

Historic Truss Bridge Management Plan

Part 1: Management Summary

An important part of the Commonwealth of Pennsylvania's heritage was our leading role in the story of the Industrial Revolution. The modern processes of iron and steel production and fabrication were in part born in the great foundries and works at Pittsburgh, Bethlehem, and other parts of the state. A durable legacy of that heritage of iron and steel, one that every Pennsylvanian is familiar with, is our population of metal truss bridges. These spans of wrought iron and steel date to the late 19th through the mid-20th centuries and have connected Pennsylvania communities to each other and to the larger transportation network for more than a century. Pennsylvania has, by many accounts, the earliest, most diverse, and most significant population of metal truss bridges in the United States. Generations of Pennsylvanians have heard their tires sing on the metal decks, seen a river or railroad pass below, fished over the railings, or watched the sun descend behind an old truss. Some of these bridges are iconic parts of Pennsylvania's historic communities and are fondly recalled symbols of many of our hometowns and communities.

These bridges are also components of the state's modern transportation network. For many of them, that has proved to be their undoing. Most were never designed with an anticipation of the volume and size of modern traffic, nor were they designed to last as long as some of them have. Decades of limited maintenance funding have also taken their toll, and many bridges show the signs of their age, and are succumbing to the wear and tear. They also don't conform to modern standards of safety: all of them have fracture-critical members. The result has been an accelerating rate of loss through replacement. Since 2001, and as of April 2018, 44% -141 out of 321 metal truss bridges that were listed in or were determined to be eligible for listing in the National Register of Historic Places (NR) prior to 2016 - have been replaced.

The heritage value of these bridges presents a set of both challenges and opportunities to the Pennsylvania Department of Transportation (PennDOT). As the agency responsible for Pennsylvania's transportation network, PennDOT is required by federal and state law and regulation to both maintain a safe and efficient modern transportation network, and to do what it can to preserve and extend the useful life of our legacy of historic truss bridges. These requirements drove the development of this plan.

The goal of this plan is to take sensible measures to extend the useful life of historic truss bridges: to "manage assets" through routine maintenance and repair. We seek to maximize the chances that historic bridges that can be rehabilitated to meet the transportation need are preserved and remain in transportation use. In addition, in cases where important bridges cannot be rehabilitated to meet a transportation need, but can be moved, we seek to encourage their adaptive reuse at another location for alternative uses such as pedestrian or bike traffic. As a planning tool, we propose to evaluate these historic metal truss bridges, on an individual bridge basis, prior to their being programmed on the State Transportation Improvement Program (STIP) to assess their potential for successful rehabilitation and establish a level of priority based upon a thoughtful understanding of the significance of the bridge. Finally, we seek to treat historic metal truss bridges as a population and strategically plan for their collective futures, rather than address their potential for rehabilitation without reference to the entire population, one at a time, during preliminary engineering. This plan has been developed in

consultation with our partners at the Pennsylvania State Historic Preservation Office (PA SHPO) and the Federal Highway Administration (FHWA). Using the Plan A large and disparate group of stakeholders have some interest in the issue of truss bridge management and preservation, and some of those interests diverge considerably.

There is a large community of technical subject experts who need guidance and who have defined responsibilities in the process of managing truss bridges. Those experts include: Public and Private Sector Engineers and transportation agency staffers (FHWA, PennDOT, Community and Transportation Planners (including Metropolitan and Rural Planning Organization Staff) Attorneys and Legal Staff Similarly, there are many other subject experts and interested parties with a stake in the management and future of truss bridges. Their interests and areas of expertise are quite different than the user-communities listed above, and they bring a very different set of expectations and perspectives to the management of truss bridges.

They include: State and Federal Agencies with consultation roles or shared interests on this issue (the PaSHPO, the Advisory Council on Historic Preservation, the Pennsylvania Department of Conservation and Natural Resources [DCNR], etc.) Emergency Services Providers, the Historic Preservation community, the Trail community, Elected officials, and county and local government officials and staff. Since these groups of stakeholders may have somewhat different interests, responsibilities and areas of expertise, the plan attempts to provide guidance that both the technical and more generalized stakeholders can use. In some cases, certain technical terminology will be defined in an appended glossary. Some sections of the plan are also explicitly directed at one community of users or the other, although every attempt has been made to make every section as accessible and readable as possible.

Elements of the Plan

National Register Evaluation and Prioritization

As of April 2018, there are 414 metal truss highway bridges remaining in Pennsylvania, a 51% loss since 2001 when there were 851 metal truss bridges. As the population of these bridges continues to age and decline, the remaining bridges continue to be evaluated, or reevaluated, for their National Register of Historic Places. status, both as individual structures and as potentially contributing parts of larger National Register Historic Districts. Ultimately, National Register eligibility or listing is one of the important criteria for further consideration of efforts to preserve truss bridges. PennDOT conducted a statewide historic bridge inventory and evaluation between 1996 and 2001 which resulted in consensus with the PaSHPO regarding the individual National Register eligibility of all state and locally owned bridges in PennDOT's Bridge Management System (BMS). A re-evaluation of metal truss bridges was conducted in 2008, and another was finalized in spring 2018. As a result of the 2017/2018 reevaluation, 54 bridges were evaluated as National Register eligible, resulting in a total population, as of May 2018, of 210 National Register eligible or listed metal truss bridges; this number reflects the removal of 13 previously eligible bridges that were determined not eligible in this reevaluation, 1 bridge determined not eligible by the Keeper of the National Register in 2010, and 10 eligible bridges that were moved or adaptively reused. The status of a bridge in terms of National Register eligibility as a contributing component of any historic district or site is on-going and generally occurs in relation to a project.

State and federal law and regulation afford equal consideration to all historic bridges. That said, the National Register recognizes a hierarchy of importance, including the concept that some properties are “exceptionally important”. The priority protocol in this plan recognizes these differences and categorizes the historic trusses as exceptional, high, or moderate priority. The priority protocol aids in planning decisions and facilitates appropriate mitigation and minimization measures during preliminary engineering, final design and/or construction.

Evaluating Preservation Potential

Following National Register evaluations, the next step in the plan was the establishment of a benchmark for evaluating the preservation potential for each bridge as part of the transportation network. In general, that benchmark focuses on whether a bridge can, either through rehabilitation or maintenance, meet a benchmark of 15 tons (usually the minimum acceptable load carrying capacity for rehabilitated structures) and still retain its National Register integrity. Where a bridge is clearly designed for vehicular loads less than 15 tons a lower benchmark was utilized.

Preservation Assessments

Individualized evaluations for each historic bridge, known as preservation assessments, were developed to fully evaluate the ability of the bridge to meet the benchmark. These include baseline information on bridge location, ownership, type and design, year built, dates of alterations and/or rehabilitations, width/length, number of spans, roadway classification and type of service, level of historic preservation priority and justification, character defining features, setting description, average daily traffic, observed crash history, safety features, proximity of alternate routes, summary of geometric deficiencies, hydraulics, condition rating, load ratings, and a summary of structural deficiencies. The assessments also include options for addressing structural deficiencies, including maintenance and rehabilitation to the Secretary of Interior’s Standards, in order to meet the benchmark load capacity.

Maintenance Manual

A guidance document for the maintenance of truss bridges has been prepared as part of this plan. The maintenance manual provides recommendations for specific kinds of regular care (for example, simple annual washing of bridges subject to salt and the elements to slow or prevent corrosion) that can greatly extend the useful life of truss bridges.

Planning, the National Environmental Policy Act, and Historic Truss Bridges

The life cycle of all transportation projects begins with planning, progresses to design and into construction, and then integrates regular maintenance into completed infrastructure. Traditionally, the studies and evaluations required for projects to comply with the National Environmental Policy Act (NEPA) and other environmental laws and regulations, including Section 106 of the National Historic Preservation Act (Section 106), have always been done during the design phase of projects, after earlier stage planning decisions have already been made. For more than a decade now, federal transportation law and policy has been promoting the concept of integrating some of the environmental work for transportation projects into the earlier planning stage of project implementation. This initiative is known as PennDOT Connects in Pennsylvania or what the FHWA terms Planning and Environmental Linkages (PEL). In the most basic sense, the consideration of the environmental effects of proposed projects as early

as possible in project planning should result in projects that have more realistic budgets, that better address transportation needs, and that have less dramatic effects to all kinds of environmental resources, including heritage resources.

The Truss Bridge Management Plan included an explicit effort to integrate historic truss bridge management with PennDOT's existing planning program aimed at better establishing transportation needs at the particular crossings where the historic metal truss bridges exist. This effort included a number of elements which involved direct outreach to stakeholders including county or municipal bridge owners, MPOs and RPOs, historic preservation groups and advocates, and other stakeholders. PennDOT held 27 meetings statewide to discuss over 80 bridges. Meetings with these stakeholders resulted in a valuable exchange of information. Bridge owners learned about the history and significance of their bridges and insight on options for preservation or other project advancement in the future. PennDOT also collected information from local sources regarding issues and use of the bridge crossing (transportation needs or lack thereof), as well as future plans for the bridge if known. Adaptive reuse was also discussed, whether it be at a bridge's current location or at a new location. Information gathered at the local outreach meetings and from the preservation assessments was used to complete PennDOT Connects Screening Forms for each of the bridges. These forms serve as a transportation planning tool for proposals (potential future projects) being initiated by the MPO/RPO and for Asset Planning proposals from PennDOT.

Outreach is ongoing to other state agencies and organizations to identify adaptive reuse opportunities at locations like trails and parks.

This effort helps insure that when projects move from planning to design, project designers have all the tools and options available to implement projects that maximize the preservation opportunities for historic truss bridges.

Funding

The plan anticipates the need for funding beyond simply addressing each individual bridge's needs. FHWA and PennDOT are investigating a program that could include line item(s) dedicated to the management of historic metal truss bridges. Alternatively, or in addition, mitigation dollars from replaced historic bridges could be banked into a dedicated fund to help cover historic truss rehabilitation and relocation activities.

Preservation Partnerships

The plan anticipates the development of partnership opportunities with agencies and non-profits in the land management, trail and preservation communities for the adaptive reuse of bridges that aren't good candidates for preservation and continued use in-place. Agencies and organizations that manage trail programs or public lands can work with PennDOT to develop a list of needs for their networks, and to try to match suitable available bridges to those needs. As part of this effort, using funding provided through an inter-agency agreement from the FHWA, in 2016 the PA SHPO hired a staff member for a minimum of three years to assist in the development of partnerships and historic bridge marketing efforts.

National Historic Preservation Act Compliance

Section 106 of the National Historic Preservation Act is the primary federal law that provides for consideration of National Register eligible or listed resources affected by federal actions. The specifics of how those resources are considered can be agreed to programmatically. Programmatic Agreements (PA's) can both streamline and clarify the specifics of compliance with Section 106. As a complement to the plan, the need for a Truss Bridge Management PA will be evaluated. If such an agreement will contribute to the successful management of the historic metal truss bridge population and will streamline PennDOT's compliance with federal law and regulation, a PA will be drafted.

Resources

Appended to the plan are a variety of practical tools, plan components, and examples that will help promote the goals of proper management and stewardship of historic truss bridges.

Part 2: Evaluation

Evaluating, Assessing and Prioritizing Historic Metal Truss Bridges

Perhaps the most important elements of this plan are careful considerations of both the heritage value and preservation potential of each bridge. These are the elements that help guide planning, design and management decisions affecting the bridges. The heritage value of each bridge is derived from its National Register evaluation and whether and how it meets the preservation benchmark established in this plan. The preservation potential is also informed by the preservation assessments conducted for each bridge.

National Register Evaluations and Status

As noted in the management summary, the National Register status of metal truss bridges is one of the most critical elements for the evaluation of their heritage value. A determination of National Register eligibility under one or more of the four National Register Criteria is based on two separate but related evaluations: significance and integrity.

National Register evaluations of Pennsylvania's metal truss bridges were completed in 2001 and a reevaluation was completed in 2008. These evaluations produced a list of over 180 National Register eligible or listed bridges.

In the first half of 2018, inventoried metal truss bridges that were determined not eligible as individual structures for their engineering significance in the last round of evaluations (2008) underwent a re-evaluation of their National Register eligibility. The reevaluation resulted in a number of additional bridges being determined eligible for the National Register. The list of re-evaluated bridges is now available. Newly eligible bridges will also be integrated into the transportation planning process.

Of course, conditions change, and this management plan recognizes that inevitability. Bridges may be removed and replaced, or rehabilitated, or moved for adaptive reuse. New information and better contexts may cause evaluations to evolve. Local or regional land use and transportation networks may change and affect the context of a bridge. This means that like all

populations of historic structures, these bridges will continue to undergo periodic re-evaluations of National Register eligibility. The management plan calls for re-evaluations at ten-year intervals, so the next anticipated re-evaluation effort would occur in 2026. Obviously, if new information regarding the individual eligibility of any particular bridge becomes available, re-evaluation of that bridge could take place sooner.

Another important consideration in evaluating the National Register status of bridges is their potential to be contributing elements to a larger National Register eligible or listed Historic District. Some of the historic metal truss bridges have already been evaluated and determined eligible as components of a National Register Historic District, even though in some cases they did not meet National Register criteria for eligibility as individual structures. Others have never been evaluated for inclusion in a historic district. In still other cases, the landscapes and communities around these bridges have never been formally evaluated to determine if a National Register Eligible Historic District is present. Normally, an evaluation and determination of a potential historic district would occur as part of the Section 106 of the National Historic Preservation Act (Section 106) process as part of a project involving the bridge.

As a planning tool for these bridges, the PA SHPO conducted an inventory of both existing and potentially eligible historic districts in proximity to truss bridges. They have also completed preliminary evaluations of the potential each bridge might have to contribute to these districts. It must be noted that the potential districts defined in the inventory never had formal determinations of National Register eligibility.

You can download the PA SHPO's report on potential, eligible and/or listed historic districts around historic trusses [HERE](#).

Preservation Priority

Section 106 and its implementing regulations provide for equal consideration of all eligible or listed bridges. That said, any effective resource planning effort for historic truss bridges has to account for the reality that each of Pennsylvania's eligible and listed bridges has a heritage value relative to the state's other eligible and listed bridges. That reality is acknowledged in other state-wide preservation plans (e.g., Vermont, Ohio, Indiana) and in planning and preservation guidance (NPS Preservation Planning Guidance). The effort to prioritize the heritage value of bridges is critical to their effective integration into the transportation planning process.

A clear and empirical path to the evaluation of preservation priority has to be based on measurable and relevant criteria. The criteria and benchmarks employed in this plan include a consideration of the various bridge designs (e.g. Pratt, Warren, Bowstring, etc.) and their rarity, context, unique or distinguishing technological and design features, and their condition. Our preservation priority evaluation divides the bridges into three priority categories: moderate, high and exceptional. The criteria that define each category are discussed below.

A point system was designed to evaluate truss bridges under Criterion C for eligibility for listing in the National Register. The following characteristic were used in the assignment of points:

Characteristics

- Built before 1900

- Constructed using wrought/cast iron Uncommon and/or distinctive type and design or the only known example in the state
- Early example in the state or region as defined by each type and design
- Earliest example of a state standard plan
- Rare in a region (as defined by PennDOT district) - three or less truss bridges of the same type and design
- Exceptional span length compared to bridges of the same type and design
- Exceptional overall length compared to bridges of the same type and design
- Important or unusual special features or innovations that show evolution, variation, and/or transition of a type and design
- Outstanding technological achievements
- High artistic value Work of a Master (Important or prolific designer, builder, and/or engineer)

Category	Characteristics
Exceptional	Exceptional bridges exhibit an average of 8 characteristics. (Range from 5 to 11 characteristics).
High	High bridges exhibit an average of 5 characteristics (Range from 4 to 7 characteristics). Some bridges exhibit more characteristics than average but lack integrity to qualify as exceptional.
Moderate	Moderate bridges exhibit an average of 3 characteristics (Range from 2 to 6 characteristics). Some bridges exhibit more characteristics than average but lack integrity to qualify as exceptional or high.

Notes: Exceptional bridges exhibit a combination of most of the following characteristics. These bridges are usually the earliest bridges of each type and design. Many utilize wrought or cast iron in their construction. Most often these bridges are uncommon truss designs or the last remaining bridges of a type and design. They display multiple details that are rare or represent the era of experimentation. Many exhibit exceptionally long spans and/or overall bridge length. Most of these bridges are regionally important as the earliest bridge in the region and/or one of the last remaining bridge of a type and design in the region. Many of these bridges have high artistic value and are built by prolific or important builders. A few common bridges that are unaltered or complete examples may also be included in this category.

High bridges exhibit a combination of many but not most of the following characteristics. These bridges are usually early bridges but not necessarily the earliest of a type and design. A few may utilize wrought or cast iron in their construction, but most do not. Some are uncommon truss designs but lack other characteristics and/or integrity to be classified as exceptional. They often display details that are important in the evolution from the era of experimentation to the standardization of the truss design. Some exhibit exceptionally long spans and/or overall bridge length. Some of these bridges are regionally important as the earliest bridge in the region and/or one of the last remaining bridge of a type and design in the region. Many of these bridges have high artistic value and are built by prolific or important builders in the state. Some bridges express characteristics of a bridge categorized as exceptional but lack sufficient integrity to be classified as such.

Moderate bridges exhibit a combination of only a few of the following characteristics. A few bridges are early bridges but lack other characteristics of exceptional and high bridges. Most of these bridges do not utilize wrought or cast iron in their construction. A few are uncommon truss

designs but lack other characteristics and/or integrity to be classified as exceptional or high. They may display a detail that is important in the evolution from the era of experimentation to the standardization of the truss design and a few may display multiple details. A few exhibit exceptionally long spans and/or overall bridge length but lack other characteristics to be classified as high or exceptional. A few may be regionally important as the earliest bridge in the region and/or one of the last remaining bridge of a type and design in the region. A few of these bridges have high artistic value and are built by prolific or important builder in the state. Some bridges express characteristics of a bridge categorized as high but lack sufficient integrity to be classified as such.

As of this writing (March 2017), the bridge population is being evaluated against the prioritization matrix, and each bridge is being assigned to one of the three categories.

Preservation Assessments

Of the eligible and listed bridges whose status was determined before 2016, 85 were identified as good candidate bridges for integration into the formal transportation planning process at PennDOT. The remaining bridges were not good candidates for planning for a variety of reasons. Some had already progressed beyond planning to design for rehabilitation or replacement. Some had already been rehabilitated, moved, or replaced. Some were railroad bridges. A list of the National Register listed or eligible bridges that are being integrated into the transportation planning segment of this plan can be found [HERE](#). Preservation assessments are being prepared for these bridges.

Individualized preservation assessments were prepared for metal truss bridges that are expected to be integrated into the Departments planning process. In most cases, these assessments include an evaluation of each bridge's ability to meet the 15-ton benchmark and still retain its historic significance. The ability to meet a minimum load carrying capacity of 15 tons is generally considered the minimum load carrying capacity for rehabilitated structures that continue to serve most vehicular traffic, although some bridges that can't meet this benchmark can still be viable as pedestrian facilities. A limited but important caveat to this 15-ton benchmark lies in the original design capacities of some bridges. Since a few truss bridges were originally designed with a load capacity below 15 tons, those bridges with lower designed capacities were evaluated for their ability to meet their original designed weight limits while retaining their historic integrity.

The assessments contain useful baseline information about each bridge including location, ownership, bridge type and design, year built, dates of alterations and/or rehabilitations, width/length, number of spans, roadway classification and type of service, preservation priority, character defining features (those features that enable a bridge to convey its engineering significance), setting description, average daily traffic, observed crash history, safety features, proximity of alternate routes, a summary of structural geometry, hydraulics, condition rating, load ratings, and a summary of structural deficiencies. The assessments also include options that could address structural deficiencies including whether the problems can be addressed through maintenance or would require rehabilitation. The assessments are intended to help guide and inform planning organizations as they decide whether and how to program bridge projects on their Transportation Improvement Program (TIP) and Long-Range Transportation Plan (LRTP).

Part 3: Planning

Planning and Truss Bridge Management

As noted earlier, the Truss Bridge Management Plan included an explicit effort to integrate historic truss bridge management with PennDOT's existing transportation planning process aimed at better establishing transportation needs at particular crossings where historic metal truss bridges currently stand. An honest and complete evaluation of those needs is critical to a determination of whether or not a bridge has rehabilitation potential for continued vehicular use at that location. Establishing and evaluating transportation needs requires a robust understanding of where a particular bridge fits in the larger context of a regional transportation network. That means addressing some important questions, for example:

What types of and how many vehicles use that crossing?

- Where are the local and regional fire stations, and ambulance centers and hospitals located?
- What do the known and planned local and regional school bus routes look like?
- Do oversized and or very heavy vehicles such as farm equipment or quarry trucks use this crossing? Is it possible and reasonable, for those vehicles to use alternative routes?
- What do local and regional land use plans project for current and planned growth in and around these bridges?

The answers to these and other related questions help transportation planners evaluate specific needs at any and every bridge location. The existing planning process makes use of standardized evaluation tools known as "PennDOT Connects Screening Forms" to establish those needs. The Historic Truss Bridge Management Plan employed both the bridge preservation assessments and the screening forms.

PennDOT Connects Screening Forms

Screening Forms serve as a transportation planning tool for proposals (potential future projects) being initiated by the MPO/RPO and for Asset Planning proposals from PennDOT. The completed forms help identify candidate projects for inclusion in a planning organization's Long-Range Transportation Plan (LRTP) and State Transportation Improvement Plan (STIP). They are the first step in the project delivery process. The form collects pertinent data for conceptual engineering and environmental screening and provides a problem description to enable better decision-making in the identification and advancement of alternative proposals. In addition, potential alternative solutions and estimated scope, budget, and schedule are identified and refined in the form.

Based on the data in the preservation assessments, in combination with information gathered during the planning phase of the management plan, PennDOT produced screening forms for those bridges that could benefit by this process. Those forms established the transportation needs of the particular crossings. They inform stakeholders about the heritage value of these particular bridges and help promote the planning and implementation of project alternatives that contribute to their preservation, including the possibility of relocating an historic bridge for adaptive reuse, or reuse on a location where it can meet transportation needs.

The Historic Truss Bridge planning effort involved direct outreach to stakeholders including county or municipal bridge owners, MPOs and RPOs, historic preservation groups and advocates, and other stakeholders. PennDOT held 27 meetings statewide to discuss over 80 historic metal truss bridges. Meetings with these stakeholders resulted in a valuable exchange of information. Bridge owners learned about the history and significance of their bridges and gained insight on options for preservation and project advancement in the future. PennDOT also collected information from local sources regarding issues and uses of the bridge crossing, as well as future plans for the bridge and/or crossing (to the degree known). Adaptive reuse was also discussed, whether it be at a bridge's current location or at a new location including potential pedestrian crossing needs in the region. Additionally, outreach has been occurring, and will continue to occur, with other state agencies, such as DCNR and the SHPO, and with trail, preservation, and natural resource conservancies and nonprofit organizations to identify adaptive reuse opportunities at locations like trails and parks. This effort will help insure that when projects move from planning to design, project designers have all the tools and options available to implement projects that maximize the preservation opportunities for historic truss bridges.

As a result of these meetings over 30 historic metal truss bridges were identified as not capable of meeting the long term needs of these crossings, even with a sensitive rehabilitation, and were placed in PennDOT's historic bridge marketing program. PennDOT is proactively seeking adaptive reuse for these bridges and parties willing to assume ownership. In some cases, these bridges remain open to traffic with no plans to close the crossings except where the condition of the bridge deteriorates to where this is necessary, or in the event an adaptive use is identified. The expectation of this program is that these bridges can be marketed for adaptive use much longer than they might if marketed as part of a project. Experience has shown that the longer a bridge is marketed the more likely a party can be identified that needs a bridge of that particular type and length.

Part 4: Technical Manuals

Technical Manual and Guidance

A major component of the Historic Metal Truss Management Plan was the development of guidance for both the maintenance of the bridges and for the marketing of bridges for adaptive reuse.

The Maintenance Manual

Proper and effective maintenance is probably the single most important factor in the preservation of metal truss bridges as safe, reliable and historic elements of a modern transportation network. The Maintenance Manual includes documented best practices, methods and materials recommendations for maintaining and preserving metal truss bridges. The manual draws from a variety of technical publications and manuals, and from American Society of Civil Engineers (ASCE) guidance and follows the Secretary of Interior's Standards for Rehabilitation. You can download the Maintenance Manual [HERE](#).

The Adaptive Reuse Guidance

When truss bridges can't be kept in service at their original locations, they sometimes can be preserved through adaptive reuse. This usually involves an entity such as a municipality, an

agency, a non-profit organization, a university, or even a private individual acquiring the bridge. In most cases a bridge that's slated for reuse needs to be rehabilitated and moved to a new location to begin its new life. This process can involve some fairly complex legal, fiscal and engineering considerations. To help potential bridge owners navigate those complexities, PennDOT has developed some guidance for parties potentially interested in acquiring an historic metal truss bridge at our Bridge Marketing Page.

Part 5: Resources

Below are links to helpful on-line resources, many of which were consulted during the development of the Pennsylvania plan. This list is by no means exhaustive, but we believe that citizens, agencies, local governments and advocates with an interest in historic bridge preservation will find the links useful.

State Historic Bridge Management Plans, Inventories and Agreements

California: <https://dot.ca.gov/programs/environmental-analysis>

Indiana: <https://www.in.gov/indot/2531.htm>

Louisiana: http://wwwsp.dotd.la.gov/Inside_LaDOTD/Divisions/Engineering/HBI/Pages/default.aspx

Maryland:

<https://www.roads.maryland.gov/OPPEN/Maryland%20SHA%20Management%20Plan%20for%20Historic%20Highway%20Bridges.pdf>

Michigan https://www.michigan.gov/mdot/0,4616,7-151-9623_11154_11188---,00.html

Minnesota: <http://www.dot.state.mn.us/historicbridges/bridge/misc/mgmtplan.pdf>

Missouri: <https://www.modot.org/historic-bridges>

New Jersey:

http://www.state.nj.us/transportation/works/environment/pdf/NJHBD_statewide.pdf Opens In A New Window

New York: <https://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/historicbridgemanagementplan.pdf>

Ohio:

http://www.dot.state.oh.us/divisions/planning/environment/cultural_resources/HISTORIC_BRIDGES/Pages/default.aspx

Rhode Island: <https://ahs-inc.biz/assets/uploads/files/RI-Bridges.pdf>

Tennessee: <https://www.tn.gov/content/tn/tdot/structures-/historic-bridges.html>

Texas: <https://www.txdot.gov/inside-txdot/division/environmental/historic-bridge.html>

Vermont: <https://vtrans.vermont.gov/historic-bridges>

Virginia: <http://www.virginiadot.org/programs/resources/01-r11.pdf>

Agencies

FHWA Historic Bridge Page: <https://www.environment.fhwa.dot.gov/histpres/bridges.asp>

PA SHPO: <http://www.phmc.pa.gov/preservation/Pages/default.aspx>

PennDOT Cultural Resources:

<https://www.penndot.gov/ProjectAndPrograms/Cultural%20Resources/Pages/default.aspx>:

Organizations and Advocates

Preservation Pennsylvania: <http://www.preservationpa.org/>

Pennsylvania Planning Organizations Map:

https://www.dot.state.pa.us/typ/index_files/MPOsandRPOs.htm

Bridge Hunter: <https://bridgehunter.com/pa/>

Historic Bridges of PA: http://historicbridges.org/map_penn.php

Historic Bridge Foundation: <http://historicbridgefoundation.com/>

National Trust for Historic Preservation: "How to Preserve Historic Bridges":

https://savingplaces.org/stories/10-on-tuesday-how-to-preserve-historic-bridges#.WNJ4HWf_q70

Working Bridges: www.workinbridges.org

Other Resources

AASHTO Historic Bridges Community of Practice:

http://environment.transportation.org/pdf/communities_of_practice/histbridges.pdf Opens In A New Window

Bridge Basics: <http://pghbridges.com/basics.htm>

PA Historic Bridges: Connecting our Past and Future (Video):

<https://www.youtube.com/watch?v=96Kf8f8ee5E>

TRB Best Practices and Lessons Learned on the Preservation and Rehabilitation of Historic bridges: [http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25\(66\)_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25(66)_FR.pdf)

TRB Context on Historic Bridge Types:

[http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25\(15\)_FR.pdf](http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(15)_FR.pdf)

Glossary

Fracture-critical: In bridge terminology, a design that includes sections under tension whose failure would probably cause a portion of the bridge, or even the entire bridge, to collapse.

Integrity: In the context of The National Register of Historic Places, which defines integrity as the ability of a property to convey its historic significance by retaining aspects of its original location, design, setting, materials, workmanship, feeling, and association.

Long Range Transportation Plan (LRTP): The Long-Range Transportation Plan is a 20+ year strategy and capital improvement program developed to guide the effective investment of public funds in multimodal transportation facilities.

National Environmental Policy Act (NEPA): The National Environmental Policy Act (NEPA) is a United States environmental law that promotes the enhancement of the environment and established the President's Council on Environmental Quality (CEQ). The law was enacted on January 1, 1970.

National Register of Historic Places: The United States federal government's official list of districts, sites, buildings, structures, and objects deemed worthy of preservation.

National Register Criteria: The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history.

National Register Historic District: According to the Register definition, a historic district is: "a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. In addition, historic districts consist of contributing and non-contributing properties. Historic districts possess a concentration, linkage or continuity of the other four types of properties. Objects, structures, buildings and sites within a historic district are usually thematically linked by architectural style or designer, date of development, distinctive urban plan, and/or historic associations."

Preliminary Engineering: Is analysis and design work to produce construction plans, specifications and cost estimates.

Secretary of Interior's Standards: The Standards for Rehabilitation (codified in 36 CFR 67 for use in the Federal Historic Preservation Tax Incentives program). "Rehabilitation" is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

Section 106 of the National Historic Preservation Act (Section 106): Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP. Revised regulations, "Protection of Historic Properties" (36 CFR Part 800)

Significance (National Register): When evaluating a property against National Register criteria, significance is defined as the importance of a property to the history, architecture, archeology, engineering, or culture of a community, a State, or the nation.

STIP: The State Transportation Improvement Plan, the first four years of the State's Twelve Year Plan for transportation projects.

TIP: Transportation Improvement Program, a four-year plan (the first four years of the TYP) developed by each Metropolitan and Rural Planning Organization to address regional transportation needs. The various regional TIP's are integrated into the STIP.

TYP: The Twelve-Year Transportation Program, the long-term planning document for transportation needs statewide.