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Dear Maya-

The 507 page PennDOT response to comments on the draft Categorical Exclusion for the Headquarters Road Bridge in Tinicum Township, Bucks County, exhibits an overall refusal to engage in an effort to pursue a no-effect solution, one which would have no adverse impact on the Ridge Valley Historic District. Lengthy public comments and hearings appear to have had no impact on convincing PennDOT to pursue a no adverse impact resolution. Every effort has been made by PennDOT to prove the impossibility of a rehabilitation approach, the evidence presented to support the feasibility of a no adverse impact has been largely dismissed or ignored, exhibiting bias, the Project Purpose and Need conveniently includes no mention of history, and it is clear that PennDOT decided before the public process what the outcome would be, making the public process an unworkable exercise that had no impact on the commonly held belief by the public that there would be compromise, especially since this bridge contributes to a listed National Register Historic District.

The Project Purpose and Need determined the direction followed by PennDOT. The Project Purpose: “to provide a crossing for Headquarters Road over Tinicum Creek which is structurally sound and capable of safely and effectively handling the expected vehicular need of the public and emergency services of the surrounding area” appears to provide potential for a rehabilitation project.

However, the needs list that followed was constructed to make rehabilitation of the Headquarters Road appear impossible in the way it described current problems as if there were no solutions, included structural deficiency, functionally obsolescence, retaining walls exhibiting failure, and heavy scouring on a portion of the western abutment. The key argument “due to the existing structure’s geometry and limited roadway width, it cannot safely and effectively accommodate current and future traffic needs including emergency response vehicles,” is simply untrue. (60)

Separate, and not part of the Project Purpose and Needs was “a project goal to develop a solution which was sensitive to the historic and rural nature of the surrounding area.” (60) That is a weak goal. Avoiding an adverse impact to the Ridge Valley Historic District should have been placed within the Project Purpose. Placing a sensitivity requirement assumes total replacement, placing the preservation of any substructure fabric outside the scope of the project creating an inevitable outcome that all PennDot will offer the community is a homogenized

slightly down-scaled modern new bridge with unknown environmental impacts and the total demolition and loss of a structure contributing to a Historic District and the Wild and Scenic Rivers Program.

This Categorical Exemption application proves the futility of the community consensus to advocate for some level of preservation, when preservation was never part of the Project Purpose - bridge replacement was the true PennDOT resolve of this process. Perhaps due to the unrelenting public pressure for preservation, PennDOT systematically examined each part of the substructure of the Headquarters Road Bridge and declared no parts could be saved. Not even the original bridge site was spared with the favored design being one that moves the bridge, creating unknown environmental consequences for a wild and scenic river. The Riverkeeper hired engineers to look at those same substructure elements and determinations were made that they could be rehabilitated. You would not know that virtually every reason PennDOT had given for not saving any part of the 1812 substructure and maintaining a one lane width was countered because in their process, PennDOT, not an impartial entity, arranges the documentation in ways that only furthers their arguments and negates, refutes or simply ignores contradicting evidence.

To further the argument that not renovating the Headquarters Road Bridge was the project objective, consider the Technical Proposal Detail Report from November 2004 for Agreement E00342, the Scope of Work (page 9) that states that the outcome of the report will be that there are no feasible or prudent alternatives: “The Section 4(f) Evaluation will evaluate alternatives developed by the project team and will incorporate information and coordination with local authorities. The alternative analysis section will include detailed design plans depicting each alternative impact on each of the Section 4(f) resources. If there are no feasible and prudent alternatives to avoid the use of Section 4(f) resources, mitigation measures will be developed. This report will document that there are no feasible or prudent alternatives to the use of Section 4(f) resources for this project [emphasis added].”(298) No preservation was the plan early on before the public process even began.

Concerned residents, the Delaware Riverkeeper, a bevy of consultants and consulting parties never gave up their belief that there had to be some way to rehabilitate the 1812 abutments and piers while grafting a new deck and railings on top and maintaining a one lane width. However, the PennDOT Needs List put no value on preservation at all, pursuing a no adverse impact resolution carried no weight in this process. The vast majority of those wanting to save the old crossing challenged every issue raised by the Needs. Disputes arose over how the traffic counts were done, arguments were made over the ability of emergency response vehicles to navigate the old bridge, and outside engineering studies argued that the substructure could be saved. You would hardly know from this CE document how well the opposition countered the PennDOT arguments, especially the engineering arguments supporting the rehabilitation of the substructure; most of the factual claims behind PennDOT’s assertions appear to have quietly disappeared. But the claims remain, and the fact is that public does not have to be listened to at

all as PennDOT proceeds through this process. One PennDOT comment made clear that this is a process to be completed and not an effort to reach agreement, “while achieving consensus is ideal, it is not a requirement and is likely unattainable in many situations due to varying views and opinions on how to best meet the project’s needs.” (446)

Alternative C, the rehabilitation approach, supported by most of the public involved in this process, was rejected because of how the needs statement was written: Alternate C “consists of rehabilitating the existing substructure and construction of a modern, one-lane superstructure. This alternative would not address the project needs, as it would not address the structural deficiencies of functional obsolescence of the existing bridge, and therefore, it was dismissed.” (15)

One of the justifications for not wanting a rehabilitation project, raised by PennDOT, focused on their inability to maintain a bridge with a masonry substructure. Several times the rationale was used that PennDOT maintains 24,000 bridges in PA, with 6,000 in District 6, yet they do “not have the maintenance staff and resources required to perform the kind of maintenance which is performed by DRJTBC.” (464) The Delaware River Joint Toll Bridge Commission manages 20 bridges, but somehow their bridge engineers are able to maintain stone piers and abutments of the same vintage as the Headquarters Road Bridge. They even maintain 75 year old bridge superstructures like the Frenchtown-Uhlerstown Bridge that have significantly narrow widths compared to the new construction standards. It seems nearly unbelievable that the Toll Bridge group can manage bridges that are obsolete, have bad geometry and are not up to modern widths, have traditional pointed stone abutments and piers, while PennDOT bridge managers are committed to not preserving a bridge substructure which is demanded through unprecedented public support. Why did PennDOT not contact or contract the DRJTBC engineers and ask them for their help? It would appear that expertise does actually exist at PennDOT since many of its bridges, its stone arch bridges and covered bridges for example, are made of rock and mortar. The biggest failure in this process has been not developing or even considering a plan to restore and rehabilitate the existing bridge, a plan to honestly consider whether it is feasible and what it would take to accomplish. The existing process is arguably adequate (although a tremendous waste of time and money) only if the goal is to not preserve and rehabilitate old bridges listed on the National Register and contributing to Historic Districts.

A lack of familiarity with traditional stone masonry rings true in the PennDOT comment condemning rehabilitation of the Headquarters Road Bridge, “rehabilitation of an existing substructure must provide a design service life of 40 to 50 years. Considering the evidence of period substructure failure, this service life is not considered possible through rehabilitation.” 462) While the substructure of the Headquarters Road Bridge does need to be restored and rehabilitated, the commonwealth got 205 years out of the materials so far. The 40-50 year service life is an assertion but not a fact. The toll Bridge engineers seem to get more service life from their bridge maintenance. Finally, despite not pursuing the costs and an approach to restore and renovate the substructure costs, PennDOT argued, “While the initial costs for rehabilitation

are expected to be less than the initial costs for replacement, life cycle costs will be greater with rehabilitation, as regular maintenance would be required to preserve the original stone material in the substructure.” (457) What are the numbers? This Categorical Exemption request fails to make a real comparison instead of stating unsubstantiated claims.

The area of potential effect appears very narrowly focused to the footprint of the bridge and a tiny area around that footprint. Perhaps this is designed to save PennDOT from having to deal with a larger area, but their plan to demolish the 1812 bridge does impact a much greater area. The definition offered for APE “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist,” seems to suggest that the entire viewshed of the bridge would be within the APE. A significant portion of the district will be impacted if all evidence of the 1812 substructure disappears. This impact is much more significant if the replacement results in a change to the course of Tincum Creek since that creek defines the extant property and field boundaries within the district.

PennDOT may well get their Categorical Exemption because the key entities reviewing their work are cooperating in their reviews. Clearly, if the 1812 substructure does not survive the bridge review process, a contributing resource of the Ridge Valley Historic District will be lost. According to the National Park Service, “this project will not substantially alter the surrounding landscape, road network, or other features which contribute to the Historic District. Therefore, the replacement of the Headquarters Road Bridge will not result in a substantial or significant cumulative impact to the Historic District.” (8) The SHPO concurred that the loss of this rare and early bridge substructure was not a significant loss. “The removal of the bridge is an impact to the historic district; however, with the proposed mitigation, the impact is not a significant impact to the historic district.” (38) William Robert Irvin, President and CEO of American Rivers disagrees, “clearly the replacement will have a significant impact on an important cultural and historic resource as it will result in the demolition and replacement of a historic structure, thus undermining a state historic register district and a federal Wild and Scenic River.” (234) Certainly, the rarity of this bridge substructure calls into question where the line is between an impact and a significant impact. The Advisory Council for Historic Preservation and the National Trust for Historic Preservation should be asked to weigh in on this question of whether the loss of such a rare and early bridge substructure is a significant loss, to potentially refute the NPS and SHPO.

Despite their denigration of the 1812 substructure as not a significant loss, both the NPS and the PHMC offered guidance to PennDOT that has shown no results. Maya, you made this comment, “PADOT has been pursuing a systematic effort to remove and replace (with new construction) a series of historic bridges in Tincum Township; the collected impact is far greater than the effect of each project independently. PADOT needs to do a comprehensive impact review of all of its bridge projects – past, proposed, and anticipated – on the Ridge Valley Historic District and the environment. RESPONSE #6: It is not true that PennDOT is ‘pursuing a

systematic effort to remove and replace (with new construction) a series of historic bridges in Tinicum Township'. A comprehensive impact review is beyond the scope of this project.” (453) Yes, but it seems like it could be a significant and meaningful part of the mitigation. Frank Hays, Associate Regional Director, Resource Stewardship and Science backs up Maya's comments “NPS urges a comprehensive approach to ensuring that transportation infrastructure contained within the District continues to support the important rural, agricultural heritage and character.” (3) How can the decision to demolish the Headquarters Road Bridge be made or accepted if a clearer picture of the fate of the rest of the bridges in all of Tinicum Township's Historic Districts remains unknown?

PennDOT tries to sidestep responsibility for future bridge projects in the Ridge Valley Historic District by indicating that most of the other bridges are not state owned, but this is disingenuous because PennDOT has already replaced the Geigel Hill Road Bridge with an adverse impact, they are leading the plan to replace the Clay Ridge bridge, and they are trying to push the Township and the County to install deck mounted guardrail on the two Sheephole Road bridges - a pointless process that would destroy the 80 year old concrete decks of those bridges as surely as it destroyed the deck of the Headquarters Road bridge. Incrementally, all of the creek crossings in the Ridge Valley Historic District will face threats from PennDOT that diminish or erase contributing resources. It would appear that if a comprehensive plan was to be created, such a plan would show no preservation for any of the bridges in the Ridge Valley or any other district in this region. A comprehensive impact review may prove the best means to change public policy towards bridge preservation in historic districts in Pennsylvania before it is too late and there are no more historic bridges to preserve.

Barbara Frederick in the PHMC comments asked “please discuss the significance and character defining features of the Ridge Valley Historic District as well as notable features of the Headquarters Road Bridge, a contributing resource. It may be useful to include illustrations showing the historic character of the district. This information will be helpful to understanding efforts made to avoid, minimize and mitigate adverse effects to historic properties.” (139) Instead of asking how the significance of the Headquarters Road Bridge might be mitigated if demolition is the final outcome, the focus is on how gently a modern bridge might be integrated into the historic district. “Please include more information on how the project was designed to avoid/minimize impacts to the district (limited law acquisitions, no impacts to rock outcroppings on Sheephole Road, restoration of vegetative banks, use of locally sourced smaller sized stone for riprap, etc.” (130) PennDOT responded “The significance and character-defining features of the district will be discussed in the cultural resources section of the Final CE. In addition more information on how the project was designed to avoid/minimize impacts to the district will be in Final CE.” (10) The PennDOT rationale that they adequately mitigated the adverse impact is not here now in this draft that gets reviewed. How can that be proper procedure in seeking a CE? The mitigation includes possibly reusing stone from the old substructure, a powerless Design committee with no purpose in the design beyond decorative concerns, and other means to make a

new bridge slightly more scaled down than required by standards for which waivers will be needed anyway.

The Mitigation MOA does show a sensitivity to the special nature of this district, but it does not mitigate at all the loss of one of the commonwealth's earliest and now rarest bridge substructures. As a historian my test for mitigation is how much of the substructure fabric is preserved or restored. Zero seems to be the plan now. If the 1812 bridge substructure is completely demolished how will the former bridge be interpreted? The site of the 1812 bridge should be marked with an explanatory plaque, similar to those used by the NPS that provides an image of the lost bridge, an overview of its history, a discussion of its engineering significance, and a summary of the contentious controversy over the replacement process. That is mitigation – preserving the memory of the lost structure and the meaning of this bridge in the context of the historic district. But remembering a lost bridge is not an acceptable outcome. The appeal remains for a rehabilitation project that does not adversely affect the Ridge Valley Historic District.

This application for a Categorical Exemption will make it easier for PennDOT to proceed with their replacement vision without an environmental impact statement and 4(f) review will be avoided. The 4(f) review is needed because the Section 106 review has failed to resolve the disconnect between PennDOT's preferred remedy of a new two lane bridge on a new alignment and the majority community demand to restore and rehabilitate the existing bridge. In addition to the significant environmental controversy engendered by PennDOT's plans to move the bridge crossing, and alter the stream flow of a Wild and Scenic River, PennDOT has not provided any solutions to restoring and rehabilitating the 1812 bridge despite the fact that they maintain stone and mortar substructures on covered bridges and stone arch bridges, and that the engineers entrusted with the Delaware River Toll bridges have maintained a collection of large obsolete historic bridges with similar substructures. A 4(f) review would require a special effort be made to avoid the use of cultural resources by documenting that all possible planning was used to minimize harm, while Section 106 only requires consideration of the project effects on cultural resources. Section 4(f) applies to actual use or occupancy of the site, while Section 106 involves assessment of adverse effect on the property. The Section 4(f) process applies a more stringent analysis with respect to totally avoiding cultural resources than the Section 106 process.

If a CE is granted to PennDOT, they will be able to proceed as they wish and change the project design as they go along without public notification or input. Opponents to the granting of a CE know that in completing recent projects in Tinicum Township, PennDOT has a history of portraying a project to be of lesser impact than what is actually built, and they have made serious engineering errors with stream flows. Linda McNeil, former Township Manager reported that previous experiences with bridge replacements on Cafferty and Tettermer Roads “have resulted in significant environmental impacts which include streambed destabilization, encroachment and degradation of an Exceptional Value (EV) stream, channelization and increased stream velocity, and downstream flooding.” (195) Promises by PennDot to reuse stone from a demolished

bridge to “decorate” a new bridge have proven empty promises as resident Bruce Wallace noted “in fact PennDOT has not reused the stone in any of the projects in Tinicum Township where they had pledged to do so, such as the Geigel Hill Road Bridge over Tinicum Creek, or the recent replacement of the bridge in Point Pleasant over the Tohickon Creek.” (314-15) Resident David Handy reported “after seeing gigantic “gray” riprap improperly engineered for the replacement bridge just up the creek at Geigel Hill Road Bridge, being dispersed all down this red stoned creek over the past few years, I fear additional environmental impacts to the creek.” (177) One of the comments raised at the public meeting was that “The new structure will incorporate design elements that will complement and blend with the historic district’s setting” (p. 47). PennDOT has proven many times that it is unwilling or unable to honor this promise. Many local residents and Consulting Parties have personally witnessed PennDOT’s failure to consider Bucks County’s rural and historic setting when rebuilding a bridge. In fact, experience with PennDOT has been that it doesn’t even implement the construction and design practices committed to in advance of construction, such as reuse of stone or fundamental designs. For example, the construction of the bridge at Cafferty Road bore no resemblance to the much less intrusive design PennDOT committed to before demolition. (455). The only way to force PennDOT to provide full project disclosure is to not grant the CE.

There is a community-based vision that emerges from the document of a repaired and rehabilitated bridge that would combine a new state-of-the-art bridge deck with the preservation of the superstructure, as it is the superstructure that is historically significant in this project. If the long years of Section 106 Review had actually been successful in a project design having no adverse impact, the result would have been a resolution for the Headquarters Road Bridge that maintained the 1812 superstructure of abutments and piers of the oldest known, National Register listed, pier-to-pier bridge substructure remaining in the commonwealth of Pennsylvania. Such a resolution would have applied the *Secretary of Interior’s Standards for Rehabilitation* to preserve as much of the historic exterior fabric of the historic superstructure as possible, while allowing for the installation of a new deck.

A restored superstructure with a modern deck would preserve the historic fabric that is historically significant, while maintaining the deck replacement that is in keeping with the original bridge design. Between 1812 and 1919, the deck of the Headquarters Road was made of renewable wooden planks that needed periodic repair and replacement. In 1919 a concrete deck was placed over the 1812 superstructure as a longer lasting rehabilitation project. Replacing the 1919 deck with a new deck would alter the bridge, but such a project would preserve the integrity of the original superstructure and would be in keeping with the history of this structure, and that new deck would, in the passage of 50 years, add to the significance of the Headquarters Road Bridge. A new deck would not be an adverse impact as the deck is the least significant aspect of the bridge. The Ridge Valley Historic District would not be diminished, rather the integrity of the district would be maintained in a manner that no PennDOT proposal has accomplished.

The Headquarters Road Bridge superstructure has stood for over 200 years and is among the earliest surviving bridge superstructures in America. It is the oldest known example of this bridge superstructure type in Pennsylvania. Only one other example has been documented in Pennsylvania. This structure stands in a National Register Historic District unified by stream crossings. The rarity and engineering significance of the superstructure has not been taken seriously resulting in a solution of total demolition, mitigation failure, and an adverse impact on the Ridge Valley Historic District.

The Pennsylvania State Historic Preservation Office has developed more specific guidance on the consideration and application of the Secretary of the Interior's Standards to historic bridges in Pennsylvania. While preparing these comments, a new document, by Tyra Guyton, the Transportation Special Initiatives Coordinator for the Pennsylvania State Historic Preservation Office, concerning how to approach bridge projects without diminishing the historic bridge character was posted in the July 2017 *Keystone Preservation Post*. Portions of Guyton's discussion are helpful in looking at how no adverse outcomes get accomplished.

Throughout the public process a majority of the public have asked for a rehabilitation project that, by meeting the Secretary of Interior's Standards, would avoid or significantly minimize adverse impact to the Ridge Valley Historic District. In *Guidance for the Treatment of Historic Bridges* Tyra Guyton asserts, "If a bridge rehabilitation project can be designed to meet the Standards, then it is possible to avoid or minimize an adverse effect under Section 106. By considering historic character and the Standards alongside project needs, a bridge can retain its historic character, and the Federal agency can save time and money." However, in the Headquarters Road process, project needs and historic character were treated as separate considerations mutually exclusive of each other. The Headquarters Road Bridge, with PennDOT never intending a preservation/rehabilitation project, never was properly evaluated for its significance or the character defining features that are worthy of preservation.

The Headquarters Road Bridge possesses significance under Criterion C in the area of Engineering. The superstructure embodies distinctive characteristics of an early nineteenth century pier-to-pier bridge type that was once common, but is not almost entirely gone from the bridge landscape. The character defining features of the Headquarters Road Bridge include the use of native pointed stone, the shape, taper and design of the two piers, the design of the abutments, especially the manner in which one abutment stands in the creek and affects the flow and downstream stream banks, and the one lane deck and connections into the existing road network. Character defining features include the stonework featuring locally sourced materials, stonemason craftsmanship typical of the early nineteenth century, and detailing such as the lozenge shaped piers.

The focus for applying the *Secretary of Interior's Standards* to the Headquarters Road Bridge would be the bridge superstructure. The Guyton article points out that three of the ten Standards for Rehabilitation are most relevant to bridge rehabilitation: "Standard 2, preservation

of distinctive features and finishes that characterize a historic property; Standard 5, preservation of construction techniques or examples of craftsmanship that characterize a historic property; and Standard 6, preference for repair of deteriorated historic features over replacement.” In addition to the *Standards*, there are *Guidelines for the Treatment of Historic Properties* that provide a hierarchy ranging from least to most level of intervention. The following summarized passage offers the key aspects of the Guidelines article as it applies to this bridge, “all character defining features of the historic bridge should be identified. Measures should be taken to protect and maintain these features. If character defining features need repair, it should be undertaken in a manner with the least intervention, using recognized preservation methods such as splicing, consolidating, straightening, or reinforcing through additional material. If a character defining feature cannot be repaired, then replacement is allowed. It is preferred to replace the material in-kind using the original material with the same visual qualities. If in-kind replacement is not possible, then a substitute material can be used, however, it must convey the same visual appearance as the original material. New work should be visually differentiated from the original so that a false historical appearance is not created.”

For Federal Agencies engaged in Section 106, the Guyton article offers an outstanding set of questions to consider in a bridge rehabilitation project. While Guyton states, “Investigation of these question can also be part of the documentation showing due diligence in the consideration of rehabilitation options,” such comments are absent from the Categorical Exclusion packet because rehabilitation was never seriously investigated as a viable alternative. The questions posed in the article “were designed to guide engineers and historians in the decision-making process.” There is no evidence that historians and engineers ever sat down to hold any discussions in the Categorical Exemption packet. Questions designed to mitigate adverse impact in bridge rehabilitations include:

- Why does the bridge have National Register significance?
- What are the key aspects of integrity that allow the bridge to convey its significance?
- What are the character defining features that need to be retained for the bridge to convey its significance including distinctive engineering and stylistic features, finishes, construction techniques, and examples of craftsmanship?
- Does the bridge have historic alterations (more than 50 years old) that contribute to the overall significance of the bridge (Standard 4)?
- Are there levels of importance among the character defining features? If so, what are they? (More significant/distinctive features should receive greater levels of consideration for preservation or rehabilitation.)
- Can the character defining features of the bridge be preserved while accommodating the project purpose and need and safety requirements (Standard 1)?
- If it is not possible to repair the character defining features of the bridge, can you replicate historic materials, methods, and construction techniques without affecting the historic character of the bridge (Standard 5)?

- Can the new work on the character defining features match the old work in terms of size, design, color, texture, architectural detailing, and other visual qualities (Standard 6)?
- For missing features that will be replicated, is there documentary, physical or pictorial evidence (Standard 6)?
- Do new features, such as lighting, railing, or other decorative elements, give a false sense of the bridge's history (Standard 3)?
- If new work is required, such as strengthening or reinforcement, can it be designed not to compromise the historic engineering significance of the bridge (Standard 10)?
- Can the new work be hidden from view?
- Are new features, such as guide rails, differentiated from the old and compatible in terms of massing, size, and scale (Standard 9)?
- Would a lay person viewing the bridge after it is rehabilitation be able to understand its original use, design, function, materials, engineering, and/or association (Standard 2)?”

These standards and guidelines are meant to be negotiated collaboratively between stakeholders. Since no rehabilitation plan was seriously considered there is no evidence of such a process in the Categorical Exclusion packet. Collaboration remains the critical means to reach the best outcome. As Guyton argues, “Elements critical to a successful execution include comprehensive plans and specifications and include: the use of qualified construction personnel with demonstrated experience working with the relevant historic material; open and consistent communication between engineers; historians; and construction personnel and construction monitoring. Through careful planning and collaboration, application of the Standards can result in high-quality bridge rehabilitations that enable Pennsylvania travelers to continue to enjoy these historic bridges.” No such process has yet occurred with the Headquarters Road Bridge project.

As PennDOT seeks to bring the public process to an end it is my opinion that a Categorical Exemption should not be made for the Headquarters Road Bridge project. There is too much remaining unresolved, the majority of the public want a project with no adverse impact to the Ridge Valley Historic District, and PennDOT wants a total bridge replacement on a new site, the loss of the 1812 substructure significantly impacts the district, and the effort to make rehabilitation impossible – the moving of the bridge site – will have unforeseen consequences that have generated tremendous public controversy.

Sincerely,



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