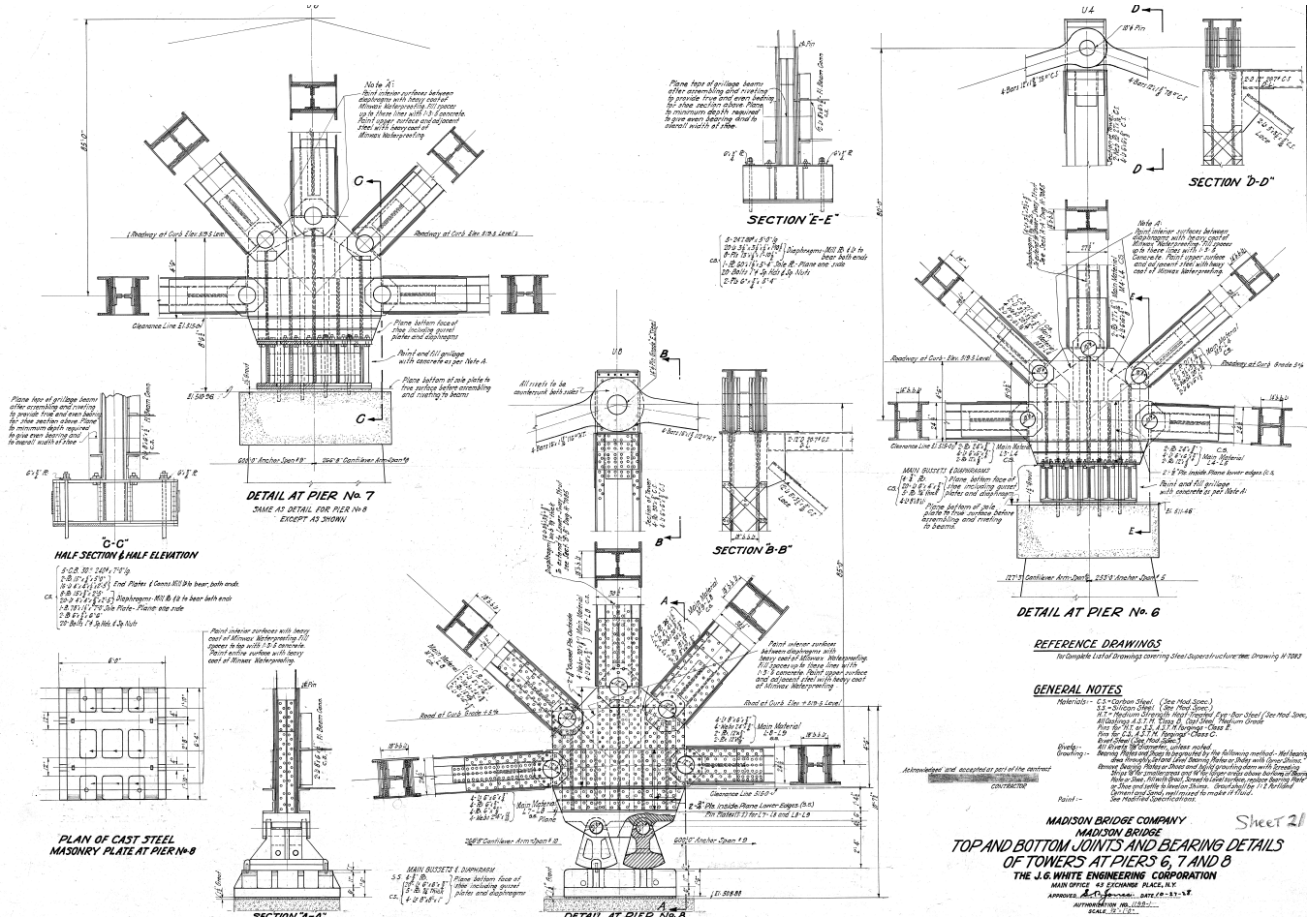
Salvage of portions of original bridge material, to be placed as a sculpture or exhibit.

High Quality State Level or HAER Recordation.

Complete storage of bridge for potential reuse.

Engineers/Consultants

Compromise Tips For: Engineers/Consultants



Engineers/Consultants

Tip # 1: Listen To The Public

Historians and preservationists can have valuable experience and creative ideas that may be feasible.

Input from locals sometimes finds problems or errors that an engineer may have overlooked.

Engineers/Consultants

Tip # 2: Have or Gain Experience With Historic Bridges

Preferably, engineers and consultants who take on a project involving a historic bridge would have experience with historic bridge preservation.

Those who do not have experience could conduct research, training, and/or seek consultation.

Engineers/Consultants

Tip # 3: Conduct Good Analysis

Some of the modern formulas and calculation methods used to assess bridges today may not work quite right with certain historic bridges.

Be prepared to do extra research and work to generate an accurate assessment.

Compromise Tips For Agencies

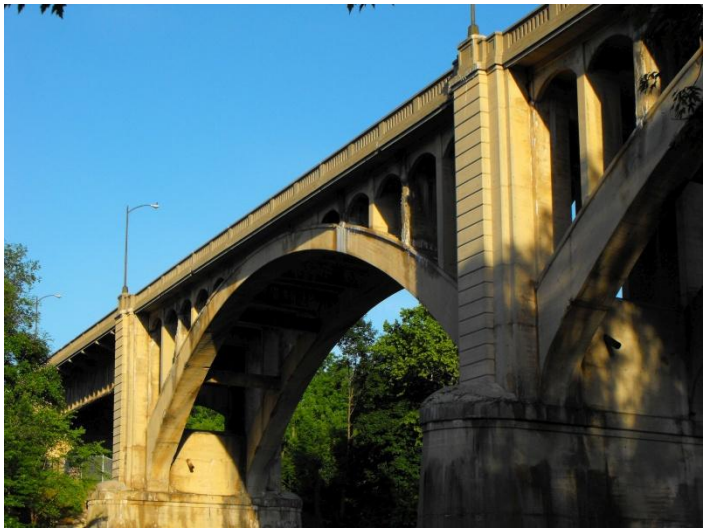
Tip #1: Neutral Project Need

At the outset of a project involving a historic bridge, the official Project Need should never be “replacement.” Something solution-neutral , such as “address structural deficiencies and functional obsolescence at the crossing” might be more appropriate.

By law, the Project Need must not bypass or interfere with the goal of Section 106 to consider options which avoid, minimize, or mitigate any adverse effect.

Tip #2: Get A Good Preservation Estimate

Rehabilitation estimates could be conducted by firms with proven experience in historic bridge preservation.

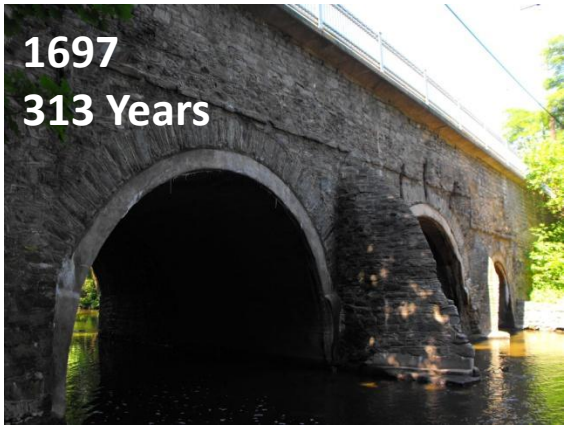


A high quality rehabilitation project could produce a bridge with maintenance and repair costs similar to a new bridge.

The use of inflation rates to justify replacement could be limited.

Tip #3: Communicate Completely and Clearly With The Public

Clearly explain maintenance and lifecycle of bridges to the general public.

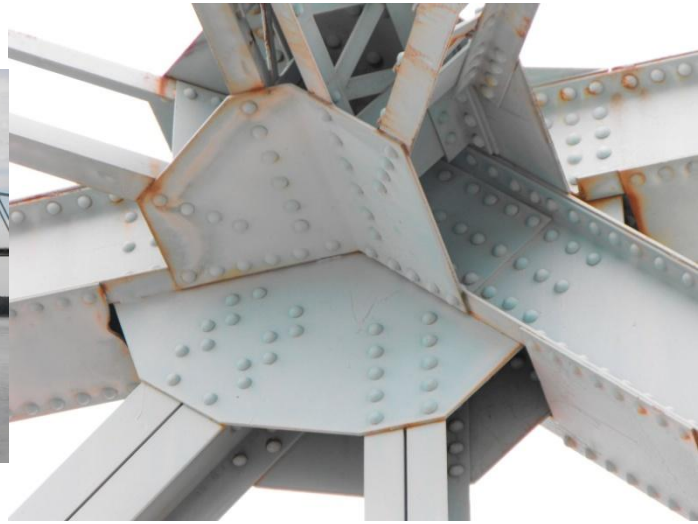


New replacement bridges are not maintenance-free. 100 Year Bridge Life will require diligent maintenance.

100 Year Bridge Life has not yet been proven because modern bridge materials have not been in use for 100 years yet.

Tip #3: Communicate Completely and Clearly With The Public

Explain the structural condition of a historic bridge to the public in language they can understand.



Bridge inspection reports which show only the bad portions of a bridge can mislead the public into believing an entire bridge is in bad condition.

Tip #3: Communicate Completely and Clearly With The Public

Explain historic significance to the public.

An effort could be made to always mention and clearly describe the historic value of the bridge at public meetings and highway agency media releases regarding a historic bridge project

Tip #3: Communicate Completely and Clearly With The Public

Replacement / Rehabilitation Terminology

Demolishing all main spans of a superstructure could be called either “replacement” or “partial replacement” rather than “rehabilitation” especially when dealing with historic bridges.

Tip #3: Communicate Completely and Clearly With The Public

Case Study: Walnut Street Bridge, Harrisburg, PA

Is maintaining a large historic bridge for pedestrians costly?

PennDOT reports no major maintenance costs for the Walnut Street Bridge since its 1996 conversion for pedestrian use.

Harrisburg does pay for lighting and snow removal. However these costs would also be associated with a new pedestrian bridge too.

Tip #4: Leave Historic Bridge Standing Next To Its Replacement

If third party cannot be found to take ownership and restore, agency could consider maintaining ownership leaving bridge closed to all traffic without restoration.

Tip #4: Leave Historic Bridge Standing Next To Its Replacement

Case Study: Walnut Street Bridge, Harrisburg, PA

Are there significant costs associated with leaving a historic bridge next to its replacement?

PennDOT estimates that the maintenance costs of leaving the western spans of the Walnut Street Bridge standing 14 years in an abandoned state from 1996 to 2010 is less than $2000

Tip #5: Maintain a Liberal Number of National Register Eligible Bridges

Increases the likelihood of finding historic bridges for which feasible preservation solutions are available.

Does not prevent construction of a new bridge if the need for a new bridge is demonstrated.

Conclusions

This presentation has only been a brief overview of possible areas of compromise. Actual bridge projects are far more complex, but the intent was to provide a theme to approach projects by.