2011

State Route 1015, Section B00
Over French Creek
French Creek Township
Mercer County, Pennsylvania

Carlton Truss Rehabilitation Feasibility Study and Alternatives Analysis Report

U.S. Department of Transportation
Federal Highway Administration

pennsylvania
DEPARTMENT OF TRANSPORTATION

Prepared for:

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EXECUTIVE SUMMARY

The purpose of this Rehabilitation Feasibility Study and Preliminary Alternatives Analysis is to identify viable alternatives to improve the transportation deficiencies associated with the S.R. 1015 structure (Carlton Truss) over French Creek. The proposed project is an improvement to the existing structure carrying S.R. 1015 over French Creek in French Creek Township, Mercer County, Pennsylvania. The existing structure over French Creek is a 276 feet long two-span through truss that was listed on the National Register of Historic Places in 1988.

The condition of the existing structure creates a safety concern for residents in the area and for users of French Creek. Closure of the structure severed a transportation link between areas north and south of French Creek. The existing structure was posted with an 8-ton weight limit, since at least 1969, when PennDOT began their bridge inspection program.

Based on engineering analysis and coordination with the local municipalities and residents the following concerns / problems were identified in the project area:

- The existing structure is now closed, but was limited to 8-tons and a height restriction when open.
- The existing structure exhibits severe deterioration.
- Emergency response times to the area south of the Carlton Truss are longer due to not being able to utilize the Carlton crossing.
- Businesses in the area suffer from increased costs due to inability to use the Carlton crossing for trucks.
- French Creek Township suffers an economic hardship due to inability to use the Carlton crossing for their trucks.
- Farmers in the area realize higher costs due to inability to use the Carlton crossing for farm equipment and delivery trucks.
- Other nearby crossing (Shaw's Landing, Utica) of French Creek, flood periodically in the spring and fall.
- The next crossing to the north (Cochranton Truss) will be replaced soon and would have a 27-mile long truck detour and a 10-mile long car detour over Shaw's Landing. The truck detour's length would be an economic hardship on local businesses, farms, and French Creek Township. The car detour would periodically be useable due to flooding and would then require use of the 27-mile truck detour, affecting emergency service and school bus access.

Based on this discussion the Project Needs are:

1. Safety of motor vehicles and recreational users of French Creek is compromised by the deteriorated condition of the existing crossing.

2. Closure of the existing structure has severed a vital transportation link in the community with an approximately 10 mile long detour required in either direction for access to homes on either side of the existing structure.

3. Inability for emergency response vehicles (fire trucks and ambulances) to utilize the Carlton crossing increases response times to the area south of the crossing, based on community input.

4. Economic hardship on local businesses, farm operations, and the municipality due to inability to utilize the Carlton crossing for large vehicles.

5. A 27-mile long truck / large vehicle (including fire trucks) detour is required to replace the Cochranton Truss due to inability to use Carlton Truss. *[Carlton Truss will be rehabilitated or replaced prior to the Cochranton Truss closure. Therefore, Carlton crossing will be available as a car detour at a minimum, depending on the final improvement alternative for the Carlton crossing.]*

Based on this information, the Project Purpose is to:

1. Improve safety
2. Restore a vital transportation link
3. Improve access for emergency responders
4. Improve access for and reduce the economic hardship on local business, farms, and French Creek Township
5. Meet current design guidelines and standards

In order to meet the project needs, a No-Build Alternative, three Rehabilitation Options, and three Replacement Alternatives were considered. The No-Build Alternative would do nothing to improve the existing crossing; therefore it would not meet the needs and has been dismissed from consideration. Eight-ton and 15-ton Rehabilitation Options were considered, but dismissed because they would not meet the needs for the project, would be the most costly options, and would provide the shortest service life. A 25-ton Rehabilitation Option was determined not to be feasible because the existing structure was never designed to carry more than approximately 10-tons. Rehabilitating to 25-tons is not possible, a full replacement would be required. Two Alternatives (C2 and C3) to replace the structure on a new alignment (upstream or downstream) and leave the existing truss in place were considered. These alternatives would only be viable if a new owner could be found for the existing truss. Due to the size of the truss, it is unlikely that a new financially capable owner could be identified. There would be no purpose for the truss in its existing location with a new structure constructed adjacent. For these reasons, and due to increased costs and environmental/community impacts over the Replacement on Existing Alignment Alternative, Alternatives C2 and C3 were dismissed from consideration.

Alternative C1 would replace the existing truss on the existing alignment, requiring removal of the existing historic truss. This alternative would maintain the existing pier location within French Creek, minimizing impacts to endangered mussels. No stream relocation or wetland impacts would occur with this alternative. Alternative C1 would provide a structure with an anticipated 100-year service life and would accommodate all emergency response vehicles and the local farming/agricultural industry. Impacts to the endangered mussels would be minimized with this alternative, as the structure would be replaced in an area of French Creek already disturbed by the existing structure. Additionally, the proposed structure under Alternative C1 would provide for a truck and car detour during the replacement of the Cochranton Truss. Estimated construction costs for a replacement alternative are $2,500,000. As stated, a new structure would provide an approximately 100-year long service life. While Alternative C1 (Replacement on Existing) would require removal of the existing historic truss, it is the alternative that best meets the project needs and is the most environmentally sensitive alternative.

I. INTRODUCTION and PURPOSE

The purpose of this Rehabilitation Feasibility Study and Preliminary Alternatives Analysis is to identify viable alternatives to improve the transportation deficiencies associated with the S.R. 1015 structure (Carlton Truss) over French Creek. *See Figure 1, USGS Project Location Map, in Appendix A.* Located in French Creek Township, Mercer County, PA, the Carlton Truss has been closed since fall of 2010 due to structural deficiencies.

The project will be developed in accordance with current Pennsylvania Department of Transportation (PennDOT) and Federal Highway Administration (FHWA) design standards. The alternatives documented in this report were evaluated from an engineering, constructability, and maintenance of traffic perspective as well as for potential environmental impacts. The Rehabilitation Feasibility Study was conducted in accordance with *Guidelines for Historic Bridge Rehabilitation and Replacement*, American Association of State Highway and Transportation Officials (AASHTO), Standing Committee on the Environment, March 2007.

This report will also serve the purpose of meeting the requirements for Alternatives Analyses / Evaluations under Section 106 of the Historic Protection Act, Section 4(f) of the US Department of Transportation Act, and the Section 404b alternatives analysis for wetlands under the Clean Water Act.

II. PROJECT DESCRIPTION

The proposed project is an improvement to the structure carrying S.R. 1015 over French Creek in French Creek Township, Mercer County, Pennsylvania.

A. Project Location and Study Area

The S.R. 1015, Section B00 (Carlton Truss) project is situated in the French Creek valley where terrain varies from level to moderately rolling. The project site is rural with a few residential dwellings located close to the bridge. Other nearby land uses are agriculture (cultivated fields) and woodlands. *See Figure 2, Project Aerial Map, in Appendix A.* The existing truss was listed on the National Register of Historic Places in 1988.

An active rail line operated by Norfolk & Southern RR lies immediately to the north of the structure. This rail line was determined eligible for the National Register of Historic Places in 2011.

Private driveways serving residential dwellings intersect the bridge approaches at either end of the structure. Aerial utilities are located immediately upstream and downstream of the structure and a gas line is attached to the upstream side of

the structure. The project area is not served by public water or sewage; therefore, private wells and on-site septic systems will need to be located and considered.

A private drive (Stamm Lane) intersects with the northern approach and serves a series of cottages and homes along upstream French Creek. The private drive is located between the Carlton Truss and the rail line. Another drive or lane is situated further from the structure and on the opposite side of the rail line to serve cottages along downstream French Creek.

B. Description and Condition of Existing Facility

SR 1015-B00 is locally known as the Carlton Bridge (BMS 43-1015-0060-1472). The existing structure over French Creek is a 276 feet long two-span through truss. A single travel lane, 19 feet curb-to-curb, is provided by the structure. There is no sidewalk on the existing structure. The current sufficiency rating is 1.0 and the structure was posted for a maximum of 8 tons until its closure in the Fall of 2010. Prior to the closure traffic was restricted to a single lane and a height restriction of 8'-0" was imposed. *See Photos in Appendix B, Photos.*

C. Roadway Alignment and Geometry

An active rail line (owned by Norfolk & Southern Railroad) runs parallel to French Creek just to the north of the structure. There is an at-grade crossing of SR 1015 on the northern roadway approach. This crossing is identified as AAR NO. 262821C. The northern approach features a sharp curve to the right when approaching the structure. *See Figure 2, Project Aerial Map, in Appendix A.*

The northern approach geometry is challenging due to the existing grade, at-grade railroad crossing, and the Stamm Lane intersection. The southern approach ascends away from the structure at a moderate grade, but a residential dwelling lies very close to this approach and to the structure.

There is no record of crashes at or within 200-feet of the existing bridge; therefore, there are no concerns related to traffic safety.

D. Hydraulic Constraints

The existing structure is a two-span steel through truss bridge with an open grid steel deck. The beams are set on top of stone masonry abutments. The stream generally flows perpendicular to the bridge upstream and downstream of the structure. The pier is located in the stream channel and aligned with stream flow. The bottom of the pier is concrete with 90-degree triangular noses; the upstream face of the pier is sloped at approximately 45° and extends 15 feet beyond the

face of the bridge. The clear span along the face of the bridge from abutment to abutment is 270.75 feet, including a 7.5-foot wide stone masonry pier. Since the bridge is essentially perpendicular to the stream flow, the normal clear span, or bridge opening width, is also 270.75 feet. The pier width varies with height; it is 7.5' wide at the base and 5.5 feet wide at the top. The bridge width parallel to the flow direction is 17.88 feet. The minimum under clearance from the minimum low chord to the lowest point in the streambed is approximately 16.9 feet. The hydraulic opening is approximately 3,231 square feet.

No high water marks were observed on the existing bridge structure. The 100-year Water Surface Elevation (WSEL) at the existing bridge is approximately 1,045.15; four feet below the low chord. The roadway in the left overbank has very little freeboard to this event. Several structures in the left overbank are impacted by the 100-year event; a few are impacted by the 2-year event.

The existing structure does not flood under the 100-year frequency storm event. The rehabilitation options would not affect the abutment locations or low chord elevations and would have no impact on the 100-year flood elevation. Replacement on Existing (Alternative C1) would have no impact on existing WSELs, as the structure would be designed so that the low chord elevation is above the 100-year flood elevation and the clear span is greater than or equal to existing. The two relocation alternatives (Alternative C2 and C3) only provide an advantage over Alternative C1 if a new owner for the truss can be found and the truss is allowed to remain in place. If the existing truss remains in place and a new structure is built adjacent to it (Alternatives C2 or C3), it will likely cause WSEL increases for the 100-year event.

E. Environmental Overview

The Carlton Truss spans French Creek, one of the most ecologically diverse watersheds in Pennsylvania and one known to contain healthy populations of threatened and endangered mussels. The crossing is located within the Federal Emergency Management Agency (FEMA) 100-year floodplain of French Creek. French Creek is designated as a Warm Water Fishery (WWF). A small wetland area, 0.02 acres in size, is located to the southeast of the structure along French Creek and a small tributary to French Creek.

Carlton Truss is a historic resource listed on the National Register of Historic Sites. The Carlton Truss is an 1898 two-span, wrought iron/cast iron, Pratt Through-Truss, over French Creek, manufactured by the Columbia Bridge Works of Dayton, Ohio. It was listed in the National Register of Historic Places in 1988. The bridge's stringers and deck were replaced in 1990. New guide rail on the approaches were added in 2010.

The Norfolk and Southern Rail Line in the project area is considered eligible for the National Register. The rail line of the former Erie & Lackawanna Railroad follows along the north bank of French Creek at this location.

At the bridge's southwest quadrant is a late 19th century, frame, three-bay, two-story, gable-front building. The building, now used as a residence, appears to be sheathed in aluminum siding and has suffered other changes over the years. Research indicates that this building served as the Carlton Store and Post Office, beginning in the 1870s. However, due to the changes and additions that have occurred to the building it is not considered eligible for the National Register.

III. PROJECT PURPOSE and NEED

This project is intended to improve the S.R. 1015 crossing of French Creek that is currently served by a deteriorated and out-of-service structure (BMS No. 43-1015-0060-1472). The existing structure was closed to all traffic in August 2010 due to significant deterioration of the structural members. The closing of the structure has been of concern to the community. The condition of the existing structure creates a safety concern for residents in the area and for users of French Creek. Closure of the structure severed a transportation link between areas north and south of French Creek. The closest alternate crossings of French Creek are, along the stream centerline, four miles upstream (Cochranton, S.R. 0173) and four miles downstream (Utica, S.R. 3017). The detour required to utilize either of these alternate crossings is approximately 10 miles long.

The existing structure was posted with an 8-ton weight limit, since at least 1969, when PennDOT began their bridge inspection program. Large vehicles, including school buses, trucks, and emergency management vehicles such as fire trucks, have not been able to use the structure for over 40 years.

To develop an understanding of the community's desires for this crossing, French Creek Township, the Cochranton Volunteer Fire Department, and Girardat, LP, the school transportation provider for the local school district (Crawford Central) were all contacted on February 7, 2011. See Telephone Conversation Memos in *Appendix C, Correspondence.*

The township felt that the historic nature of the existing truss would be important to the community; however, concern was expressed over the impact to the local emergency services provider (Cochranton Volunteer Fire Department). The township representative stated that emergency response times to the area south of the Carlton Truss are longer due to not being able to utilize the Carlton crossing. It was stated that emergency responders have not been able to use the structure for over 40 years, but that the issue should be discussed with them, because it is believed to be a concern. It was also

stated that one farm business, Wiser Farms, did utilize the structure prior to closure and that they may have concerns with the crossing.

The Cochranton Volunteer Fire Department stated that they have dealt with the inability to use the S.R. 1015 crossing at Carlton for over 40 years, but that this lack of use has affected their services. It was also stated that this is the first opportunity they have had to address the situation and; therefore, they feel the structure should be replaced to accommodate emergency vehicles. The Fire Department reinforced the township's concern that response times are increased to the south side of the Carlton Truss due to not being able to use the structure for larger vehicles (fire trucks, ambulances). It was stated that being able to use the Carlton crossing would make response much easier for the fire department, would allow them to reduce response times, and would permit faster and more efficient service from assisting emergency responders. The Fire Department representative also stated that lack of use of the Carlton crossing requires them to use unpaved side roads that are dangerous in the winter due to snow and ice accumulations. Use of the Carlton crossing would provide them with use of a blacktopped and better-maintained roadway to the area south of French Creek.

The Crawford Central School District transportation provider for the French Creek Township area, Girardat, LP was also contacted to provide input. The Girardat representative stated that their buses are routed without use of the existing Carlton crossing and even if the crossing were improved to permit crossing by larger vehicles it would be unlikely that they would change their routings to cross at Carlton. It was stated that one van utilized the Carlton crossing prior to its closure and is now being detoured. Reopening of the crossing would allow Girardat more efficient routing of this van. The owner of Girardat, Harold Girardat, stated that his concern is from an emergency services standpoint. Mr. Girardat reiterated both the Township's and Fire Department's concerns with response times to the area south of the Carlton crossing. It was also stated that the Custaloga Boy Scout Camp is located south of the Carlton crossing at the confluence of Deer Creek and French Creek. Ability for emergency vehicles to use the Carlton crossing would significantly improve response times to the Boy Scout camp, which was stated to have a large attendance when in use and that it is used frequently.

To assess, in more detail, the community's concerns and needs for the Carlton crossing, a public meeting was held on April 28, 2011. Seventy-one people attended the public meeting and public officials briefing. A comment form was distributed at the meeting, which was held for the Carlton Truss and the Cochranton Truss – a non-eligible structure on SR 173 in Crawford County, it is the next crossing to the north on French Creek from the Carlton crossing. The comment form asked if the 8-ton weight posting on Carlton Truss had affected the community. Seventy-nine percent of respondents (39 comment forms were returned) said that yes it had affected the community in terms of reduced EMS access and economic hardships on local businesses, farms, and schools. Five people responded that it was not an impact and three did not answer the question. When asked how important it was to consider

rehabilitating the existing truss, five people responded that it was somewhat to very important to consider rehabilitation. Nine people were neutral to the rehabilitation question and 20 responded that it was somewhat to completely unimportant whether the existing truss was rehabilitated, again citing the need for a structure with a higher weight carrying capacity. When asked how important it was to replace the existing structure, 35 people (92%) responded that it was somewhat to very important to replace the structure, once again citing emergency service and farm access. One person was neutral and two people responded that it was completely unimportant to consider replacement of the existing structure. The comment form summary is contained in *Appendix C, Correspondence*.

At the public meeting residents and representatives of French Creek Township; Cochranton Fire Department; Girardat, LP (school bus transportation provider); and the Custaloga Boy Scout Camp all expressed concern over closure of the Carlton Truss and with the fact that the truss had a weight restriction when it was open to traffic. The public meeting attendees reiterated the fire department's statement that they have dealt with this crossing as a weight-limited structure for over 40 years, but they now have the opportunity to remedy the situation. Public meeting attendees stated that inability to cross the Carlton structure with anything larger than a personal vehicle has caused emergency service access/response concerns, an economic hardship for French Creek Township, and increased costs for the Boy Scout camp, due to the detour that supply trucks must take to get to the camp. A resident also mentioned that a farm, Wiser Farm, is affected by the weight-limited structure and that access via the Carlton crossing would not only improve the farm's operations, but would reduce their economic burden.

Concern was expressed related to the detour that would be required if the Cochranton Truss was closed for replacement while the Carlton Truss remained closed or was re-opened as a weight restricted crossing. Emergency services, school buses, businesses, the municipalities, and residents noted concerns over the length of the potential truck detour that would be required for the Cochranton closure if the Carlton crossing were not available for use by trucks. Because the adjoining roadways are either unimproved or have a weight limit, the truck detour required for Cochranton Truss would be over 27 miles in length. *See Figure 3, Detour Map, in Appendix A.* The car detour would be approximately 10 miles in length. Concerns were also expressed over the planned car detour because the crossing north of Cochranton (Shaw's Landing), which is the planned Cochranton detour, and the crossing south of Carlton (Utica), which is the only other available crossing besides Carlton, are under water several times a year due to French Creek flooding. Neither the Cochranton nor Carlton crossings have any flooding concerns. Grave concerns were expressed with emergency service access to the area south of Carlton and Cochranton Trusses due to the detours that would be required if Carlton could not be used for emergency services during the construction closure of Cochranton Truss, especially during spring / fall flooding events. Girardat (school transportation provider) also expressed concern with how the school buses would need to be rerouted during replacement of Cochranton Truss. The municipalities expressed

concern over maintenance operations within French Creek Township and the length of time and fuel that would be expended by their trucks due to the 27-mile long detour. The Cochranton Truss cannot be replaced using phased construction, due to the structure type, and a temporary runaround would require significant business and residential impacts including displacements; therefore, a detour is the only option. Public meeting attendees stated that if the Carlton Truss were replaced first as a legal-load carrying structure then the 27-mile truck and 10-mile car detours would not be needed; the detour for Cochranton Truss would cross Carlton and only be about ten miles long for both cars and trucks. A detour using the Carlton crossing would substantially improve school bus routing during the Cochranton closure. French Creek Township stated that this summer (2011) they are replacing one of their structures that leads-up to the Carlton Truss. In anticipation of PennDOT's Cochranton Truss and Carlton Truss projects, and the Township's opinion that Carlton would be the logical detour for the Cochranton Truss project; they expedited the replacement of their structure so it would be ready when Carlton was replaced.

Following the public meeting, letters were received from a local business, French Creek Township, a local resident/leaser of a farm, Wiser farm, and the Cochranton Volunteer Fire Department. Copies of these letters are contained in *Appendix C, Correspondence.* Summaries of each letter follows:

> *The Elder Sales and Services letter expresses concerns with the truck detour proposed for the Cochranton Truss replacement. Mr. Elder stated that the 27-mile long detour would be very expensive for his business. He expressed the desire to have Carlton crossing available for the Cochranton detour, which he says will eliminate an economic hardship on his business and others in the area.*
>
> *French Creek Township stated that the closure and previous eight-ton weight limit on Carlton Truss was an economic hardship to the township. Carlton crossing is located in the northeastern corner of French Creek Township. The Township's inability to use the Carlton crossing for their maintenance vehicles (snowplows and other maintenance trucks) causes them to use an approximately 10 mile long detour (one-way), across Cochranton Truss, to access the northeastern portion of the township. This creates an economic hardship on the township in the form of increased wages due to time lost using the detour and increased fuel costs. Inability to use the Carlton crossing as a detour during the replacement of the Cochranton Truss would cause them an even greater hardship, because they would be required to use the proposed 27-mile long truck detour.*
>
> *The local resident and owner of the farm leased to the Wiser operation, Mr. Wilcox, sent a letter expressing concerns over emergency vehicle access, especially at the time of Cochranton Truss closure due to the detour required if Carlton crossing is not available for emergency vehicle use. Mr. Wilcox's*

daughter is diabetic and requires their assistance (they live on the opposite side of Carlton Truss and now must use Cochranton Truss, a 10-mile detour, to get to her for aid) and emergency assistance at times. Mr. Wilcox also mentions several other local families that periodically require emergency medical assistance who are and have been concerned over emergency access.

Wiser Farms is a large grain producing operation that leases a farm in the Carlton area from Mr. Wilcox, which they use to cultivate and market their grain. They farm approximately 1,200 acres in the Carlton area; approximately ½ of the acreage is north of the Carlton crossing and the other ½ is south. Therefore, lack of use of the Carlton crossing hampers their operations and increases their operating costs due to the need to use Cochranton Truss to access their land. It is noted that this hardship occurred prior to the closure of the Carlton Truss, because their farm equipment is too heavy to travel across the 8-ton weight limited structure. In his letter, Mr. Wiser states that inability to use the Carlton crossing costs his business well over $10,000 per year in fuel and lost time. He also states that it takes an additional 950 gallons of fuel each year to detour his equipment through Cochranton for access to both portions of his farming operation at Carlton. Mr. Wiser mentions the 27-mile truck detour that would be required with the Cochranton closure for construction of the new structure. The proposed detour would, in his estimate, triple the cost of his operations in the Carlton area. For the Carlton crossing to be available as a detour option for Mr. Wiser's use with delivery trucks (semi-trailers) and large farm equipment, it would have to be a structure capable of carrying current legal loads (25-tons). He also expresses concern over emergency service access, stating that drying grain can be a dangerous operation and that fires have occurred in the past. Having emergency service access hampered by inability to use the Carlton crossing is a potentially dangerous situation.

The Cochranton Volunteer Fire Department and Ambulance Service expressed concern over their inability to use the Carlton crossing. In their May 23, 2011 letter, the fire department stated that their response times are increased by 12 to 15 minutes due to not being able to utilize the Carlton crossing. It was noted in their letter that due to the weight of their equipment they could not use the crossing prior to its closure due to the weight limit.

Based on this discussion the Project Needs are:

1. Safety of motor vehicles and recreational users of French Creek is compromised by the deteriorated condition of the existing crossing.

2. Closure of the existing structure has severed a vital transportation link in the community with an approximately 10 mile long detour required in either direction for access to homes on either side of the existing structure.

3. Inability for emergency response vehicles (fire trucks and ambulances) to utilize the Carlton crossing increases response times to the area south of the crossing, based on community input.

4. Economic hardship on local businesses, farm operations, and the municipality due to inability to utilize the Carlton crossing for large vehicles.

5. A 27-mile long truck / large vehicle (including fire trucks) detour is required to replace the Cochranton Truss due to inability to use Carlton Truss. *[Carlton Truss will be rehabilitated or replaced prior to the Cochranton Truss closure. Therefore, Carlton crossing will be available as a car detour at a minimum, depending on the final improvement alternative for the Carlton crossing.]*

Based on this information, the Project Purpose is to:

1. Improve safety

2. Restore a vital transportation link

3. Improve access for emergency responders

4. Improve access for and reduce the economic hardship on local business, farms, and French Creek Township

5. Meet current design guidelines and standards

IV. DESCRIPTION and EVALUATION of PRELIMINARY ALTERNATIVES

Several alternatives were evaluated for this project to determine their potential to meet project needs; environmental / community / cultural impacts were also considered. The analysis of these alternatives was completed to meet requirements of both Section 106 of the Historic Preservation Act and Section 4(f) of the US Department of Transportation Act of 1966. A matrix that summarizes the impacts of each alternative, how well the alternative meets project needs, and estimated construction costs is provided in *Table 1, Carlton Bridge Alternatives Analysis Impact Matrix*.

TABLE 1
Carlton Bridge Alternatives Analysis Impact Matrix

	No-Build *Alternative A*	Rehabilitation *Alternative B*			Replacement on Existing *Alternative C1*	Downstream Relocation *Alternative C2*	Upstream Relocation *Alternative C3*
		8-Ton	*15-Ton*	*25-Ton*			
Environmental/Community Resources							
- Stream Relocation (LF)	0	0	0	NOT FEASIBLE [1]	0	195	0
- New Pier Location (mussel impact)	No	No	No		No	Yes	Yes
- Residential Displacements	0	0	0		0	0	1
- Wetlands Impacted (Acres)	0.00	0.00	0.00		0.00	0.02	0.00
- Forestland Impacted (Acres)	0.00	0.00	0.00		0.00	0.80	0.00
Cultural Resources							
- Impacts Historic Truss	No	No	Slightly		Yes	No[3]	No[3]
- Impacts Historic Railroad	No	No	No		No	Yes	Yes
Meets Project Needs?							
- Improve safety	No	Yes	Yes		Yes	Yes	Yes
- Restore a vital transportation link	No	Yes	Yes		Yes	Yes	Yes
- Improve Emergency Vehicle access	No	No	Slightly[4]		Yes	Yes	Yes
- Reduce economic hardship	No	No	No		Yes	Yes	Yes
- Provide truck detour for Cochranton	No	No	No		Yes	Yes	Yes
Estimated Cost (Millions $)[2]:	$0.0	$3.0	$7.0		$2.5	$3.4	$3.0

[1] Existing structure not designed to hold this large of a load. Rehabilitation to carry this weight is not possible; complete replacement of all portions of the structure required, including piers and abutments; would need replaced with larger components designed to carry this amount of weight.

[2] Costs do not include right-of-way appraisals or acquisition.

[3] Assumes historic truss would remain at its current location, as is, no maintenance would be performed by PennDOT and a new owner, with the financial means to maintain the truss, would be required.

[4] Would allow use by ambulances, but not fire trucks.

A. No-Build Alternative (Alternative A)

The existing Carlton Truss is officially closed to all traffic due to safety concerns relating to the bridge's structural deficiencies and severe deterioration. The No-Build Alternative would provide no improvements to the bridge. It would not be reopened and no new structure would be built across French Creek. The existing detour, which utilizes the Cochranton Truss, and traffic patterns in the area would remain. Likewise, the existing bridge would remain a safety concern as a failure of the structure would remain possible even without traffic loading. This situation would endanger the safety of the public, particularly any recreational users of French Creek (canoeists, fishermen) due to the potential for pieces of the structure to fall into the stream below as the structure would continue to deteriorate.

The No-Build Alternative would not meet the project needs to improve safety or to restore a vital transportation link. Therefore, the No-Build Alternative will not be carried forward for more detailed studies. Instead, the No-Build Alternative will only be used as a point of comparison for the other alternatives.

B. Rehabilitation Alternative / Feasibility (Alternative B)

An engineering analysis was completed to evaluate the feasibility of rehabilitating the existing structure to meet Project Needs. Three rehabilitation options were evaluated, including an 8-ton single-lane option, 15-ton single-lane option, and 25-ton single-lane option.

The existing structure is an iron, 2-span through truss with a horizontal clearance of 19'-0". The existing structure's 19'-0" horizontal clearance carries a single lane of traffic. The structure was permanently closed to traffic in August 2010 due to severe deterioration of structural elements. *See Photos in Appendix B.* Prior to closure, the structure had a load posting of 8 tons.

The existing structure exhibits excessive section loss in approximately 65% of the existing floor beams. The remaining 35% of the floor beams also have section loss, but to a lesser degree. The entire top chord of the existing structure has heavy rusting and section loss, which will continue to get worse due to ponding of water in the channel/structural members, caused by the design of these members. The existing expansion bearings are frozen and cannot be rehabilitated. The existing timber deck is rutted in the wheel paths and substantially deteriorated. The entire structure has heavy peeling/failure of paint throughout the structure.

1. Option 1: 8-Ton Weight Loading (Match Existing)

It is not possible, due to the nature of trusses, to provide a two-lane structure through rehabilitation. To achieve a two-lane design, the entire structure would require widening. Thus requiring all new floor beams, top cross bracing, substructure retrofits, etc.; very little to nothing would remain of the existing truss. Therefore, since minimum criteria (i.e., match existing conditions) is for one-lane of traffic, the rehabilitation options have been evaluated by considering a one-lane structure, which matches existing conditions.

As stated, approximately 65% of the floor beams exhibit excessive section loss and would require replacement. Splice plates and other repairs would be necessary to address section loss in the remaining 35% of the floor beams. Therefore, either replacement or structural repair work would be required to the all of the existing floor beams. The existing timber deck would require full replacement with a timber deck.

As stated, the entire top chord of the existing structure has heavy rusting and section loss, which continues to worsen due to water ponding. This would require retrofitting of cover plates or channel sections to prevent the ponding. Replacement of the existing bearings with new bearings is also required.

Painting / coating would be required to stop the ongoing deterioration of the structure. Extensive containment methods as well as intricate efforts would be required to remove lead-contaminated paint and replace with current paint technologies. For the existing structure, this work would need to be performed over an environmentally sensitive watercourse (French Creek, one of the most ecologically diverse watersheds in Pennsylvania and a watershed containing extensive endangered mussel species).

In summary, extensive work would be required to rehabilitate the existing truss to carry an 8-ton load; however, it appears that this could be completed without significantly affecting those features that make the truss historic. Additionally, while lead paint removal and painting over French Creek would be a concern, it is a situation that has been dealt with on prior structures and would not be a reason to dismiss the eight-ton rehabilitation option. It should be noted however, that the weight of a fire truck is 14 tons minimum (up to 40 tons maximum) unloaded[1]. An ambulance is around 8-tons unloaded[2]. Cochranton Volunteer Fire

[1] http://wiki.answers.com/Q/How_much_does_a_fire_truck_weight & Cochranton Volunteer Fire & Ambulance (discussion with Chief Mock).
[2] Cochranton Volunteer Fire & Ambulance (discussion with Chief Mock)

Department and Ambulance stated that their ambulance weighs 8.75 tons and their pump trucks weight 34 tons. A standard dump truck, like those that would be used by the township to plow snow, weighs around 20 tons, unloaded[3]. A farm tractor is between 4.5 to 7 tons, depending on the size of the tractor[4]. Therefore, an 8-ton weight limited structure could carry a farm tractor, but it could not carry a fire truck, ambulance, or dump truck, even unloaded.

It is estimated that rehabilitating the existing truss to carry an 8-ton load would cost approximately $3,000,000. The rehabilitated truss would be anticipated to have a service life of approximately 25-years after rehabilitation; meaning that in 25-years major work (i.e., structural member replacement/reinforcement, deck replacement, etc.) would again be required to keep the truss in operation.

2. Option 2: 15-Ton Weight Loading (Accommodate some larger vehicles)

To support a 15-ton design load both abutments and the center pier would need to be reinforced. The existing pier and abutments do not appear, based on engineering judgment, to have been designed to carry a load as large as 15-tons. It is the professional opinion of the professional engineers involved with this project that the existing foundations were designed to carry somewhat less than 15-tons. While plans / calculations for the existing structure are not available, the existing structure was designed and constructed in the late 1800's to carry horse and buggy traffic, as the automobile had not even been invented. It is extremely unlikely that the engineers at that time would have even considered the need for the existing structure to ever carry a live load of 15-tons. An average horse weighs around 1,200 pounds and an average buggy is about 1,000 pounds[5]; combined the weight of the horse, buggy, and a few people is just over one ton. At the extreme, large draft horses can weigh up to 2,500 pounds and pull about three times their weight (7,500 pounds). Even at this loading the structure would have only been designed to carry about five tons. Therefore, it would be reasonable to assume that the structure might have been designed to carry around 10-tons, but it is unlikely that the truss would have been designed for 15-tons. The professional engineer's opinion is reinforced by a paper entitled "Engineering for Rehabilitation of Historic Metal Truss Bridges,"[6] which

[3] http://www.fhwa.dot.gov/reports/tswstudy/Vol2-Chapter3.pdf
[4] http://www.tractordata.com/farm-tractors/000/0/6/64-john-deere-4020.html
[5] www.amishbuggyrides.com/buggies.html; wiki.answers.com/Q/How_much_does_an_average_horse_weigh
[6] "Engineering for Rehabilitation of Historic Metal Truss Bridges," Frank J. Hatfield, P.E. Michigan State University, 2001 (p. 2); http://www.jflf.org/pdfs/wi301/historicbridges.pdf

advocates that in 1916 (over 30-years after the Carlton Truss had been designed and constructed) a maximum live loading for design of 18-tons. The paper also states that, according to J.A.L. Waddell[7], an American Civil Engineer and Bridge Designer, "Almost all of the old [older than 1916 construction] highway bridges are incapable of carrying these new [meaning 18-ton] live loads with safety." Finally, a BAR-7 computer analysis of the existing Carlton Truss indicated that the highest weight carrying capacity on the bridge when new was 8-tons for the Inventory Rating and 11-tons for the Operating Rating. The ratings were shown in the analysis to be governed by the truss members as opposed to the stringers of the floor beams. The analysis reinforces the point that that existing structure was never designed to carry a load as high as 15-tons.

It is anticipated that reinforcement of the existing foundation (substructure) could be completed without significantly affecting the historic integrity of the existing truss.

Additionally, as with the foundations, it is the opinion of the engineers involved with this project that the truss would not have been designed to carry more than a 10-ton live load. A 15-ton live load for design would even seem unlikely considering the live loads that would have been anticipated at the time of design (i.e., a standard horse and buggy that weighs just over a ton). It is understood that the existing structure has carried personal vehicles for almost 100-years; however, the average car is around two tons[8] and a large ¾-ton (load carrying capacity) pick-up trucks weighs about 6.5 tons[9], which is less than the engineering judgment live load design weight of 10-tons for the existing structure. Based on this information, it is understandable that the structure has been able to support personal vehicles, but rehabilitation of the truss through replacement of the more deteriorated members and plating (reinforcing) of other members to carry a 15-ton live load would be required.

As with the 8-ton option, due to substantial deterioration, all of the existing floor decking would require replacement and a majority of the floor beams would be replaced. All of the bridge bearings would also be replaced. To support the additional loading (15-tons vs. the estimated 10-ton design load), the vertical and diagonal members of the truss sections would need to be supplemented / retrofitted with plates and connections throughout the structure, changing the appearance. It is anticipated that some of this work could be completed without compromising the historic integrity of the existing truss; however, due to the fact that all vertical and diagonal truss

[7] http://en.wikipedia.org/wiki/J._A._L._Waddell
[8] http://answers.yahoo.com/question/index?qid=20070912152638AAsmyVN
[9] http://wiki.answers.com/Q/How_much_does_the_average_pick_up_truck_weigh

members would need plated, it is anticipated that the historic integrity would be somewhat compromised by this option.

A 15-ton rehabilitation could support use by farm tractors, ambulances, and unloaded fire trucks. However, a 15-ton structure would not be able to carry loaded fire trucks, dump trucks, or larger vehicles.

It is estimated that rehabilitating the existing truss to carry a 15-ton load would cost approximately $7,000,000. The rehabilitated truss would be anticipated to have a service life of approximately 25-years after rehabilitation; meaning that in 25-years major work would again be required to keep the truss in operation.

3. Option 3: 25-Ton Weight Loading (Accommodate current legal loads)

To support a 25-ton design load both abutments and the center pier would need to be replaced on suitable foundations and replaced with current construction materials/techniques. The existing pier and abutments would not, based on engineering judgment, have been designed to carry a 25-ton live load. It is the professional opinion of the engineers involved with this project that the existing foundations were designed to carry substantially less than 25 tons, as discussed previously under the 15-ton rehabilitation option.

Replacement of the existing foundations (substructure) would require that the existing truss, in order to be saved for rehabilitation, would need to be removed intact and stored until it could be placed back on new foundations. Due to the large size (2-spans) and deteriorated condition of the existing truss, it is unlikely that the truss could be removed with intact spans; it would most likely have to be disassembled and then reassembled. Not only would this be extremely time consuming and expensive, there is no way to know if the truss would go back together again after disassembly. The process of unloading the truss members to disassemble the structure would most likely cause the members to warp and / or straighten due to tension being removed. This warping / straightening of the members would likely make it very difficult, if not impossible, to reassemble the structure.

Additionally, as with the foundations, it is the opinion of the engineers involved with this project that the truss would not have been designed to carry more than a 10-ton live load. A 15-ton live load for design would even seem unlikely considering the live loads that would have been anticipated at the time of design (i.e., a standard horse and buggy that

weighs just over a ton). As stated under the 15-ton rehabilitation discussion, it is understood that the existing structure has carried personal vehicles for almost 100-years. However, modern cars/trucks weigh less than 6.5 tons, so a truss designed to carry 10-tons could easily support personal vehicles, but it could not support a live load as large as 25-tons based on professional engineering judgment. Because the existing truss was likely designed for a live load of much less than 25-tons, it is not feasible for the existing truss to be rehabilitate to carry 25-tons. A total replacement of all truss members with larger structural members would be required. In summary, to carry a 25-ton live load, it is not feasible to rehabilitate the existing truss, a full replacement would be required.

C. Replacement on Existing Alignment (Alternative C1)

Alternative C1 would replace the existing truss on the existing alignment, requiring removal of the existing historic truss. See Figure 4 in *Appendix A, Figures.* A new two-lane structure that provides required vertical clearances and accommodates full weight highway loadings would be provided. This alternative would maintain the existing pier location within French Creek, minimizing impacts to endangered mussels. No stream relocation or wetland impacts would occur with this alternative.

Alternative C1 would provide a structure with an anticipated 100-year service life and would accommodate all emergency response vehicles and the local farming/agricultural industry.

Impacts to the endangered mussels would be minimized with this alternative, as the structure would be replaced in an area of French Creek already disturbed by the existing structure.

No displacements, property acquisitions, or forestland impacts would result from this alternative. Alternative C1 would tie back into the existing roadway prior to the existing railroad and would therefore not affect the historic railroad.

Additionally, the proposed structure under Alternative C1 would provide for a truck and car detour during the replacement of the Cochranton Truss. Use of Carlton as the detour was supported by the public at the April 2011 public meeting and in the letters contained in *Appendix C, Correspondence*.

Estimated construction costs for a replacement alternative are $2,500,000. As stated, a new structure would provide an approximately 100-year long service life. Although it would be expected that rehabilitation work would be required in about 50-years.

D. Replacement Downstream (Alternative C2)

Alternative C2 would replace the existing structure with a new structure located approximately 40 to 50 feet downstream (southeast) of the existing truss. *See Figure 5 in Appendix A, Figures.* Alternative C2 would provide a 100-year service life structure with two-travel lanes and full weight highway loadings. It would accommodate emergency response vehicles and the local agricultural/farming industry.

There would be an option with this alternative to allow the existing truss to remain in place; however, the existing structure would be abandoned and no future maintenance activities would be performed by PennDOT on the existing truss. In its current severely deteriorated condition, the existing truss is a hazard to both motorists, which is why the truss was closed to traffic, and to river traffic on French Creek that would pass under the structure. A complete collapse of the truss would be a potential after continual lack of maintenance. It is unlikely that a new owner would be found that would have the financial resources to maintain the truss in its current location. Also, the truss in its current location would serve no purpose (i.e., there is no trail or bikeway that would need to use the structure where it is now located). Additionally, the placement of a second structure in French Creek, which would include a new pier in the stream, would have an effect on the hydraulics and hydrology of French Creek, possibly increasing flooding potential. Finally, the environmental resource agencies are unlikely to permit two crossings in such close proximity, especially with one structure serving no purpose.

Alternative C2 would require the relocation of approximately 195 linear feet (LF) of a small tributary that feeds into French Creek through the southeastern project quadrant. A new pier would be required in French Creek increasing the potential for impact to the endangered mussels that are in the river. The one wetland in the project area (Wetland W-01) would be completely eliminated by this alternative; amounting to 0.02 acres of wetland impact. Alternative C2 would negatively impact the 100-year flood elevation and would also impact 0.8 acres of currently undisturbed forest. This Alternative would impact the historic railroad, requiring relocation of the at-grade railroad crossing. No displacements would result from this alternative; however, strip acquisitions of required right-of-way would be necessary from three properties.

Estimated construction costs for this replacement alternative are $3,400,000. A new structure would provide an approximately 100-year long service life. Although, as with Alternative C1, it would be expected that rehabilitation work would be required in about 50-years.

E. Replacement Upstream (Alternative C3)

Alternative C3 would replace the existing structure with a new structure approximately 50 to 60 feet upstream (northwest) of the existing truss. See Figure 6 in *Appendix A, Figures.* Alternative C3 would also provide a 100-year service life structure with two-travel lanes and full weight highway loadings. It would accommodate emergency response vehicles and the local agricultural/farming industry.

As with Alternative C2, Alternative C3 would provide the option of allowing the existing truss to remain in-place. However, as stated in the discussion for Alternative C2, the truss would remain with no future maintenance by PennDOT and would be a safety hazard for users of French Creek. Additionally, the potential for increased flooding would result from two structures with two piers in French Creek. Finally, the environmental resource agencies are unlikely to permit two crossings in such close proximity, especially with one structure serving no purpose.

Alternative C3 would require the relocation of one residential structure, additional strip right-of-way takes from two properties, and would move the roadway approximately 60 feet closer to other residential structures located at the northern end of the existing truss. This would result in a potential increase of highway noise for these structures at the northern end of the existing bridge. As with Alternative C2, a new pier would be required in French Creek increasing the potential for impact to the endangered mussels that are in the river and impacting the 100-year flood elevation. No stream relocation or wetland impacts would occur with this alternative. This Alternative would impact the historic railroad, requiring relocation of the at-grade railroad crossing.

Estimated construction costs for this replacement alternative are $3,000,000. A new structure would provide an approximately 100-year long service life. Although, as with Alternative C1, it would be expected that rehabilitation work would be required in about 50-years.

V. CONCLUSIONS

Based on the previous discussion and on the impacts outline in *Table 1, Carlton Bridge Alternatives Analysis Impact Matrix*, the following conclusions can be made:

1. The **No-Build Alternative (Alternative A)** does not meet any of the project needs and is not a prudent alternative; therefore, the option of not improving the Carlton crossing is dismissed from further consideration.

2. An **8-Ton Rehabilitation Option** would not meet the needs of the project to improve emergency vehicle access and reduce economic hardship on local businesses/farms and French Creek Township. The 8-Ton Rehabilitation would also not address the need for a shorter truck detour than the 27-mile long detour currently proposed for the Cochranton Truss replacement. The 8-ton rehabilitation alternative is estimated to be one of the least costly construction alternatives; however, because this option would be anticipated to provide a maximum 25-year service life, it would not provide as much value for the money spent as the replacement alternatives that would have a 100-year service life. Therefore, due to not meeting project needs and overall value to the public in terms of fiscal responsibility, rehabilitation to 8-Tons is not a prudent alternative and is dismissed from further consideration.

3. The **15-Ton Rehabilitation Option** would not meet the project need to reduce economic hardship on local businesses/farms and French Creek Township, would not fully meet the need for improved emergency service access as it could not carry fire trucks, and it would not provide a truck detour option for the Cochranton Truss replacement project. Additionally, the 15-Ton option would cost more than twice the cost of each of the other alternatives and would provide a structure with only a 25-year service life. Therefore, rehabilitation to 15-Tons is not a prudent alternative and is dismissed from further consideration.

4. **Rehabilitation to 25-Tons** is not feasible due to the design of the existing truss and its substructure; therefore, rehabilitation to 25-Tons is dismissed from further consideration.

5. **Replacement on Existing (Alternative C1)** would meet all project needs and is a viable alternative and will be carried forward for more consideration. In addition to meeting the needs, Alternative C1 is the least costly alternative, has the least overall impact on the environment/community, and would provide a truck/car detour for replacement of Cochranton Truss.

6. A **Downstream Relocation (Alternative C2)** would meet all project needs, but it has much greater environmental impacts than any of the other alternatives, requiring relocation of almost 200 feet of stream, additional stream and endangered mussel impacts due to requiring a new pier, 100-year flood elevation impacts, wetland and forest impacts, and impacts to the historic railroad. This alternative is also the most costly of the replacement alternatives. For these reasons, Alternative C2 cannot be considered the most environmentally sensitive alternative and therefore, it is being dismissed from consideration.

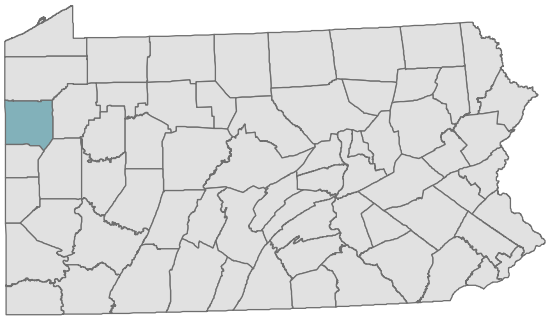
7. An **Upstream Relocation Alternative (Alternative C3)** would meet all project needs; however, it has more community/environmental impacts than a replacement on the existing alignment. Alternative C3 would require the

displacement of a residence, negatively impact the 100-year flood elevation, and it would impact the historic railroad. The only advantage to Alternative C3 over Alterative C1 is that Alternative C3 would potentially permit the historic truss to remain. However, the truss could only remain if a new owner was found with the financial resources to maintain the structure. Because of the structure size, two-spans, and because there would be no advantage for a new owner to allow the bridge to remain in its current location; it is very unlikely that a financially responsible owner could be found for this large truss. Therefore, because Alternative C3 has no clear advantages over Alternative C1 and it would result in more impacts, Alternative C3 is dismissed from further consideration.

While Alternative C1 (Replacement on Existing) would require removal of the existing historic truss, it is the alternative that best meets the project needs and is the most environmentally sensitive alternative. Alternative C1 is also the most fiscally responsible alternative and will provide the longest life structure (i.e., greatest benefit to cost value).

APPENDIX A

FIGURES



USGS Project Location Map Figure 1

Carlton Bridge
SR 1015 over French Creek

French Creek Township
Mercer County, Pennsylvania

Source: ESRI

N

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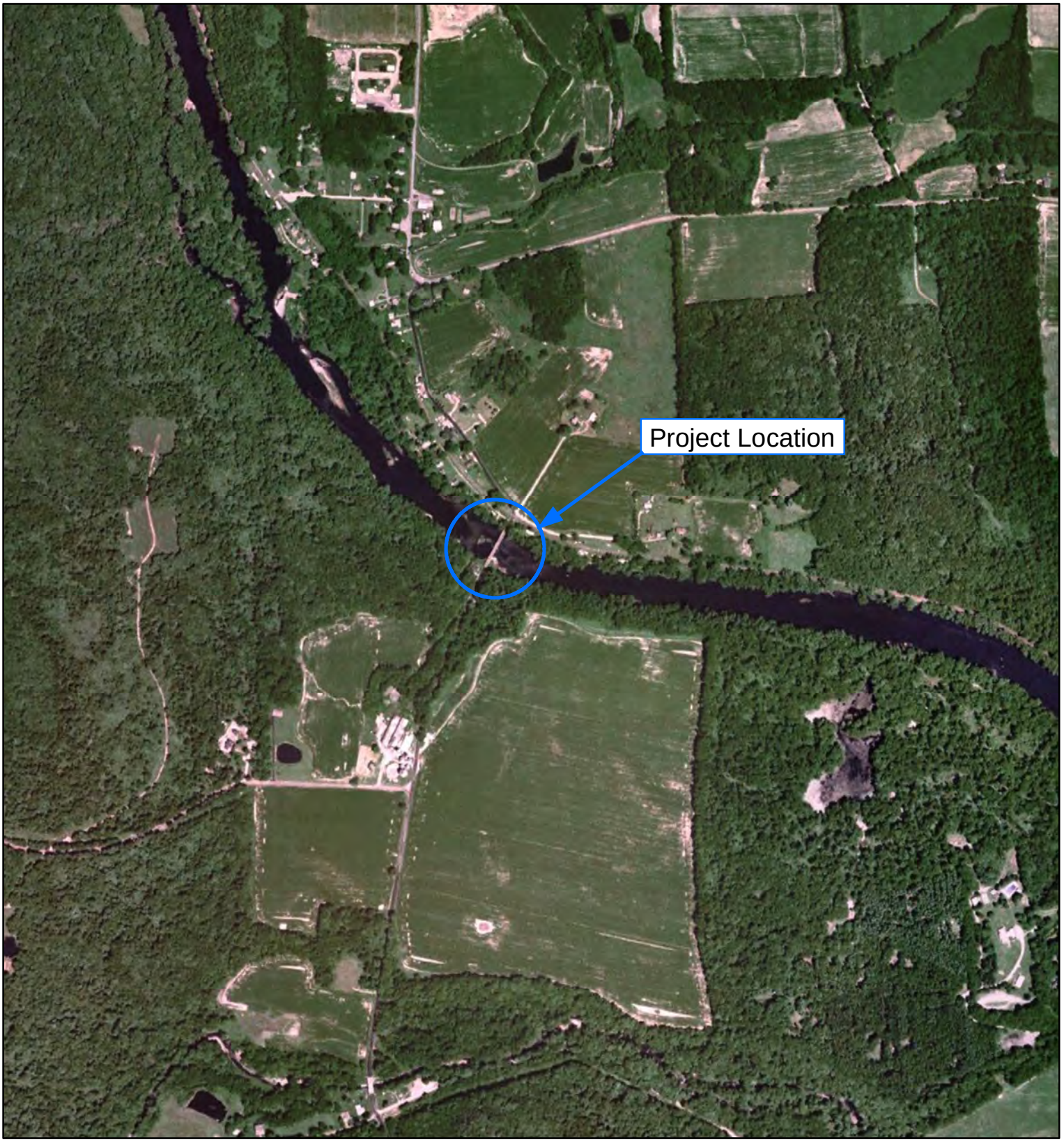
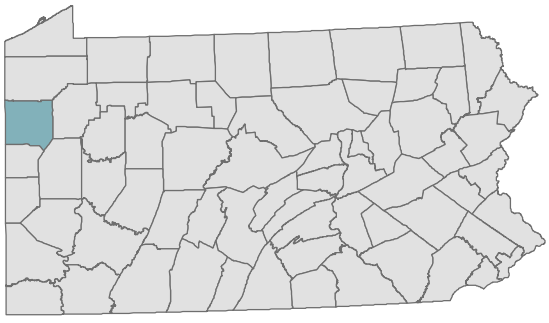




Project Aerial Map Figure 2

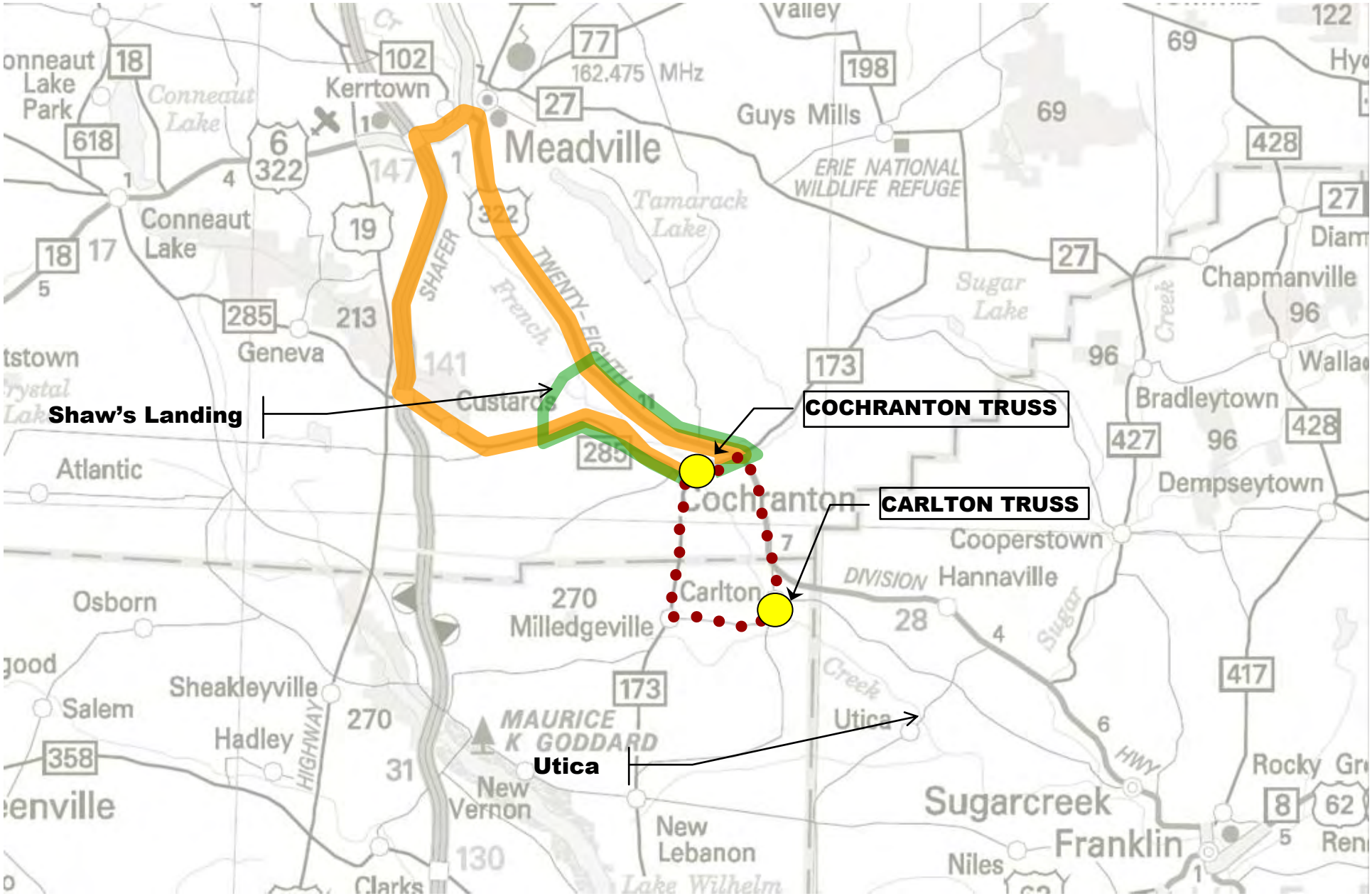
Carlton Bridge
SR 1015 over French Creek

French Creek Township
Mercer County, Pennsylvania

N

Source: ESRI

McCormick Taylor
Engineers & Planners Since 1946



Cochranton Detour Map Figure 3

Carlton Bridge
SR 1015 over French Creek

French Creek Township
Mercer County, Pennsylvania

Source: ESRI

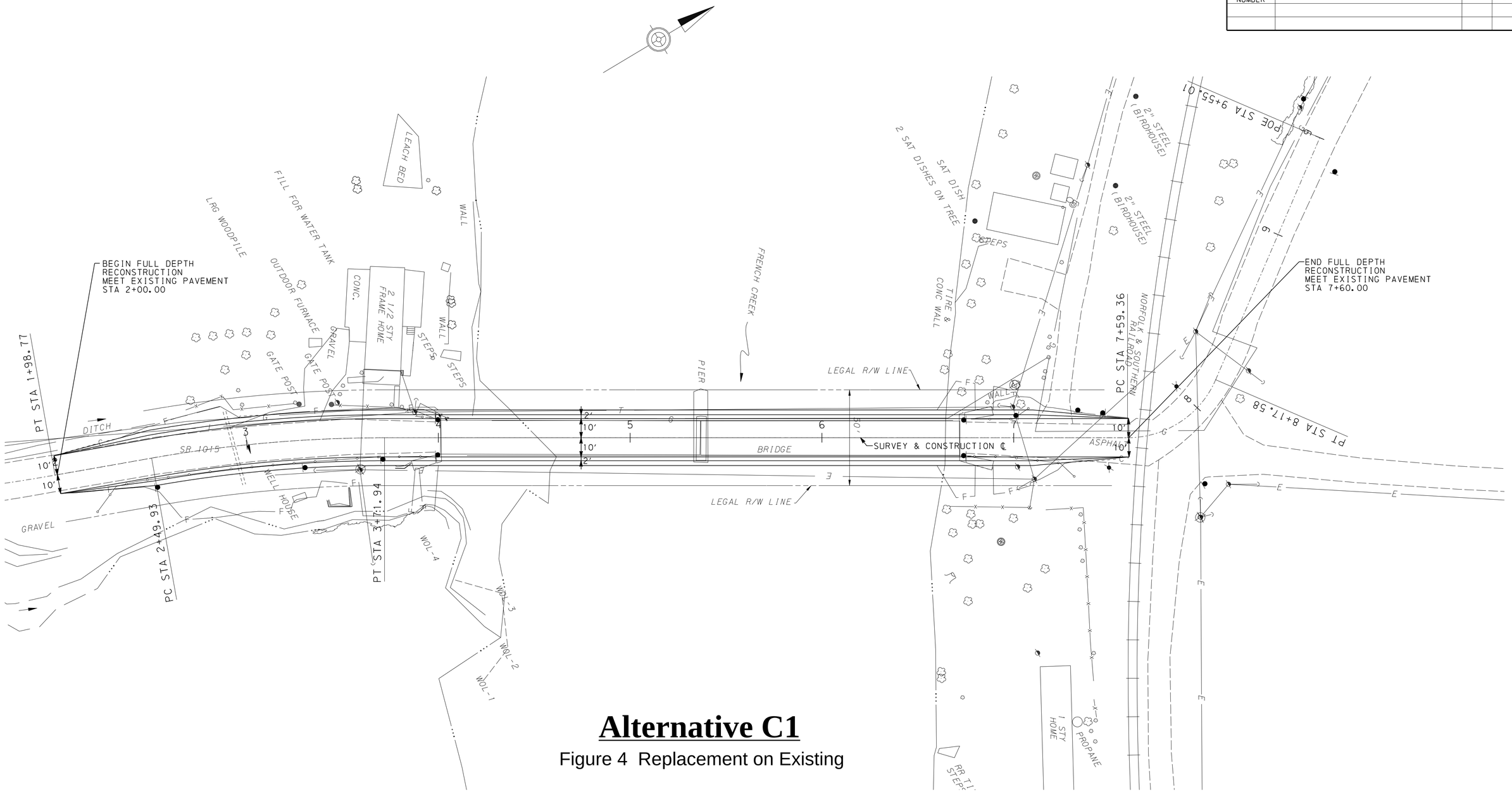
N

McCormick Taylor

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
1-0	MERCER	1015	B00	4 OF 5
FRENCH CREEK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PLOTTED: 1/20/2011



Alternative C1

Figure 4 Replacement on Existing

EXISTING STRUCTURE DATA

STATION: X+XX
TYPE: TRUSS BRIDGE
SPAN: X'-0" (ALONG ℄ OF SR 1015)
CLEARANCE: X'-X"
SKEW: X°0'0" TO TANGENT
ROADWAY WIDTH: X'-0 " (CURB TO CURB)

PROPOSED STRUCTURE DATA

STATION: X+XXTYPE: TRUSS BRIDGE
SPAN: X'-0 " (℄ TO ℄ BEARINGS)
CLEARANCE: X'-X" (AVG.)
SKEW: X°0'0"
ROADWAY WIDTH: 24'-0" (CURB TO CURB)
STRUCTURE NO. S-XXXXX
RECOMMENDED:

HYDRAULIC DATA

DRAINAGE AREA = X SQ. MI.

DESIGN FLOOD:
FREQUENCY = 50 YEARS
MAGNITUDE = X CFS
VELOCITY = X FPS
ELEV = X.X
100 YEAR FLOOD
RISK ASSESSMENT:
MAGNITUDE = X CFS
VELOCITY = X FPS
ELEV = X.X

25 0 25 FEET

FOR PROFILE SEE SHEET 5 OF 5

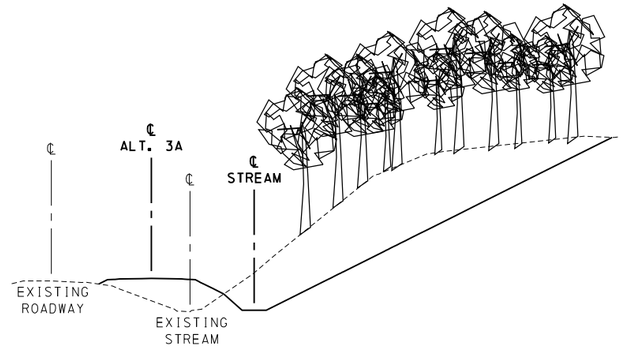
SURVEY BOOK XXXXX

OPERATOR: 3228
FILE NAME: ...\MSTN\251015B00_con_pln01.dgn

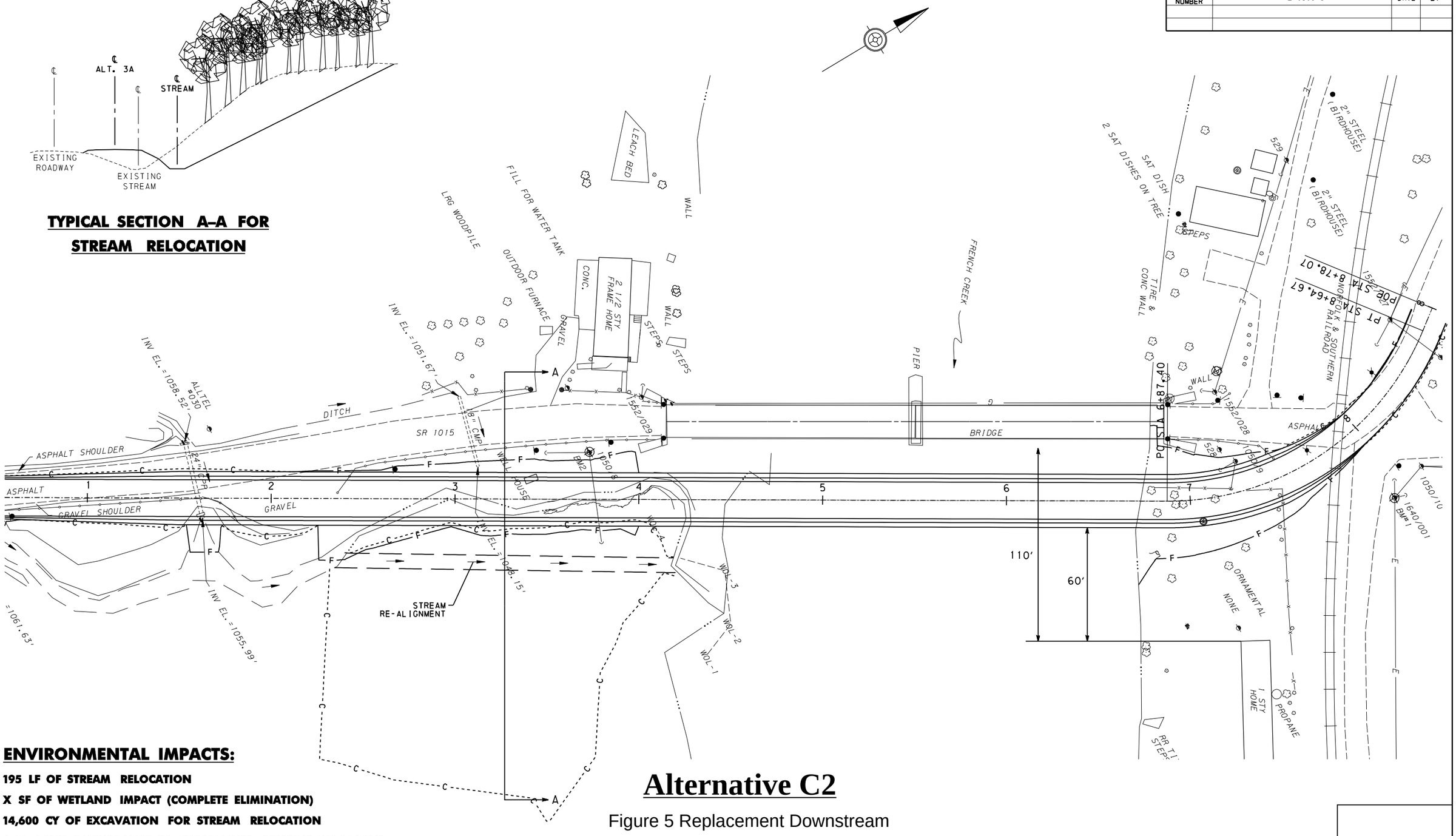
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
1-0	MERCER	1015	B00	X OF X
CARLTON TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

PLOTTED: 1/19/2011



TYPICAL SECTION A–A FOR STREAM RELOCATION



ENVIRONMENTAL IMPACTS:

195 LF OF STREAM RELOCATION

X SF OF WETLAND IMPACT (COMPLETE ELIMINATION)

14,600 CY OF EXCAVATION FOR STREAM RELOCATION

0.80 ACRES DISTURBANCE TO ESTABLISHED PRISTINE WOODLAND

1.15 ACRES TOTAL PROJECT DISTURBANCE

Alternative C2

Figure 5 Replacement Downstream

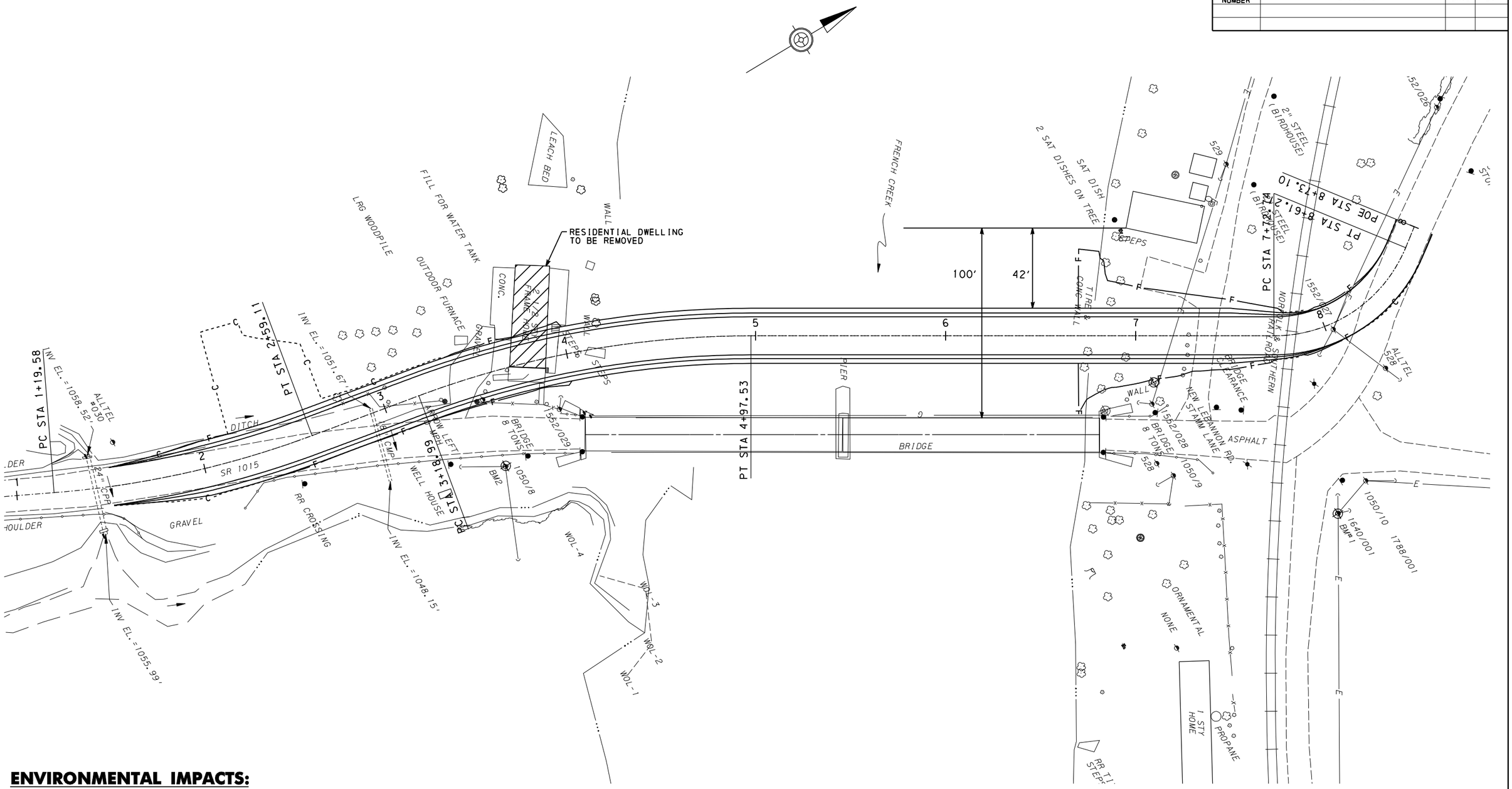
25 0 25 FEET

OPERATOR: 3228
FILE NAME: ...\MSTN\251015B00_con_alt3A.dgn

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
1-0	MERCER	1015	B00	X OF X
CARLTON TOWNSHIP				
REVISION NUMBER	REVISIONS		DATE	BY

PLOTTED: 1/19/2011

OPERATOR: 3228
FILE NAME: ...\MSTN\25101S600_con_alt3B.dgn



ENVIRONMENTAL IMPACTS:

0.57 ACRES TOTAL PROJECT DISTURBANCE

1 RESIDENTIAL DWELLING TO BE ELIMINATED

58% REDUCTION OF DISTANCE FROM ROAD/BRIDGE TO EXISTING RESIDENTIAL DWELLING

Alternative C3

Figure 6 Replacement Upstream

25 0 25 FEET

APPENDIX B

PHOTOS

South side of Carlton Truss facing north.

North side of Carlton Truss facing south.

Carlton Truss

Rusting and deterioration of floor beams and supports.

Deterioration and rusting of superstructure.

Rusting and deterioration of Truss members and floor beams/supports.

Materials deposited under Carlton Truss.

Severe rusting and section loss of supports.

Severe rusting and section loss in deck supports.

Rusting and section loss in floor beams.

APPENDIX C

CORRESPONDENCE

McCormick Taylor
Engineers & Planners Since 1946

TELEPHONE CONVERSATION MEMORANDUM

PROJECT:	Carlton Truss	**JOB NO.:**	5306-04	**DATE:**	2/7/11
				TIME:	10:30 am

FROM:	Dawn Noel McCormick Taylor, Inc.	**TO:**	Ms. Sherian Biggs French Creek Twp . – Supervisors, Chairperson
TELEPHONE:	412-722-9306	**TELEPHONE:**	814-425-2283

ITEM(S) DISCUSSED:

Importance of the Carlton Truss to the community and how the community needs the truss to function to best serve them.

INFORMATION OBTAINED/TRANSMITTED:

Ms. Biggs felt that the historic nature of the truss is important to the community and if the truss can be preserved, she felt that would be a benefit. She stated that she has lived in the township her entire life and she never remembers a time when the truss wasn't weight restricted. The farm in the area (Wiser Farm – a corn growing/drying operation) is not split by French Creek, but their business does utilize larger trucks and a higher weight limit on the structure might benefit them. She said before the closure that Wiser took their trucks across the bridge anyway, they just moved the signs then put them back once they crossed. [owner is Steve Wiser, can't find contact information, per the Fire Department it used to be Wilcox Farms].

Ms. Biggs said emergency service response times are a concern; the trip from Cochranton to the area south of the bridge is about 20 minutes longer than if the fire/ambulance responders could use Carlton. She said this is a big concern and that we need to talk to the Cochranton Volunteer Fire Company who provides ambulance and fire services to French Creek Township.

Police services are provided by the State Police in Mercer, she does not think the Carlton bridge is an

issue with their service.

Ms. Biggs said the for the Township, whether the truss is rehabilitated or if a new structure is built is not a big issue – the concern is with EMS and if a higher weight limit structure at Carlton could improve their response times or reduce their financial burden.

Ms. Biggs confirmed for me that the transportation services for Crawford Central School District in French Creek Township is provided by Girardat, LP, who has been the school bus service for a very long time.

I told Ms. Biggs that we would be holding a public meeting in April or May and that they would be notified of the time and date. She was very grateful that PennDOT would be coming out to meet with the public, she foresees many concerns from the public about both Carlton, and especially, Cochranton Trusses. I left my contact information with her for any additional input/concerns.

REQUIRED ACTION: Contact the Cochranton Fire Department and Girardat (DCN)

DISTRIBUTION:
Jeff Hans
Ted Otteni
Jerry Clouse
Jen Threats
Tom Minnich
Chris Boyer-Krantz

McCORMICK TAYLOR , INC.
BY: Dawn Noel, P.E.
TITLE: Env. Group Leader

Seven Parkway Center • Suite 700 • Pittsburgh, PA 15220 • Phone: 412-922-6880 • Fax: 412-922-6851
www.mccormicktaylor.com

McCormick Taylor
Engineers & Planners Since 1946

TELEPHONE CONVERSATION MEMORANDUM

PROJECT: Carlton Truss **JOB NO.:** 5306-04 **DATE:** 2/7/11

TIME: 11:00 am

FROM: Dawn Noel
McCormick Taylor, Inc.

TO: Lt. Jason Bresee
Cochranton Volunteer Fire Depart.

TELEPHONE: 412-722-9306 **TELEPHONE:** 814-425-2111

ITEM(S) DISCUSSED:

Importance of the Carlton Truss to the EMS provider and how the community needs the truss to function to best serve them.

INFORMATION OBTAINED/TRANSMITTED:

Departments address is 113 E. Adams St., Cochranton, PA 16314

Mr. Bresee said that not being able to use the Carlton Truss significantly affects their response time. There is approximately 20 minutes added to their response time for the area to the south of Carlton Bridge. He knows that the 8 ton weight limit has been on the bridge for over 40 years, during which Time they have been dealing with the increased response times; however, they have never had the Opportunity in the past to do anything about it. He stated that if the bridge can be upgraded to carry Current legal loads (we discussed 25 tons) that they would be able to use it and could substantially Improve their service to the community, particularly that part of French Creek Township south of Carlton Bridge.

He stated that right now, if they need assistance from other departments, that they must determine who Can get there fastest and provide routing information to make sure they get help as soon as possible. Being able to use Carlton bridge would allow providers from areas to the north to help them faster. Jason was not sure of the weight loading of their trucks or ambulances, he was going to find out and

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Call me back.

He said that right now to get around Carlton Truss they need to use a lot of unpaved and narrow side Roads, which is bad in the summer, but especially dangerous and slow in the winter. If they could use The Carlton Truss they would be able to use a blacktopped and wider road directly from Cochranton to Carlton and south. This would be a huge benefit to them.

Jason said while they have been dealing with the inability to use Carlton Truss for a very long time, now There is an opportunity to improve conditions related to emergency response times and service and we Need to seize the opportunity.

Jason also mentioned that there are stream gages on both the Cochranton and Carlton Trusses. The One on Carlton has been damaged as someone stole the brass or copper workings out of the box, but They do use these stream gages frequently for their emergency services department to get ideas on Possible flood stages. They requested that the stream gage on Cochranton be put back on the bridge And that the one on Carlton be put back and in an operational condition. He said they use the Cochranton stream gage very frequently; Carlton not as frequently, especially now that it's been Damaged, but they are very useful for them in providing their services.

I mentioned to him that we would be holding a public meeting in April or May and he encouraged us to Use their fire station. I told him we probably would. He said to call the number that I used today and That will get us to scheduling for the hall.

I left my contact information with him for any additional input/concerns.

REQUIRED ACTION: Jason is to call back with weights for their trucks and ambulance.

DISTRIBUTION:
Jeff Hans
Ted Otteni
Jerry Clouse
Jen Threats
Tom Minnich
Chris Boyer-Krantz

McCORMICK TAYLOR , INC.
BY: Dawn Noel, P.E.
TITLE: Env. Group Leader

Seven Parkway Center • Suite 700 • Pittsburgh, PA 15220 • Phone: 412-922-6880 • Fax: 412-922-6851
www.mccormicktaylor.com

McCormick Taylor
Engineers & Planners Since 1946

TELEPHONE CONVERSATION MEMORANDUM

PROJECT: Carlton Truss **JOB NO.:** 5306-04 **DATE:** 2/7/11

TIME: 11:30 am

FROM: Dawn Noel
McCormick Taylor, Inc.

TO: Denille Girardat
Girardat, LP
7619 Vincent Road, Cochranton, PA 16314

TELEPHONE: 412-722-9306 **TELEPHONE:** 814-425-3603

ITEM(S) DISCUSSED:

Importance of the Carlton Truss to the school transportation provider and how the community needs the truss to function to best serve them.

INFORMATION OBTAINED/TRANSMITTED:

Denille said that right now all their buses are routed without any use of the Carlton Truss, as it's been Weight limited for so long that they haven't been able to use it. They have two routes north of the Truss and two south of the truss. They had one van that used the Carlton Truss prior to it's closure That they've had to now re-route.

She said their buses are about 12 ton she believes, unloaded.

She said that they don't have much concern with Carlton, because even if it was reconstructed that Their buses could use it; they would have to discuss any rerouting of buses with the Crawford Central School District and she feels it would be unlikely that they'd change any routes anyway.

If the truss could carry a van that would work for their purposes.

Denille stated that their bigger concern would be a closure of Cochranton Truss. I mentioned to her That we are working on that bridge also. She said if Cochranton was closed they would be forced To detour their buses to the Shaws Landing Crossing. She said they would very much like to be Involved with any discussions on how traffic will be controlled/routed for construction of the

Cochranton bridge. I told her that we would make sure they were involved.

About 10 minutes after I spoke with Denille her father and owner of Girardat, Harold Girardat, called Me back. He said he wanted to add some information about both structures. He said the detour they Would need to take for a Cochranton Closure (285 to Hart's Machinery then up to SR 322) is a very Steep grade (he estimates about 10%), with a railroad at the bottom. He said they had to do this about 10 to 15 years ago when Cochranton was redecked and they were very lucky that there were no Accidents. The steep grade limits sight distance and the buses pull out very, very slowly onto SR 322. Traffic travels fast on 322 and due to the slow speed of the buses, he has great concern over the Potential for an accident if they need to use this detour.

He also mentioned a concern with Carlton and EMS response times. Harold stated that EMS times to The area south of Carlton are greatly increased due to needing to use 173 south to Carlton Road. If They could use the Carlton crossing their response times would be greatly improved. He expressed Special concern over the Custaloga Boy Scout Camp (see below) that is located along Deer Creek Road at the Confluence of Deer Creek and French Creek, just south of Carlton Bridge. He said this camp is used frequently and can have a large attendance. EMS times to this camp would be greatly reduced if they could use the Carlton crossing. He said he understands that historic bridges are important, but that For this crossing at Carlton they need an unrestricted crossing that can carry EMS vehicles.

Custaloga Town Scout Reservations, 7 Boy Scout Lane, Carlton, PA 16311-1913; 814-425-3672

REQUIRED ACTION: Include on mailing list and invite to public meeting.

DISTRIBUTION:
Jeff Hans
Ted Otteni
Jerry Clouse
Jen Threats
Tom Minnich
Chris Boyer-Krantz

McCORMICK TAYLOR , INC.
BY: Dawn Noel, P.E.
TITLE: Env. Group Leader

Seven Parkway Center • Suite 700 • Pittsburgh, PA 15220 • Phone: 412-922-6880 • Fax: 412-922-6851
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Elder
SALES & SERVICE
www.elderequipment.com
E-Mail: general@elderag-lawnsales.com
4488 GREENVILLE-SANDY LAKE ROAD • STONEBORO, PENNSYLVANIA 16153
724-376-3740 • FAX 724-376-3070

Thomas L Minnich
PennDOT District 1-0
P O Box 398
Oil City, PA 16301

RE: Carlton/Cochranton Truss Projects

Dear Sir,

I am writing to express to you the negative impact closing of the Cochranton Truss would have on our business and our customers. We are a full scale John Deere Agricultural & Commercial equipment dealer. We deliver equipment purchases and provide on-site repair service to the surrounding rural areas. With the Carlton Truss already closed to traffic, closing the Cochranton truss would create a major stumbling block to our trade. There will most certainly be occasions when it would force our delivery vehicles thru Meadville with wide equipment loads. It would also create a major issue for us by greatly increasing travel times for our service technicians. This would result in a higher cost to the end user- the farmers, homeowners and businesses. It would be very inconvenient for our customers who want to bring their equipment in to our shop for service or repairs.

Our equipment can travel back and forth over this bridge many times during the course of a week and I am sure you are aware that when transporting agricultural equipment especially, it is challenging enough to travel thru less congested areas. We prefer to avoid having to travel thru higher traffic areas such as Meadville. I believe that it would be in the best interest of everyone to have the Carlton Truss reopened before closing the Cochranton Truss.

Sincerely,

Harry M. Elder, Jr
Vice-President

FRENCH CREEK TOWNSHIP
% 540 Creek Road
Carlton, PA 16311
(814) 425-2283

May 9, 2011

Senator Robert D. Robbins
259 Main Street
Greenville, PA 16125

RE: S.R. 1015-B00
Bridge Over French Creek

Dear Senator:

As you are aware PennDOT has begun researching various avenues regarding replacement versus restoration of the current structure over French Creek which has been closed due to deterioration.

The board of supervisors position is that this bridge is a vital link for our residents and should be replaced and not restored. Restoration will not increase weight limits which will continue to restrict emergency vehicles, school buses and require vehicles in excess of the 8 ton weight limit take the 7 mile detour to travel to Cochranton. The 8 ton weight limit is also a hardship for the township as the 7 mile detour is our only avenue to maintain our township roads on that side of the bridge.

To restore the current structure will not address any of these critical issues and will leave the residents on this side of the bridge at continued risk due to the limitations for all first responders.

The residents of French Creek Township would appreciate any positive influence you can provide in support of completely replacing this bridge.

Thank You for considering our position on this matter.

Gerald L. Sheatz
Supervisor

Mark W. Kline
Supervisor

Sherian E. Biggs
Supervisor

Wiser Farms, Steve Wiser
1853 Carlton Road
Carlton, PA
May 6, 2011

Jennifer Threats
McCormick Taylor
7 Parkway Center, Suite 700
Pittsburgh, PA 15220

Dear Ms. Threats:

I currently farm about 3,000 acres in Erie, Crawford, Mercer and Venango Counties. My current market is to the Deerfield-Carlton USDA Warehouse. I own the warehouse, but lease it to them, operate it for them, and market my grain through them.

The warehouse is located about half a mile from the closed French Creek bridge at Carlton. Of the approximately 1,200 acres I farm locally, about half is north of the bridge and the rest, south of the bridge. The unavailability of a bridge that will accommodate legal truckloads and permit the crossing of wide farm equipment costs me well over ten thousand dollars a year in fuel and lost time during the critical planting and harvest seasons. It requires at least an extra 950 gallons of diesel fuel per year to just to truck grain and move farm equipment through Cochranton. It costs far more than that in delayed planting and harvesting costs.

When the Cochranton bridge is replaced, if there is no new bridge at Carlton, my costs will at least triple. Additionally, I'm very concerned about the loss of fire and ambulance service, during the Cochranton closure, again if no bridge is available during this time. Drying grain involves huge amounts of LP gas with high voltage electricity in the same area. Fires can occur and people can be injured.

Thanks for considering the new bridge at Carlton.

Sincerely,

Harold Stephen Wiser

Harold Stephen Wiser

Emma E. & Michel P. Wilcox
1172 Old Route 322
Cochranton, PA 16314
May 4, 2011

Jennifer Threats, McCormick Taylor
7 Parkway Center, Suite 700
Pittsburgh, PA 15220

Dear Ms. Threats:

The Carlton bridge closing causes us serious safety concerns. Our daughter resides at 1829 Carlton Road on the south side of the bridge. We live on Old Route 322 in Venango County, about four miles on the north side. Christina is diabetic. She has had several low blood sugar episodes during which she nearly died. We phone her at 2:00 am every morning, 365 days a year. If she doesn't answer, we immediately drive to her house to check on her. Sometimes it is a false alarm, but we have no choice. It will add a minimum of twenty minutes, in the summer and longer in the winter to drive through Cochranton to get to her house. This extra time could jeopardize her life. We had an emergency back up person, but she also lives north of the bridge.

When the French Creek bridge on Route 173 in Cochranton is closed for replacement, it will greatly increase the rescue time for Christina, and ambulance time will also be greatly increased. Ambulance travel to her house would then require traveling toward Meadville to cross French Creek, (according to the detour presented April 28th). The travel time for us to check on her would then become at least forty five minutes in the winter, no matter how we go.

Although I am now retired, I own the farm immediately south of the Carlton bridge. I lease this farm to another farmer, and currently do some part time consulting work for him. At times of the year, I must travel daily to the farm. I realize this is a small consideration, but it is a factor to me. On a fixed income, a part time job helps, and $4 gas for the extra 10 to 20 miles doesn't help.

I am aware of others who have family concerns caused by the bridge closing. Alice Smith, a lady in her late 70's, lives on the north side, while her son lives on the south side. Shafer's have a disabled child. They live immediately adjacent to my daughter. In future years, their daughter may require special transportation to and from schools.

Finally, the bridge over Deer Creek was recently replaced. It would be economically foolish to attempt to renovate a 112 year old bridge, or abandon it, when the Deer Creek bridge is current. The Deer Creek bridge would then have little use. Thanks for any assistance you can provide.

Sincerely,

Beth & Mike Wilcox

COCHRANTON VOLUNTEER FIRE DEPARTMENT AND AMBULANCE SERVICE
113 EAST ADAMS STREET
COCHRANTON, PA 16314

Dawn C. Noel, PE
McCormick Taylor, Inc.
7 Parkway Center, Suite 700
Pittsburg, PA 15220

Dear Dawn,

This letter is in response to our meeting concerning the bridges in the Cochranton area. The bridge that causes the emergency service of Cochranton the most concern is the bridge over French Creek in the Carlton Area.

For some time now, the closing of this bridge and even before its closing; we have been unable to use the bridge with any of our emergency equipment. The ambulances weigh in the area of 17,500 pounds. Our two pumpers weigh in at 68,000 pounds plus firefighters.

The extra time to use an alternate route causes a delay of 12 to 15 minutes or more based on weather conditions. This is critical time that would change the outcome of an ill person, mostly those with cardiac issues or those with a life threatening injury from a motor vehicle accident. This time delay could change the outcome of a fire attack. The rescue of persons or loss of life and property are at severe risk.

Our Volunteer Fire Department and Ambulance Service covers a large 293 square mile rural area that includes (4) townships and the borough of Cochranton, Pa. Our service area also includes 5,205.96 acres of the Erie National Wildlife Refuge. We have averaged around 190 fire calls in the last 5 years and 400 EMS calls which can only be done with all the best roads and bridges to get to the most remote areas.

Our request is that you replace the Carlton Bridge with a bridge that has no weight restrictions enabling our emergency services to best serve those affected in the Carlton area.

Sincerely,

Earl G. Mook

Assistant Ambulance Chief
And Firefighter
Cochranton Volunteer Fire Department
And Ambulance Service

COMMENT FORM SUMMARY

A total of 71 people registered at the Carlton and Cochranton Bridge Project Public Meeting and Public Officials Briefing held on April 28, 2011. As of May 26, 2011, a total of 39 comment sheets were returned. The following is the summary of responses. (Please note that participants were permitted to provide more than one response to each question.

1. In what area do you live?

A. Cochranton (12)
B. French Creek Twp. (14)
C. Fairfield Township (6)
D. Other (8)
   - Carlton (2)
   - Wayne Twp. (2)
   - Sandy Lake (2)
   - New Lebanon (1)
   - Canal Twp. – Venango Co. (1)

Carlton Truss

2. How would you characterize your interest in the Carlton Truss Project?

A. Residential (19)
B. Business (14)
C. Emergency Service (23)
D. Government (2)
E. Farming (6)
F. Other (2)
   - School District (1)
   - See attached memo (1)

3. For what purpose(s) have you traveled the Carlton Bridge?

A. Work (16)
B. Shopping (9)
C. Visit friends (18)
D. School (6)
E. Other (17)
   - Church (1)
   - Emergency Services (5)
   - Boy Scout Camp (1)
   - N/A (2)
   - Post Office (2)
   - Hunting (1)
   - Ag. Deliveries (1)

- Site seeing (1)
- Business in Cochranton and North (1)
- See attached memo (1)
- Business across the bridge/ stand on bridge to view nature animals snapping turtles, leather back turtles, beaver, muskrats, bald eagles, fish, eels, snakes.

4. How often would you say you used the Carlton Bridge?

A. Daily (13)
B. Weekly (13)
C. Monthly (10)
D. Not at all (1)
E. Other (7)
   - Some days (1)
   - 5-6 Crossings (1)
   - As needed (1)
   - Two trips daily (1)
   - We are seasonal some days our company would cross several times a day. (1)
   - Boro employees use it daily. (1)
   - 6 to 12 times a day (1)
   - During the summer more trips each day.

5. Considering the existing condition of the Carlton Truss, how important to your community do you feel efforts are to *replace* the bridge with a new structure?

A. Very Important (32)
B. Somewhat Important (3)
C. Neutral (2)
D. Somewhat Unimportant (0)
E. Completely Unimportant (2)

6. Considering the historic nature of the Carlton Truss, how important to your community do you feel efforts are to *rehabilitate* and *preserve* the structure?

	If it is important to your community which of the below preservation methods would you prefer?	Please explain:
Very Important (2)	Keep and rehabilitate the bridge in its current location (would require a weight limit)	Keep the bridge and it's weight limit. Carlton is a small community. All agriculture equipment can use 173 for safety reasons, instead of going past grade school in Cochranton.
	Build a new bridge and move the truss to a new location	With the weight limit and height limit, we can't even get an ambulance over it. Boy scouts can't get box trailers and campers over it.
	No answer	

	If it is important to your community which of the below preservation methods would you prefer?	Please explain:
Somewhat Important (3)	Keep and rehabilitate the bridge in its current location (would require a weight limit)	• No comment • Only if possible to increase weight limit to allow for school buses and emergency equipment. • The old charm of it was so unique to our area.
	Build a new bridge and move the truss to a new location	
	No answer	
Neutral (11)	Keep and rehabilitate the bridge in its current location (would require a weight limit)	
	Build a new bridge and move the truss to a new location	• Emergency Services; School Bus • We need a bridge with a higher weight limit 25 ton and coordinate with the Cochranton projects. Do not close both bridges at the same time. • No comment (4) • Why leave it there? • Our concern is the weight limit for emergency equipment.
	No answer	• I prefer the best method to have it be done soon and be safe. • No comment • Opening this bridge is our main concern before closing Cochranton Bridge.
Somewhat Unimportant (2)	Keep and rehabilitate the bridge in its current location (would require a weight limit)	
	Build a new bridge and move the truss to a new location	
	No answer	• New bridge no rehab, useful and in tonnage to accommodate emergency equipment and Twp. equipment. • No comment
Completely Unimportant (18)	Keep and rehabilitate the bridge in its current location (would require a weight limit)	

	If it is important to your community which of the below preservation methods would you prefer?	Please explain:
	Build a new bridge and move the truss to a new location	• I don't think it would be feasible to move the old bridge. Just build a new bridge and as soon as possible. • The new bridge is so very important because of the weight limit needs for fire trucks and ambulances. The importance is people's lives. The old bridge will not meet weight limits. • The bridge needs removed and replaced to allow open weight restrictions for emergency and service vehicles. • No comment
	No answer	• Which ever method is more cost efficient as long as the bridge remains open after the decision is made and new construction or rehab construction is complete. • No comment (12) • To me, the fractional portion of the effected area in the length of French Creek doesn't out-weight the needs and importance of this project. • Safety and security must come first. Build a new bridge ASAP. Demolish and scrap the old bridge. Save <u>money</u>.

7. Has the weight restriction, which was posted 40 years ago on the Carlton Truss, affected the community?

	Please explain:
Yes (31)	• School buses and fire equipment could not use • It hampers emergency services and local business traffic with the size and weight restrictions. • Emergency vehicles and farming community • Farming, some business travel way • Emergency services, school routes, business definitely affected by weight restrictions. • Limited access with my heavier and taller vehicles • Farming • Replace bridge on current site.

	Please explain:
	• Agricultural equipment and any building equipment have to detour. • Not able to cross with emergency trucks for people's lives. • Township to maintain the roads and emergency equipment. • Can't legally cross with our fire trucks. • Eliminated the ability to use this bridge as a viable route for bus service. • People have not been able to receive a quick response from the emergency department. • Emergency services, cost of added fuel for school district "monies better spent on education instead of fuel cost". Inconvenient for the local farming community (40 years – shame on us all). • No delivery trucks allowed over. • The height restriction is also a problem. We have agriculture spray trucks with booms that pass weight restriction, however, can't clear signs. The price of gas and alternate routes cause larger fuel charges to clients in Cochranton and Carlton due to wight restrictions. This area is high agriculture and opening this bridge would greatly help the already stressed farming community. • Limitation to truck traffic. • I own a feed mill and our delivery trucks cannot cross with weight restrictions. • Fire-school transportation-business • Unable to access bridge with emergency vehicles/school buses. • Emergency vehicles must take a lengthy detour – lives are at risk. School buses must travel much farter – danger to children. • Has prohibited emergency vehicles and school buses to use the facility. • This is a farming community with very large equipment and it is too hard to go all the way around through Cochranton's traffic and narrow streets. • The travel time for fire and ambulance and school bus vehicles has been greatly increased. • Over that time period the weight of emergency equipment has increased. This has caused longer response times, via the longer route.
No (5)	• It wasn't enforced so large trucks went over it anyway. It would probably make more efficient bus routes if they could cross it as they used to in the past. Fire trucks should be able to cross it. State police need to be able to travel across it. • No comment (3) • If there's a fire on the other side of the bridge the trucks leave Cochranton and use 173. They can be quicker than to go through 2 residential communities on a secondary road. School buses already have a good safe route. Same with agriculture vehicles.
No answer (3)	• The weight restriction limited the movement of farm equipment, school buses, and commerce vehicles but was not enforced any way. Replace bridge on current site. • I don't know but it sounds like weight limit is important.

8. **Are there sensitive features (i.e.; socioeconomic resources, natural resources, historic resources, public facilities, etc.) in the project study area that you would like the Project Team to consider while developing the Project?**

    - Economic and public travel

- Emergency Services
- Business Traffic
- Replacement option is only option for school / emergency/ economic reasons
- Truly believe new structures are needed to help improve economic well being of this area.
- Natural resources
- Safety of the public as for working, school, fire, and ambulance.
- I understand the historic of the bridge but we have people's lives to think about and their properties.
- Natural resources, drilling Marcellus gas
- Natural resources
- Socioeconomic
- Public facilities
- Get her done
- Fire protection and school buses
- Not only mussels in French Creek there are many species of duck. Building beside the bridge once was the Post Office.
- Public safety must come first. The bridge should be replaced as soon as possible.
- Safety should be first. Bridge needs replaced not renovated.
- The wild life for one. It would be nice to have a safe walkway on our bridge like Cochranton's.
- Access to the boy scout camp and emergency service to the camp should be considered
- As the camp director of the Custaloga Town Scout Reservation in Carlton, our primary concern is the reaction time of emergency services to our location.

Cochranton Truss

9. How would you characterize your interest the Cochranton Truss Project?

A. Residential (24)
B. Business (20)
C. Emergency Service (19)
D. Government (3)
E. Farming (7)
F. Other (5)
    - School District (1)
    - Mayor of Cochranton (1)
    - All of the above (1)
    - Getting children to daycare (1)
    - See attached memo (1)

10. How often would you say you use the Cochranton Bridge?

A. Daily (28)
B. Weekly (10)

C. Monthly (0)
D. Not at all (0)
E. Other (6)
    - It's on the corner of my property (1)
    - Since Carlton Bridge is closed (1)
    - We are seasonal business – we use this bridge at times several times in a day. (1)
    - See attached memo (1)
    - Two or three times a week (1)
    - Every other day (1)
    - Both of the Borough's pumphouses are on the other side of bridge and they need to be checked daily!

11. For what purpose(s) have you traveled the Cochranton Bridge?

A. Work (27)
B. Shopping (25)
C. Visit friends (26)
D. School (11)
E. Other (7)
    - Emergency Response Services (4)
    - Doctors, bank, movies, dining (1)
    - Business (1)
    - See attached memo (1)

12. How do you travel the Cochranton Bridge?

A. Drive (37)
B. Walk (6)
C. Bike (3)
D. Other (0)

13. Are there sensitive features (i.e.; socioeconomic resources, natural resources, historic resources, public facilities, etc.) in the project study area that you would like the Project Team to consider while developing the Project?

- Vital to existence of the town
- Yes, safety of the public and fire, ambulance, schools, and farms.
- Preservation of the French Creek environment
- Truly believe new structures totally out weigh any rehab of existing structures. Need to get our area modern updated bridges. Traffic concerns on detours need to be carefully considered.
- Economic, public facilities.
- Emergency services, business, local traffic to anywhere else.
- Don't push your luck that this bridge will stand without closure during the Carlton Project and if environments is an issue what about the constant droppings of led chips falling?
- Make it wider.

- Public safety is my prime concern. Next, area businesses. The bridge is vital to our safety and economy. A lengthy closure will hurt business irreparably.
- Public safety needs to be first concern. The bridge is a vital link for the emergency vehicles to get to the residents of the townships.
- Access to our boy scout camp year round.

14. Do you have any comments on the detour?

- It is very extended causing a serious emergency response issue.
- Require 27 mile detour for large busses to travel. Important that Carlton Bridge be a total replacement with at least 25.
  Ton limit. This will allow to viable detour routes when Cochranton Bridge is redone.
- If the Carlton Bridge isn't replaced before this one, emergency services south and east of Cochranton will be severely affected.
- Yes, if the detour is going to be approx. 27 miles, what or who is going to reimburse the public for the costs assoc. with the detour.
- Gas and fuel process, the time it takes to detour for emergency vehicles.
- Yes, I hope Carlton and Cochranton Bridge are not done at the same time.
- The short car detour in the winter or during flooding would be safe.
- The car detour tends to flood.
- Concerned about Carlton Bridge not being completed before the Cochranton Bridge is closed.
- Detour doubles my miles traveled to work from 5 to 10 miles.
- 285 has a small bridge just off 173 that may not hold constant heavy traffic.
- After Carlton Bridge is replaced, bridge crossing next to Carlton post office may not hold constant heavy traffic.
- If you do not have a "full blown" Carlton Bridge, the 27 miles truck and emergency detour is too long for safety and emergency response.
- Shaw's landing detour – Trucks will want to use this detour. Definitely need to replace Carlton Bridge – not rehab.
- Route 285 needs re-done before work on bridges are done.
- Inconvenient and costly
- 285 is not a suitable detour for heavy trucks. The road bed will not sustain this traffic.
- Replace the Carlton Bridge with a new one first.
- The intersection at 322 is impossible on icy roads and visibility is non-existent.
- In perfect weather conditions it works, plan accordingly for winter and high waters – God's speed.
- Having them clearly marked – not working on both bridges at same time. Tying up both routes we may have to stop delivery service to this area. Dirt roads and township ordinances may hamper our deliveries.
- It is what it is.
- Please search and study all resources. Safety is my concern.
- Carlton completed to be used for emergency vehicles during Cochranton construction.
- Detour is lengthy and cause for some concern on emergency vehicles. However, if Carlton Bridge was replaced, it could be used instead!
- Yes, read long paper (attached)

- The proposed detour will add health and safety concerns to French Creek Township, Mercer County residents.
- Response time for emergency equipment.

The following individuals provided contact information to be added to the projects' mailing list.

Name	Address	City	State	Zip
Stephen Dale	5074 Sandy Lake Road	Carlton	PA	16311
Dan Jackson	Business Sunset Memorials, 23052 US HWY 322	Cochranton	PA	16314
Adam Falkenburg	26118 Smith – Heath Road	Cochranton	PA	16314
Myrna Blain	13 Blain Lane PO Box 11	Carlton	PA	16311
Charles B. Blain	13 Blain Lane PO Box 11	Carlton	PA	16311
Julio R. Murphy	5059 Sandy Lake	Carlton	PA	16311
Brian Atts	9 E. Fork Road	Utica	PA	16362
Barb Hoffman	787 New Lebanon Rd	Carlton	PA	16311
Linda Roche	149 E Carlton Rd	Carlton	PA	16311
Gary D. Moorhead	329 Donation Rd	Carlton	PA	16311
Jim Walter	PO Box #2 112 Walnut Street	Cochranton	PA	16314
Pete Jones	104 Jones Rd	Cochranton	PA	16314
Dan Bresee	185 South Atlantic Ave	Cochranton	PA	16314
Kara Allen	24090 County Line Rd	Cochranton	PA	16314
Heath Beachy	148 S. Franklin St	Cochranton	PA	16314
Christopher M. Miller	3955 State HWY 173	Cochranton	PA	16314
Earl Mook	23786 Steen Hill Rd	Cochranton	PA	16314
Richard McMaster	20703 W. Hart Rd	Cochranton	PA	16314
David Dickson	11280 Mercer Pike	Meadville	PA	16335
John Friedrich	2986 Nickelplate Rd	Cochranton	PA	16314
David Sanzrei	22133 State Hwy 285	Cochranton	PA	16314
Maggie Yarnell	PO Box 125, 313 Smith Rd.	Cochranton	PA	16314
Lakeview Fertilizer Inc.	4870 Greenville Road	Sandy Lake	PA	16145
Burt Waite	PO Box 602	Cochranton	PA	16314
Brian Raymond	PO Box 117	Sandy Lake	PA	16145
Richard L. Beers	106 North Street	Cochranton	PA	16314
Mark Roche	102 Roche Lane/ Box 552	Cochranton	PA	16314
Robert J. Morrison	165 High Street	Cochranton	PA	16314
Christopher J. Youngs	170 S. Franklin Street	Cochranton	PA	16314
Frances McClain	PO Box 418	Cochranton	PA	16314
Stewart Hilliard	1293 New Lebanon Road	Carlton	PA	16311

Name	Address	City	State	Zip
Michel and Emma Wilcox	1172 Old Route 322	Cochranton	PA	16314
Mike Langer	1815 Robison Road West	Erie	PA	16509

Nathan Holth
5371 Walker Road
North Street, MI 48049
[redacted]

January 17, 2012

David Anthony
Pennsylvania Department of Transportation
Cultural Resources
Environmental Quality Assurance
[redacted]

Dear Mr. Anthony:

I would like to relate a couple problems I found with the Carlton Bridge Rehabilitation Feasibility Study and Alternatives Analysis Report.

The statement that a rehabilitated truss bridge would provide an unusually short 25-year service life (which is unsupported by any explanation) seems indicative of a rehabilitation that falls short of a good, high quality comprehensive rehabilitation of the type which I would think would be expected in a good faith effort to consider alternatives to adverse effect. Further, the cost estimates for a rehabilitation that would provide such a short service life seem very high.

In regards to the rehabilitation for 25 tons, the consultant makes the statement that:

Due to the large size (2-spans) and deteriorated condition of the existing truss, it is unlikely that the truss could be removed with intact spans; it would most likely have to be disassembled and then reassembled. Not only would this be extremely time consuming and expensive, there is no way to know if the truss would go back together again after disassembly. The process of unloading the truss members to disassemble the structure would most likely cause the members to warp and / or straighten due to tension being removed. This warping / straightening of the members would likely make it very difficult, if not impossible, to reassemble the structure.

Without any supporting evidence or examples provided by the consultant in favor of their position, I have difficulty finding these statements to be accurate, given the enormous wealth of evidence to the contrary. Pin-connected truss bridges, including those in severe deterioration, have **frequently** been lifted off their abutments. Further, numerous bridges have been disassembled and reassembled, with no major issues encountered. Indeed, one of the articles cited by the consultant earlier in the document, ("Engineering for Rehabilitation of Historic Metal Truss Bridges," Frank J. Hatfield, P.E. Michigan State University, 2001; http://www.jflf.org/pdfs/wi301/historicbridges.pdf) specifically discusses a bridge with severely deteriorated floorbeams which was lifted off of its abutments in one piece, disassembled and restored in a shop setting, reassembled on-site, and lifted onto a new substructure. My experience has been that the process of **lifting a bridge off its abutments, followed by dismantling of the bridge for cleaning and rehabilitation in a shop setting, and concluded by the bridge's reassembly on-site is routine, cost effective, and produces satisfactory results**. Such operations have been conducted in the 19th Century, before motor vehicles were invented, and they continue to be conducted today. I suggest contacting Bach Ornamental and Structural Steel: http://bachornamental.com/ a firm that

specializes in this process for an accurate estimate. While the 25 ton rehabilitation option does seem undesirable given the proposal to replace all members under this option, I would recommend that PennDOT investigate the process of lifting the bridge, disassembling the bridge, and restoring it in a shop setting as an alternative approach to the 15 ton rehabilitation option, which might reduce the cost of that option. Further, given the unique attention to detail provided by an in-shop cleaning and rehabilitation, the rehabilitated bridge would be "like new," in similar condition as a brand new 1898 bridge, and **an expectation of a service life similar to a new bridge (100 years) would not be unreasonable**.

I would like to state a general concern with what is either standard PennDOT policy, or the result of repeatedly hiring consultants with a lack of preservation experience, to consider a rehabilitated truss bridge as having a potential service life of 25 years. I have been a consulting party on several projects, and have also reviewed documents for projects that I was not a consulting party. I repeatedly find historic metal truss bridge rehabilitation analysis documents that write off rehabilitation on the claim that the rehabilitated truss bridge will supposedly only have a 25 year service life, while a replacement bridge will have a supposed 100 year life. Replacement bridges in other states (Indiana comes to mind) are usually assumed to have a 75 year life, assuming proper preventative maintenance and repair. In addition, my experience with historic metal truss bridges is that a service life of 50-75 years, assuming proper preventative maintenance and repair. These service lives are indicative that perhaps the reality is that a rehabilitated historic metal truss bridge may have a service life similar to that of a replacement bridge. It is my recommendation that the Department take this into consideration in future Section 106 processes.

I also have another concern with this document. In the document the statement is made: "*While plans / calculations for the existing structure are not available, the existing structure was designed and constructed in the late 1800's to carry horse and buggy traffic, as the automobile had not even been invented.*" This purpose of making this statement is not clear. The capacity of a bridge should be determined by an engineering evaluation of the bridge not by speculation. If original plans are not available, manual measurements, possibly combined with non-destructive testing of materials should be used to generate a picture of the original as-built structure. Furthermore, the above mentioned statement fails to take into account the heavy steam threshers that were in use when this bridge was built. The use of steam threshers suggests that the capacity of a bridge may have been greater than that for a simple horse and buggy.

I hope my comments will be considered not only in regards to the Carlton Bridge, but also that they might be considered as general comments that might help improve the Section 106 process for future bridge projects.

In regards to the Carlton Bridge, should the Department decide to continue to move forward with the proposal to replace the historic bridge on existing alignment, I request as consulting party an opportunity to provide input on the development of mitigation for adverse effect. Will the Department produce a set of proposed mitigation effects for comment and discussion by the consulting parties? Will a consulting party meeting be held? When is the expected comment period?

I would be happy to discuss this further if there are further questions or interest.

Sincerely,

Nathan Holth

Author/Webmaster, HistoricBridges.org

OS-600

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

PENNDOT Cultural Resources Submission

DATE: May 3, 2012

SUBJECT: Mercer County, French Creek Township
S.R. 1015, Section B00
Carlton Bridge Replacement
Mitigation Proposal Letter
ER #: 2011-8128-085
MPMS#: 1528

TO: Jean H. Cutler, Director
Bureau for Historic Preservation
PA Historical and Museum Commission

FROM: Brian G. Thompson, PE Director
Bureau of Design

The Department received your office's response letter to the Phase I/II Archaeological Management Summary for the above referenced project on March 16, 2012. As noted in the letter, it was concurred upon that the Wilcox site (36ME0255) would be avoided during construction and that no further work was necessary. Your office also agreed that the Swartz Site (36ME0256) is eligible for the National Register of Historic Places. However, there was a disagreement with the proposal to conduct an alternative mitigation in lieu of data recovery excavations. It was the opinion of your office that further excavations consisting of a six unit block be completed near TU#10.

Based on these comments from your office, a conference call between PennDot, PHMC, and McCormick Taylor was held on April 2, 2012 to discuss the proposed mitigation measures for the adverse effect the project would have on the Swartz site (36ME0256) (attached). The meeting resulted in a better understanding of each agencies concerns and/or point of view regarding future mitigation plans for the site and several ideas were discussed. Subsequent to this meeting these ideas were discussed with Jon Crum, FHWA and as result, we are offering a revised mitigation plan for your concurrence. The entire plan is outlined in the attached draft Letter of Agreement (LOA), however, the archaeological proposal is as follows: The Department will agree to conduct archaeological data recovery excavations consisting of five 1 X 1 meter test units, prepare a Byways to the Past pamphlet discussing the significance of the site, and will also give one presentation at local venue regarding the site.

We are requesting your concurrence with the newly proposed Mitigation plan for the Swartz Site as presented above and also by the attached LOA which will be formally submitted to your office for signature.

Should you have any questions, feel free to contact Joseph Verbka at 412-429-4998.

PHMC Concurrence_____ Date_____

Attachments

4380/JMV/jv

cc: J. Bucher, BOD
J. Crum, FHWA
A. Kelley, Environmental Manager, District 1-0
T. Francis, Delaware Nation
L. Watt, Seneca Nation
K. Jumper, Shawnee Tribe
P. Barton, Seneca-Cayuga Tribe
H. Ellis, Absentee Shawnee Tribe
R. Dushane, Eastern Shawnee Tribe
D. Anthony, District 11-0
J. Verbka, District 11-0

DRAFT

LETTER OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION, THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER
AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
REGARDING IMPLEMENTATION OF THE PROPOSED
S.R. 1015, SECTION B00 PROJECT (CARLTON BRIDGE OVER FRENCH CREEK)
FRENCH CREEK TOWNSHIP, MERCER COUNTY PENNSYLVANIA

WHEREAS, the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO) and the Pennsylvania Department of Transportation (PennDOT) have signed a Programmatic Agreement (PA) regarding implementation of the Federal Aid Highway Program in Pennsylvania (March 18, 2010); and

WHEREAS, pursuant to Stipulation III.B.7 of the PA, PennDOT has determined that two National Register of Historic Places (NR) eligible properties are located within the APE: the NR eligible Carlton Bridge over French Creek (S.R. 1015, Section B00) and the NR eligible Swartz Archaeological Site (36ME256); and

WHEREAS, pursuant to Stipulation III.B.10 of the PA, PennDOT has determined that the S.R. 1015, Section B00 Project will have an adverse effect on the Carlton Bridge over French Creek and an adverse effect on the Swartz Archaeological Site (36ME256); and

NOW, THEREFORE, the FHWA, SHPO, and PennDOT agree that the following stipulations will be completed by PennDOT in order to mitigate the adverse effects of the S.R. 1015 Section B00 Project on the Carlton Bridge over French Creek and on the Swartz Archaeological Site (36ME256).

A. Carlton Bridge over French Creek

1. PennDOT will market the Carlton Bridge over French Creek for relocation and adaptive reuse.
2. PennDOT will salvage the builder's plaques and provide one to the Mercer County Historical Society and the other to the Mercer County Engineer's Office.
3. PennDOT shall assist with the development of a website on the history of metal truss bridges in Pennsylvania. The purpose of the website will be to provide information on the topic to the general public. The website will include a brief history and discussion of the development and technology of metal truss bridges. The history will highlight notable bridge builders and examples of metal truss bridge types. The website will be developed in coordination with, hosted by, and maintained by the PHMC. The PHMC shall have thirty (30) calendar days upon receipt of the first and second drafts of the website development materials in which to comment. The website development will be an on-going project; mitigation commitments to develop this website will be drawn from other projects. PennDOT's commitment to this mitigation measure for this Project will expire five years after the implementation of this agreement.
4. PennDOT will work to transfer information from the former Mercer County Truss Bridges website to the PHMC as part of the development of mitigation #3 above.

B. Swartz Archaeological Site (36ME256)

1. PennDOT will conduct archaeological data recovery excavations, which will consist of the excavation of five 1x1 meter test units and appropriate analyses and report preparation in accordance with the PHMC's 2008 *Guidelines for Archaeological Investigations in Pennsylvania*.
2. PennDOT will prepare a Byways to the Past pamphlet discussing the significance of the site.
3. PennDOT will give one presentation at a local venue about the significance of the site.

C. Review and Documentation

Drafts of reports, pamphlets, text, or any other product prepared as mitigation of adverse effects will be submitted to FHWA, the SHPO, and consulting parties for review in accordance with Stipulation IV of the PA. PennDOT will consider any comments in the preparation of a final product.

These stipulations will be completed within five years of the execution of this agreement. If any of the stipulations are not completed within this timeframe the parties to this agreement shall meet to discuss the agreement and whether any revisions are needed to this agreement.

This letter agreement does not supercede other provisions of the PA.

FEDERAL HIGHWAY ADMINISTRATION

BY: _____ DATE:_____

PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER

BY:_____ DATE:_____

PENNSYLVNIA DEPARTMENT OF TRANSPORTATION

BY:_____ DATE:_____

Approved as to Legality and Form

By:_____ Date:_____
For Chief Counsel

Nathan Holth
5371 Walker Road
North Street, MI 48049
[redacted]

May 8, 2012

David Anthony
Pennsylvania Department of Transportation
Cultural Resources
Environmental Quality Assurance
[redacted]

Subject: Mercer County, French Creek Township S.R. 1015, Section B00 Carlton Bridge Replacement

Dear Mr. Anthony:

I am a consulting party on the above listed project. Although I received no direct notification of this, I recently discovered that a "Carlton Bridge Replacement Mitigation Proposal Letter" had been posted to Project PATH indicating the proposed mitigation for the adverse effect of replacing this historic bridge.

When it is determined that a project will have adverse effect on a historic bridge, the development of mitigation for this adverse effect becomes an essential part of the Section 106 process and in my opinion the consulting parties should be allowed to provide input into the development of mitigation.

I have serious concerns that the proposed mitigation falls vastly short of the intent of Section 106, especially given that the Carlton Bridge is an extremely rare and significant historic bridge. I am offering the below initial comments regarding mitigation for this bridge. It is my hope that these comments will be considered and all consulting parties can be given an opportunity for additional discussion on the development of mitigation for this bridge.

Significance That Should Define Mitigation

The Carlton Bridge is a two-span through truss example of a bridge built by the Columbia Bridge Works of Dayton, Ohio. The Columbia Bridge Works stands out as a company that employed creative and unusual details into its bridges. Their extensive use of simple rolled beams instead of complex built-up beams showed a foresight in the company that was decades ahead of its time. Their bridges also have a number of unique and creative details that are not found in other bridges. For these reasons, surviving bridges built by this company have a high level of significance.

I looked through Pennsylvania's Historic Bridge Inventory and found a total of seven bridges built by the Columbia Bridge Works. Of those seven, two have been demolished. This leaves only five examples of this bridge company remaining in the entire Commonwealth. Of those five, only two are through truss bridges, one being the Carlton Bridge, and the other being the Peevy Road Bridge in Montgomery County. The Carlton Bridge is the only multi-span example, and as such is also the longest example. The Carlton Bridge is the only example of the Columbia Bridge Works in northwestern Pennsylvania. For all the above facts, the Carlton Bridge should be considered to be an extremely significant historic bridge in the local and statewide contexts. The significance of this bridge needs to be considered when developing mitigation for the proposed replacement of the bridge.

Concerns With Proposed Mitigation and Suggested Improvements

Especially given the high significance of the Carlton Bridge, it is my opinion that the proposed mitigation falls short of being effective. My concerns are broken down as follows.

1. "*PennDOT will market the Carlton Bridge over French Creek for relocation and adaptive reuse.*"

Marketing a historic bridge slated for demolition is a useful and important endeavor. However, it was my understanding that offering a bridge for reuse was required under Section 4(f). If Section 4(f) does not apply to this project, than this would be mitigation worth considering. However, since this is already covered by Section 4(f) it is my suggestion that mitigation along these lines would go much more above and beyond what Section 4(f) requires.

The State of Indiana provides an excellent example of how PennDOT might recognize the high significance of the Carlton Bridge and go above and beyond a simple marketing effort. Indiana initially markets the bridges for reuse in a manner similar to PennDOT. However, if no owner is found by the time the bridge is to be removed, Indiana will match mark all the parts of the truss, carefully dismantle the bridge, and place it into storage, continuing to make the bridge available for reuse. The agreement typically states that the bridge parts will be stored for a period of no less than 10 years. PennDOT has encountered poor success with bridge marketing efforts in the past. In contrast, numerous bridges have been reused and preserved in Indiana. It is my strong belief that storing these bridges in this manner greatly increases the chance that a marketing effort will be successful. There are a couple reasons for this. First, it increases the time that a potential owner has to raise funds and arrange to take ownership of the bridge. Additionally, once in storage, the bridge is more or less available immediately for use, and so potential owners do not have to wait until the bridge is actually due to be removed as part of the replacement project contract. For multiple span bridges, Indiana will often dismantled and store only a single span, and doing so would be acceptable for the Carlton Bridge, however if particular pieces from the other (identical) span are in better condition, it would be sensible to salvage those pieces as well to make restoration for the new owner easier.

The parts should be stored on PennDOT property (maintenance yard, etc) which would avoid any cost associated with storing the bridge.

2. "*PennDOT will salvage the builder's plaques and provide one to the Mercer County Historical Society and the other to the Mercer County Engineer's Office.*"

I believe salvage of the distinctive builder plaques are an essential component of good mitigation. However, mitigation should **ensure that the plaques will be protected, preserved, and available for viewing by the general public**. Additionally, my photos of the bridge indicate that at least one cast iron finial remained on the portal. **Any surviving finials should be salvaged and given to these organizations as well.**

3. "*PennDOT shall assist with the development of a website on the history of metal truss bridges in Pennsylvania.*" "*PennDOT's commitment to this mitigation measure for this Project will expire five years after the implementation of this agreement.*"

As author and webmaster of one of the largest historic bridge websites on the Internet, I certainly understand how a website can be an invaluable resource and how the creation of such might be useful mitigation. In maintaining the HistoricBridges.org website I make extensive use of other websites. However at the same time, as a webmaster I also know very well how very temporary and fleeting websites and the Internet is. Maintaining a useful website requires constant work to keep the underlying code up to date and compatible with current computers. Website address registration, while very inexpensive (only about $20 a year), is essential to maintain the presence of the website. The proposed mitigation mentions brining information from the Mercer County Truss Bridges into the proposed website.

The Mercer County Truss Bridges is not currently available to the public because the domain registration was allowed to expire. Based Internet Archive records, the website was online from 2006-2011, a total of five years. The proposed website under the Carlton Bridge mitigation states that PennDOT's commitment will expire five years after the agreement. As such, I can only assume this means that this website will also be allowed to expire after only five years. It is my opinion that creating a website for a mere five years is not acceptable mitigation for a historic bridge that has stood for over a century of time. Any proposed mitigation should be something that will have a significant, lasting presence. If such a website is to be developed as proposed, it is my opinion that the mitigation should **include the creation of an archival document containing all images, text, and other informational content presented on the website** and that these documents should be distributed to appropriate archives for long-term preservation and storage. Additionally, I believe the website and documentation should consider the existing material available online, and how the website might serve to fill in some gaps in the available information found online. For example, little information is available on certain noteworthy bridge companies such as the Morse Bridge Company, the Variety Iron Works, etc. Another area that is lacking online is the number of historical illustrated bridge catalogs produced by the various bridge companies, as well as original contract proposals and plans. These documents exist, tucked away in archives and unavailable to the Internet. The high resolution digitization of such documents would be greatly beneficial to the available resources on the Internet for historic bridges.

Additional Ideas For Mitigation

As stated earlier, I feel that the currently proposed mitigation by PennDOT, falls short. I have presented ideas that I think would improve the mitigation. However, following discussion with the consulting parties it may be found that even more mitigation is needed, or that it might be better to drop some of the proposals and replace them with something more effective. It is my hope that arrangements for such discussion and input among the consulting parties will be made available. Below are some of my suggestions for additional or alternative mitigation measures.

- Salvage and preserve significant pieces of the truss webs as a public display (either near the replacement bridge, or at a county museum or historic society). The most useful sections to salvage would be portions around the connection points since these would capture a large number of different members and beams, while maintaining relatively small physical dimensions.
- Set aside some amount of funds to assist in or offset the costs of repairing and preserving of another surviving Columbia Bridge Works Bridge.
- Use a laser scanner to construct a point cloud of the Carlton Bridge, and from this data construct a set of detailed measured drawings of the bridge, as well as 3D models. Data should be complete enough that a detailed replica of the bridge could be created.

I look forward to additional discussion regarding the development of mitigation for this historic bridge.

I would be happy to discuss this further if there are further questions or interest.

Sincerely,

Nathan Holth

Nathan Holth

Author/Webmaster, HistoricBridges.org

LETTER OF AGREEMENT
BETWEEN
THE FEDERAL HIGHWAY ADMINISTRATION, THE PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER
AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
REGARDING IMPLEMENTATION OF THE PROPOSED
S.R. 1015, SECTION B00 PROJECT (CARLTON BRIDGE OVER FRENCH CREEK)
FRENCH CREEK TOWNSHIP, MERCER COUNTY PENNSYLVANIA

WHEREAS, the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Officer (SHPO) and the Pennsylvania Department of Transportation (PennDOT) have signed a Programmatic Agreement (PA) regarding implementation of the Federal Aid Highway Program in Pennsylvania (March 18, 2010); and

WHEREAS, pursuant to Stipulation III.B.7 of the PA, PennDOT has determined that two National Register of Historic Places (NR) eligible properties are located within the APE: the NR eligible Carlton Bridge over French Creek (S.R. 1015, Section B00) and the NR eligible Swartz Archaeological Site (36ME256); and

WHEREAS, pursuant to Stipulation III.B.10 of the PA, PennDOT has determined that the S.R. 1015, Section B00 Project will have an adverse effect on the Carlton Bridge over French Creek and an adverse effect on the Swartz Archaeological Site (36ME256); and

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A. Carlton Bridge over French Creek

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2. PennDOT will salvage the builder's plaques and provide one to the Mercer County Historical Society and the other to the Mercer County Engineer's Office.
3. PennDOT will update the document titled, History and Significance of Bridge Building Technology in Pennsylvania from the Earliest Days until 1956 (dated March 1997) originally written for the Statewide Bridge Inventory and Evaluation. The PHMC will be given an opportunity to review a draft of the updated document prior to the document being finalized and made available to the public. Mitigation costs are not to exceed $10,000.

B. Swartz Archaeological Site (36ME256)

1. PennDOT will conduct archaeological data recovery excavations, which will consist of the excavation of five 1x1 meter test units and appropriate analyses and report preparation in accordance with the PHMC's 2008 *Guidelines for Archaeological Investigations in Pennsylvania.*
2. PennDOT will prepare a Byways to the Past pamphlet discussing the significance of the site.
3. PennDOT will give one presentation at a local venue about the significance of the site.

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This letter agreement does not supercede other provisions of the PA.

FEDERAL HIGHWAY ADMINISTRATION

BY: _____ DATE: _____

PENNSYLVANIA STATE HISTORIC PRESERVATION OFFICER

BY: _____ DATE: _____

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

BY: Gary C Jarman DATE: 6-12-12

Approved as to Legality and Form

By: _____ Date: _____
For Chief Counsel