

FINAL DESIGN REPORT / SEQRA Environmental Assessment

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Pond Eddy Bridge Project
Town of Lumberland, Sullivan County

January 15, 2013

Updated: May 31, 2013

Revised July 11, 2013

Visual Impact Assessment

U.S. Department of Transportation
Federal Highway Administration
NEW YORK STATE DEPARTMENT OF TRANSPORTATION

I. Introduction – Project Description

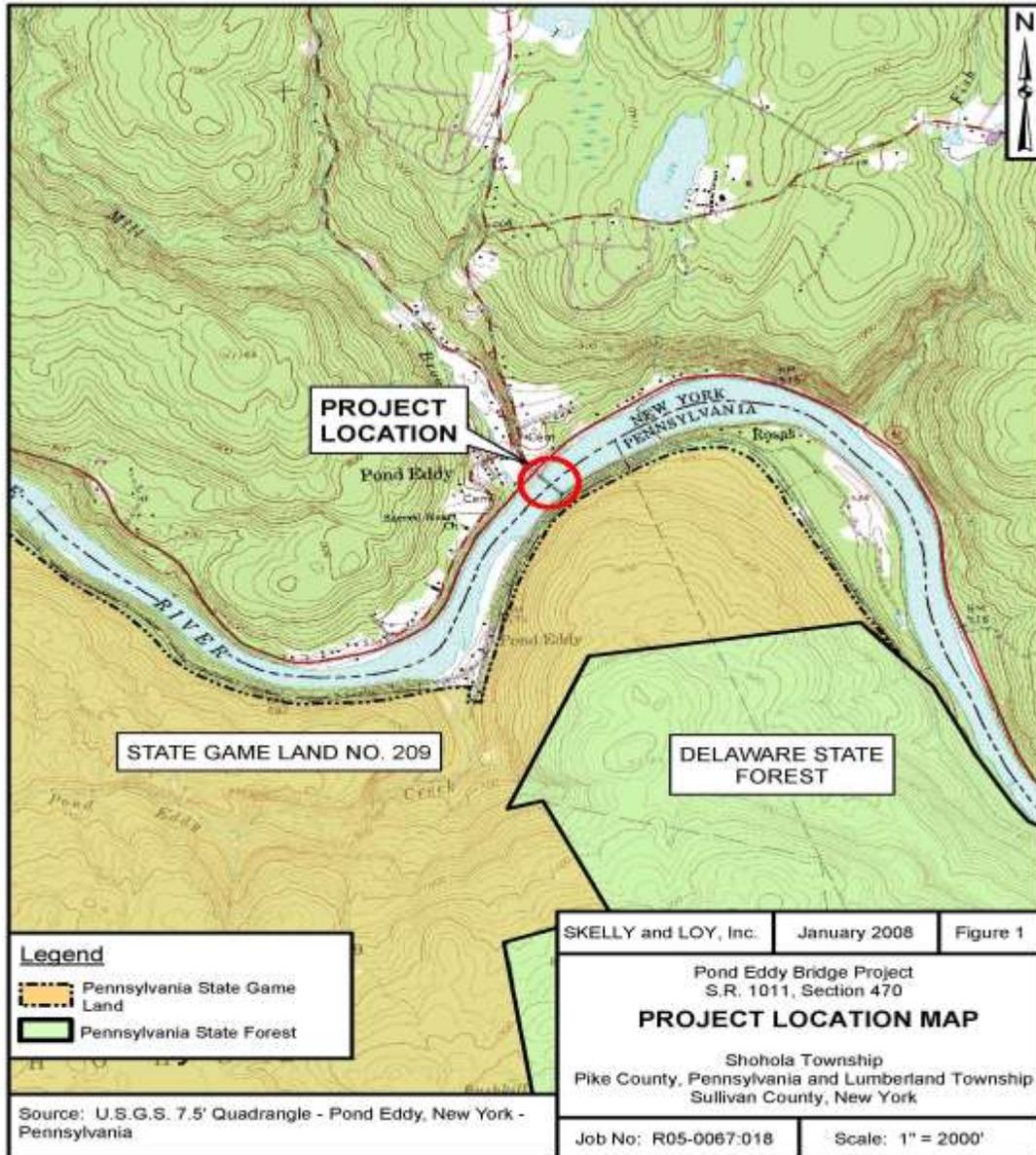
The Pennsylvania Department of Transportation (PennDOT), Engineering District 4-0, working in cooperation with the New York State Department of Transportation (NYSDOT) Region 9 (Southern Tier) and the Pennsylvania Division of the Federal Highway Administration (FHWA), plan to replace the existing bridge crossing at Pond Eddy, Pennsylvania. The existing Pond Eddy Bridge (known locally as the All Veterans Memorial Bridge) is a two-span, pin-connected Pennsylvania (Petit) through truss, constructed between 1904 and 1905 and listed in the National Register of Historic Places. It carries State Route (S.R.) 1011 over the Delaware River between Shohola Township, Pike County, Pennsylvania, and the Town of Lumberland, Sullivan County, New York (II. Project Location Map - Figure 1). Bridge Inspections have rated the bridge as structurally deficient and functionally obsolete and currently has a weight limit posting for 7-tons.

For the community of Pond Eddy, Pennsylvania, the Bridge is the only safe access to this area. The need for this project is to provide adequate access over the Delaware River for the community of Pond Eddy. The purpose of the Pond Eddy Bridge Project is to provide a structurally sound bridge to carry S.R. 1011 over the Delaware River. A bridge replacement meets the project purpose and need. It would be constructed immediately upstream of existing bridge and provide the safe, efficient access of S.R. 1011 over the Delaware River with a life expectancy of approximately 100 years. Existing access to Pond Eddy would be maintained during construction via the existing Pond Eddy Bridge, thereby avoiding and minimizing impacts to the river by eliminating the need for a temporary access bridge and additional construction causeways. This alternative has the least potential impact of the alternatives meeting the project need on the Upper Delaware Scenic and Recreational River/Pennsylvania Water Trail. The Replacement Alternative best meets the purpose and need of the project, is supported by the NPS and is cost effective; therefore, it would result in the Least Overall Harm.

As part of the measures to minimize harm to Upper Delaware Scenic and Recreational River, the Section 106 Memorandum of Agreement included the formation of a Design Advisory Committee to solicit local input on the aesthetics of the Replacement Structure. Three Design Advisory Committee (DAC) Meetings were held (Dec, 2011 – March, 2012) and the committee members provided feedback on preferred structure type and aesthetics treatments that provide a replacement structure that befits the setting within the Upper Delaware Scenic and Recreational River.

Photo simulations were developed as part of the DAC meeting to demonstrate to the public the potential visual affects the Pond Eddy Bridge Project would have to the Upper Delaware River and NYS Route 97corridor's surrounding landscape, when constructed. The simulations served to document those visual effects and provide the means to demonstrate to specific viewer groups the nature and extent of these effects. The results of the DAC meeting was the selected of two replacement alternatives for NYDOT's consideration, including a three-span haunched steel girder bridge and two-span steel truss.

II. Project Location Map



III. Purpose of the Study

This Visual Assessment documents the consideration of visual impacts for the project and demonstrates the means for which the NYSDOT undertook to incorporate viewshed aesthetics within the project development process. Upstream and downstream viewpoints are provided for consideration and discussed within this report. The existing visual characteristics are evaluated with the proposed bridge crossing to determine if the visual impact of the crossing provides a significant change in the appearance along the river corridor or along NYS Route 97. The evaluation of the visual affect considers the perspective of a particular viewer group experiencing the view of the replacement bridge.

IV. Assessment Methods

The Visual Impact Assessment was developed to follow the guidelines outlined in the Federal Highway Administration Visual Impact Assessment for Highway Projects Manual, 1981. The assessment considers the existing visual resources and receptors associated with the existing Pond Eddy Bridge Crossing and the visual aesthetics of the proposed bridge replacement with the solicited input from the Design Advisory Committee stakeholders.

V. Project Visual Environment

A. Area of Consideration

The existing Pond Eddy Bridge crosses the Upper Delaware River; thereby connecting the Town of Lumberland in Sullivan County New York to the community of Pond Eddy, Pike County, Pennsylvania. The existing bridge is a simple petit truss bridge that was constructed in 1904. The Pond Eddy Bridge was listed on the National Register of Historic Places on November 14, 1988, as a representative example of a multiple span Pennsylvania (Petit) truss bridge. The proposed bridge replacement is immediately upstream of the existing bridge. The following characteristics are provided to describe the visual aspects.

B. Project Setting

The Pond Eddy Bridge serves as the only access over the Delaware River to the community of Pond Eddy, Pennsylvania; connecting NY State Route 97 to PA S.R. 1011. The bridge is a through truss structure with limited vertical clearance of 13'6" and a single-lane deck width of only 14'10". The project area is characterized as a rural mountainous river valley with steep river banks and a mature forested landscape along the valley out slopes. The Upper Delaware River is approximately 500 feet wide and is contained within deep river banks, extending approximately 20 to 25 feet in elevation. The rural mountainous terrain coupled with the breadth of the Delaware River contributes to the isolated nature of Pond Eddy, Pennsylvania. The mountainous terrain extends approximately 500 feet above the river. Residents of Pond Eddy, Pennsylvania, must use the bridge to access their properties. The bridge also provides access to State Game Lands 209 and the Delaware State Forest.

The regional landscape consists of a river gorge corridor with steep forested mountain valley slopes with limited development in a rural setting dividing the states of Pennsylvania and New York. The setting is primarily rural and undeveloped along the river corridor. The Pond Eddy Bridge connects the isolated village of Pond Eddy Pennsylvania to the Town of Lumberland New York. The residents of Pond Eddy are hidden within the wooded corridor along the Delaware River. The bridge crossing is visible via NYS Route 97, a NYS Scenic By-Way.

C. Landscape Units

The landscape unit at and surrounding the existing Pond Eddy Bridge crossing over the Upper Delaware River consists of a Rural Natural and Recreational River Corridor. The Upper Delaware River Scenic and Recreational Management Plan – Design Handbook divides the river corridor into three different river areas, including Scenic, Recreational, and Hamlet. These river areas are based upon the amount of development along the river. The section of the Upper Delaware River that includes the Pond Eddy Bridge crossing is designated as a Recreational area. Recreational areas can contain development along the shoreline and parallel roads and railroads. In comparison, the scenic areas are primarily bordered by undeveloped shorelines that are accessible in certain locations by roads. The existing Pond Eddy Bridge serves as one of only ten existing crossings over the Upper Delaware River. Local interest groups characterize the historic truss bridge as a diagnostic feature within a pristine setting of the Upper Delaware River.

D. Project Viewshed

The topography and terrain of the river corridor and surrounding area consists of forested mountain lands along the valley outcrops of the Upper Delaware River corridor. The viewshed of the project setting includes the:

- foreground and background visual perspective of the motorists view along NYS Route 97 – Scenic Byway,
- foreground and background visual perspective for the recreational boater perspective from the river surface, and
- foreground perspective for the local PA and NY residents in the immediate areas (Pond Eddy and Lumberland development along Mill Brook).

The proposed project involves a bridge replacement immediately upstream of the existing structure. The viewshed of the project would remain unchanged and not affected by the project (i.e. the viewers will still see the project setting from their different perspectives, albeit, what they view will be different). The proposed project does not entail roadwork improvements along the Pennsylvania Rosa or Flagstone Roads or along NYS Route 97 or County Road 41. The surrounding area is characterized by rural mountainous woodlands with a mix of deciduous and coniferous trees. The wooded nature of the surrounding setting and the riparian corridor limits the overall visibility of the bridge from all perspectives. The following photographs provide the visual perspective of the viewshed of the project setting.



Photograph 3: Upper Delaware River, looking in the downstream direction from Pond Eddy Bridge Crossing



Photograph 4: Upper Delaware River, looking in the upstream direction from the Pond Eddy Bridge Crossing



Photograph 5: Boaters perspective from upstream of the crossing with the bridge in the foreground.



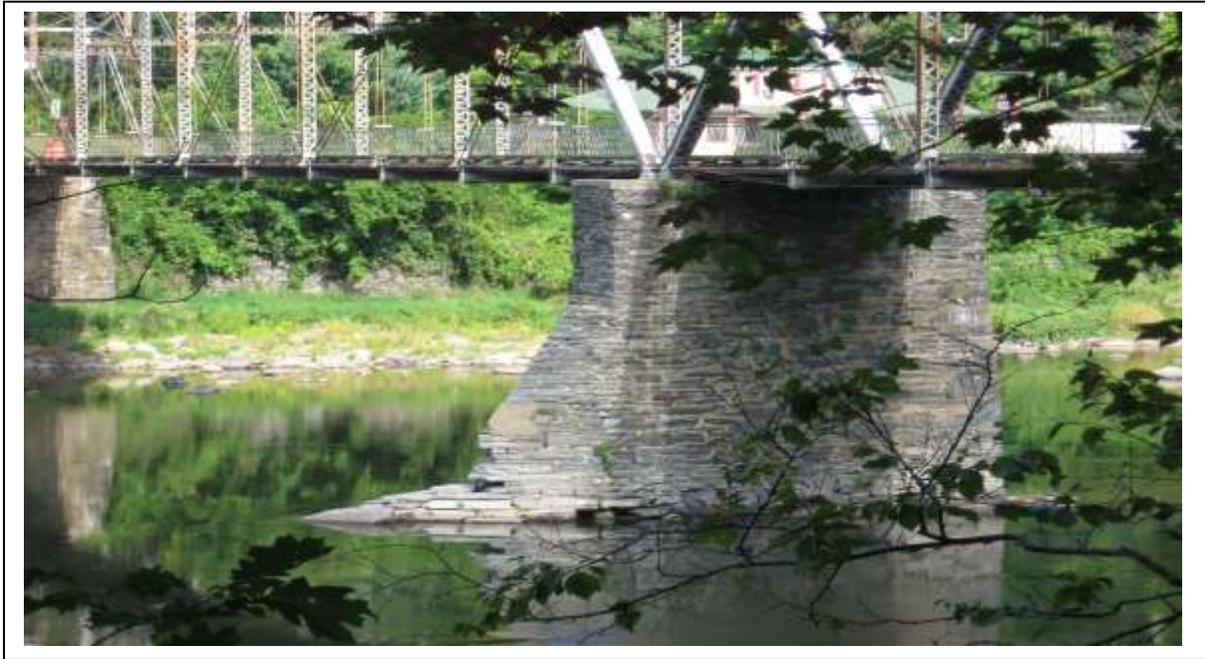
Photograph 6: Boaters perspective from downstream of bridge, with bridge in the foreground



Photograph 7: Boaters perspective from river upstream of bridge, with bridge in the mid to back ground perspective.



Photograph 8: Motorists perspective from NYS Route 97, traveling south (in downstream direction) with bridge in the mid to back ground perspective.



Photograph 9: Motorists perspective from PA Flagstone Road, traveling south (in downstream direction) with bridge in the foreground perspective.



Photograph 10: Pond Eddy Bridge is barely visible in the winter leaf-off time of year from the downstream pull-off local private river access area.



Photograph 11: Pond Eddy Bridge is barely visible from Rosa Road perspective during winter leaf-off condition.



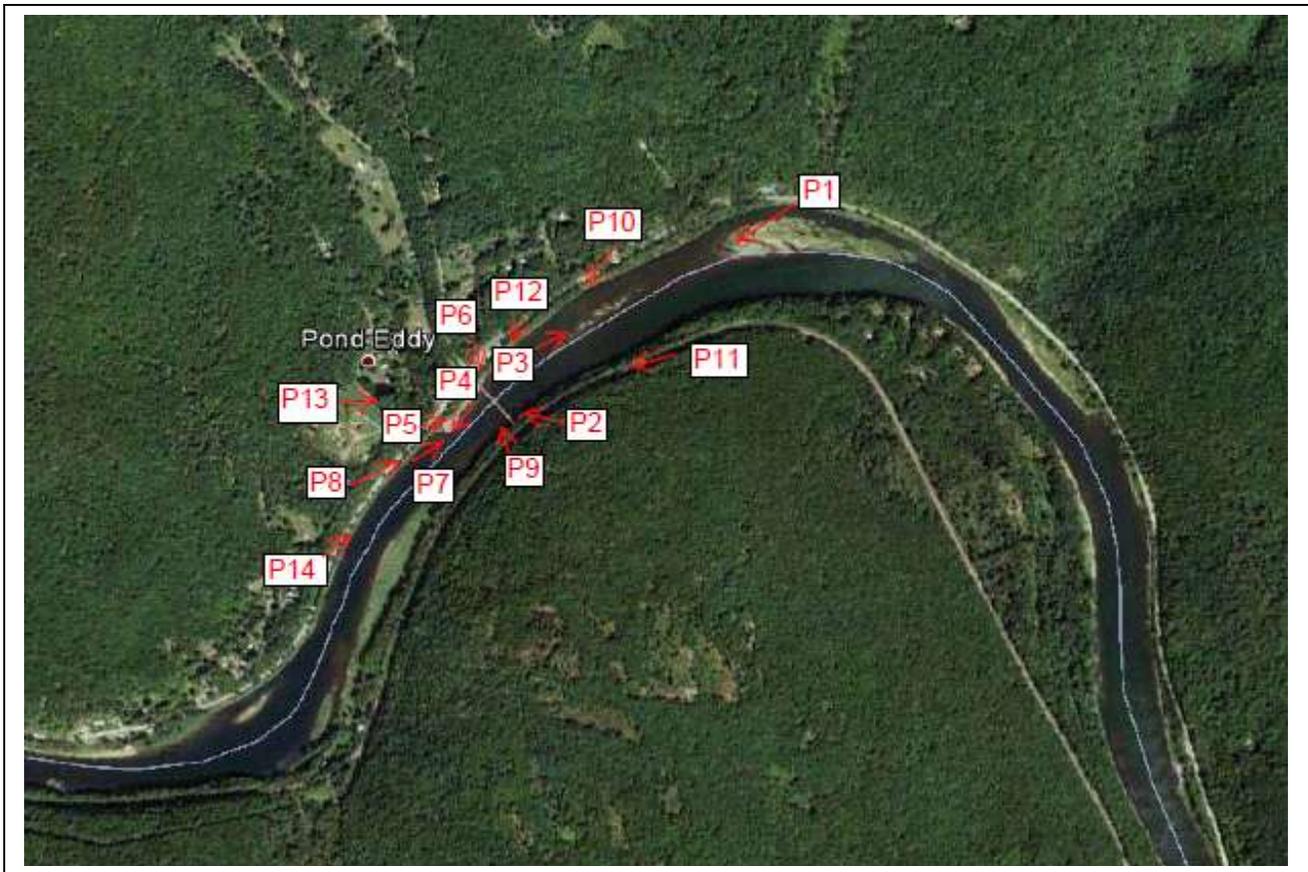
Photograph 12: Pond Eddy Bridge with limited visibility along NYS Route 97 in area of local motel (winter leaf-off – time of year).



Photograph 13: Pond Eddy Bridge, barely visible in background from Lumberland - Mill Brook community perspective.



Photograph 14: Pond Eddy Bridge in background with limited visibility due to small break in tree line along NYS Route 97.



Photograph Location and Orientation Map for Photographs 1 – 14.

VI. Visual Quality

Visual Quality considers the vividness, intactness, and unity of the viewshed. As presented in the FHWA Visual Impact Assessment Manual, each characteristic is defined as follows.

Vividness is defined as the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.

Intactness is defined as the integrity of visual order in the natural and man-built landscape, and the extent to which the landscape is free from visual encroachment.

Unity is defined as the degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony of the inter-compatibility between landscape elements.

The vividness of the visual observation is moderate to high. Due to the limited number of bridge crossings across the Upper Delaware River, coupled with the historic and limited nature of Petit truss bridges, in general, adds to the vividness of the visual experience. It should be noted that the vividness of the Pond Eddy Bridge is affected by various lighting scenarios. When the bridge is brightly sunlit, the bridge's structure is accentuated and presents a more memorable impression than when it becomes

obscured by shadow. The Intactness and Unity are moderate to high in that the slender, narrow, and “see-through” nature of the bridge allows the structure to blend into the surrounding river corridor and wooded mountainous hillsides, without an overpowering appearance of a large intrusive structure.

VII. Viewer Groups

The proposed project involves the replacement of the existing historic bridge. The change to the visual environment would only affect the bridge itself. The remaining visual aspects of the river corridor are to remain unchanged.

The viewership for the project setting includes several different perspectives including motorists, pedestrian, and boaters. Furthermore, there is distinction between the tourist and the resident and the New Yorker versus the Pennsylvanian. The following viewer groups are considered in the visual impact assessment:

- Tourist motorist along NYS Route 97 – Scenic Byway,
- Recreational boater perspective from the river surface,
- Local PA resident (Pond Eddy)
- Local NY resident (Lumberland development along Mill Brook).

As part of the development of the project, Penn DOT and NYSDOT undertook the formation of Design Advisory Committee (DAC) consisting of local interest groups and stakeholders to solicit input into the aesthetic appearance of the replacement structure. The DAC membership included a representative from the following groups.

Pennsylvania Historical and Museum Commission (historic)
Pike County Planning (PA residents)
Upper Delaware Scenic Byway (local and non-local tourism)
National Park Service – UPDE (Recreational use of the river)
Upper Delaware Council (recreational river use and local residents)
Town of Lumberland, NY (local residents)
Shohola Township, PA (local residents)
Pond Eddy, PA (local residents)
Friends of the Pond Eddy Bridge (historic bridge and local-regional residents)
Preservation PA (historic)

The DAC membership provided a diverse cross section of local representation to solicit input on the aesthetics of the bridge and provide input on the different viewership groups from a visual impact perspective. Meetings minutes from the DAC meetings are provided in Attachment 1.

The viewer groups have their individual set of visual expectations for bridge viewing. Each viewer group values certain aspects of the vista.

Touring Motorist:

Scenic Byway: NYS Route 97 is identified as the Upper Delaware Scenic Byway (UDSB). The NY State Department of Transportation (DOT) website identifies State Scenic Byways as transportation corridors that are of particular statewide interest and are representative of a region's scenic, recreational,

cultural, natural, historic or archaeological significance. The NYS Route 97 corridor parallels the Delaware River along the border of New York and Pennsylvania. The NY State DOT website identifies dramatic cliffs, sweeping vistas, and glimpses of wildlife as visual features along the corridor along with several watersports including tubing, canoeing, and fishing on the river. Through project coordination (Feb 2012), the UDSB group has supported rehabilitation of the existing bridge and has indicated that installation of a “cookie cutter” concrete bridge at this location would be inappropriate, given the rural setting of the Upper Delaware River Valley. Additionally, in their March 2012 to the National Park Service, the UDSB group raised concern regarding the construction impacts associated with the proposed bridge replacement, identifying that an in-stream causeway would disrupt the recreational uses, the local economy, and the free-flowing condition of the river. As part of the project history and coordination the NY Scenic Byways group has participated in the Pond Eddy Bridge Project, through their representative Glenn Pontier.

NYS DOT annualized traffic counts indicate approximately 3000 vehicular trips on the Pond Eddy section of Route 97 daily. The most recent counts were performed in 2009 – 2010 and showed an average of 1148 trips northbound and 1748 trips southbound. The trip numbers do not differentiate between local traffic and tourist traffic. For purposes of estimating the touring motorist population, it could be assumed that approximately 25% of the trips represent the tourists, or 750 trips daily. It could also be assumed that tourist numbers are greater in the summer and autumn when river activities and fall foliage color attract more vacationers.



New York State Department of Transportation excerpt from the Traffic Data Viewer (<http://gis.dot.ny.gov/tdv/>)

Per the definition of “scenic river” found in the National Park Service’s *An Introduction to Wild and Scenic Rivers*, touring motorists are intentionally travelling the NYS Route 97 Scenic Byway to experience vistas of the Upper Delaware River ...free of impoundments, with shorelines that are still largely primitive and undeveloped... as well as enjoy the riverside communities’ local character and unique fare. The sightseeing motorist moves through the landscape, only stopping to view preplanned attractions or

when a remarkable view entices them to make an unplanned stop. The touring motorist values the breathtaking image that creates a lifetime memory.

NYS Route 97 was explicitly developed through the mountains and valleys along the Delaware to establish a road to replace the decommissioned Delaware & Hudson Canal connection through this area of New York and to capitalize on the corridors outstanding scenery. *An Enhancement Concept for the Upper Delaware Scenic Byway* states:

“The byway’s initial appeal comes from the pleasurable experience of driving along the road and enjoying the scenery. Enhancing and protecting the byway’s scenic resources will be important to maintaining its ability to attract new and repeat visitors.”

Tourists also highly value images linked to history that connect the scene to their travel experience. The chronicled bridge in its picturesque setting might be missed by some tourists.

While *An Enhancement Concept for the Upper Delaware Scenic Byway* documents two, two-span single-lane Baltimore (Petit) through truss bridges across the Upper Delaware, Skinners Falls Bridge (circa 1902) and Pond Eddy Bridge (circa 1905), it further identifies that the Pond Eddy area and the bridge are both a scenic and historic resource:

“A series of views along the river, with the forested hills in the background, unfold in both directions along Route 97 between Pond Eddy and Knights Eddy. Just west of Pond Eddy, the view includes the historic Pond Eddy bridge; while further to the east views include the bubbling Staircase Rapids.”

Current opportunities for viewing the Pond Eddy Bridge from Route 97 are very limited. “*An Enhancement Concept for the Upper Delaware Scenic Byway*” indicates, vegetation is an impediment to views of the Pond Eddy Bridge. A decade after the report was published vegetation still obscures views of the river and bridge. Photographs shown in this report taken from Route 97 reveal that the bridge color and wispy structure disappear into the backdrop of tree-covered slopes. It should be noted that the photos were taken from a stopped position rather than moving vehicle. Many of the photos were taken on a bright winter day in leaf-off condition when the bridge should be easily seen. While moving at the posted speed, the observer experiences only brief glimpses of the bridge and must deliberately focus to capture the limited viewings.

Recreational Boater:

NPS: The National Park Service manages the Upper Delaware River. In accordance with the Upper Delaware River Management Plan, the NPS oversees the recreational usage of the river. As part of the DAC meeting process, the NPS stated that their management of the “scenic river” means more than just scenic, but relates to the cultural, free flow, fish and wildlife, viewshed, and recreational aspects of the river and that the look of the existing bridge is one of the important scenic elements at this location. Additionally, the NPS provided in their September 2011 regarding the project, that Section 10 of the Wild and Scenic Rivers Act requires that the river be administered in a manner that will protect and enhance the esthetic, scenic, historic, archeological and scientific features of the river and that this

bridge project will not substantially interfere with public use and enjoyment of these values. Canoes, kayaks, fishing boats with trolling motors, rafts and tubes represent the majority of the boating population on the Upper Delaware River. The website for the Upper Delaware Scenic Byway (<http://www.upperdelaware scenicbyway.org/attractions/river/river.php>) indicates that boaters' motivation is both visual and recreational:

“Boating experts have said that the combination of proximity to major metropolitan areas, high visual quality, and consistent flows due to upstream reservoir releases, makes the Upper Delaware one of the finest recreational canoeing rivers in the Northeast.”

Operators of these types of watercraft move more slowly through the landscape than a motorist. They savor views that are revealed. Their vantage point emphasizes the views within the river corridor itself, limited by vertical elements, trees, hills, or structures adjacent to the top of the channel bank. These viewers currently appreciate the existing bridge, fully able to comprehend absorb the structure, color, texture and form of the structure. Recreational boaters focus is on the interactive water experience. The constantly changing scenery and surprise view around the river's bend enhances the experience. Iconic structures provide a sense of place and measure progress through the green corridor of tree covered hills.

According to the Upper Delaware State of the River Report of 2011 there were 273,500 average annual visitors in the years 2007 to 2011. The State of the River Report also reported that the interpretive staff presented safety information to 55,000 visitors in 2011.

The Spring-Summer 2013 edition of *The Upper Delaware* newsletter reported,

“From October 2011 to September 2012 (Federal Fiscal Year 2012), 263,254 visitors enjoyed boating (62%), fishing (7%) and swimming (4%) in the Delaware River, touring the historic Roebling Bridge (24%) and the Zane Grey Museum (2%), and stopping by the Narrowsburg Visitors Center (1%).

The Upper Delaware only counts visits to the river and to federally-owned or leased property for these statistics. The majority of visitor contacts were made at the Skinners Falls, Ten Mile River, Lackawaxen, and Mongaup access sites, and through canoe and vehicle patrols”.

If even one-half of the reported boating accessed the Delaware River in the Pond Eddy area, 81,608 boaters experience views of the Pond Eddy Bridge, annually.

Local Residents: Pond Eddy and Lumberland

Local residents have a unique visual perception. While these individuals have the most frequent exposure to the appearance of the bridge, they are a viewer group that can become desensitized and over-familiar to its unique attributes due to the constant exposure to the same view. Paradoxically, they are also the most sensitive group to a change of the vista; they will note that something is different, even if unable to specifically identify the variation.

Local NY Residents (Town of Lumberland): The town of Lumberland consists of five hamlets of Glen Spey, Hillside, Mohican Lake, Mongaup, and Pond Eddy. The Pond Eddy (NY) hamlet is contiguous to the Pond Eddy Bridge crossing over the Delaware River. The Town of Lumberland participated as a consulting party as part of the Section 106 consultation and in the Design Advisory Committee (DAC) for the project. The Town of Lumberland participation included signature of the projects Memorandum of Agreement documenting the replacement of the Pond Eddy Bridge and implementation of mitigation measures, including the DAC. The Town of Lumberland participated in the DAC through their representative Ms. Nadia Radjz. As part of the DAC process, the Town of Lumberland provided testimony that supported preservation of the existing bridge and replacement with a concrete bridge, similar to the Shohola – Barryville Bridge would be inappropriate for the setting. The local interests of the Lumberland residents are characterized by their United States Congressman, Mr. Maurice Hinchey’s March 21, 2012 letter which states that *“the demolition of the Pond Eddy Bridge and construction of a modern overpass style replacement structure would diminish the historic character of the Pond Eddy area and adversely affect scenic recreational and environmental qualities that contribute to the Upper Delaware’s federal designation as well as its designation as a New York Scenic Byway. As we have seen in previous PennDOT projects in the Upper Delaware, the agency’s replacement bridges are sorely out of place and out of scale with the rural character and historic heritage of the River corridor. In addition to destroying a unique structure that contributes to the region’s historic character, this project would require interruption of the free flow of the Delaware River for at least one year. This diversion of the River would impact the recreational use of the River that is so vital to tourism businesses in Sullivan County. Interruption and changes to the River’s flow could also threaten the natural resources of this section of the Delaware River, which is classified as Special Protection Waters by the Delaware River Basin Commission.”*

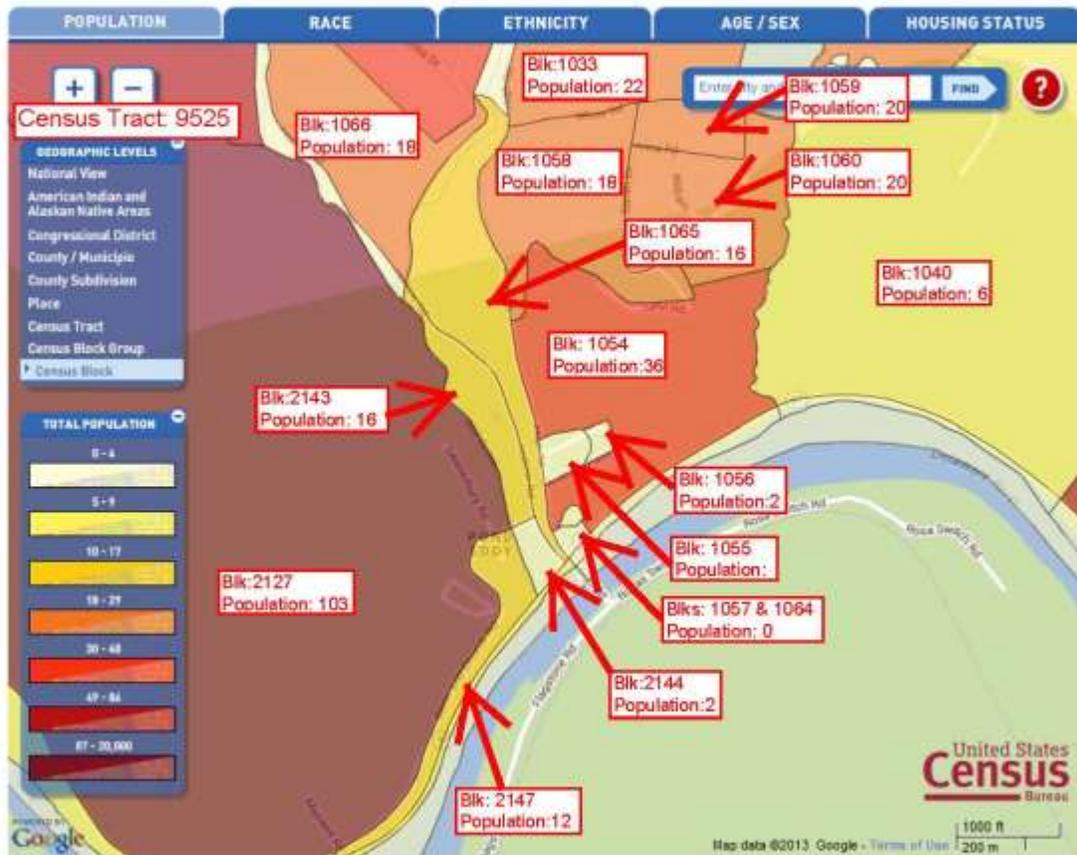
The US Census 2010 Census Interactive Population Search indicates that 219 residents live in the immediate area of the Pond Eddy Bridge. The census Tract and individual Census Block data is provided on the following map.

Text View: [2010 Census Interactive Population Search](#)

Many of the 2010 Census Demographic Profiles are ready for viewing. These profiles provide more subject detail than the recently released 2010 Census redistricting data files. These profiles provide details about race and Hispanic groups, age, sex and housing status. The profiles will be released on a state-by-state basis for each of the 50 states, the District of Columbia and Puerto Rico. Use this map to explore 2010 Census Demographic Profile data.

The map contains data for the 112th Congressional Districts. For information on the 113th Congressional Districts, see our [Redistricting Site](#).

[Learn more](#) about the demographic profiles and which states are next.



[Download summary files](#)

Please note: Data for American Indian and Alaska Native areas are shown for the portion within each state, and only as each state's data are released.

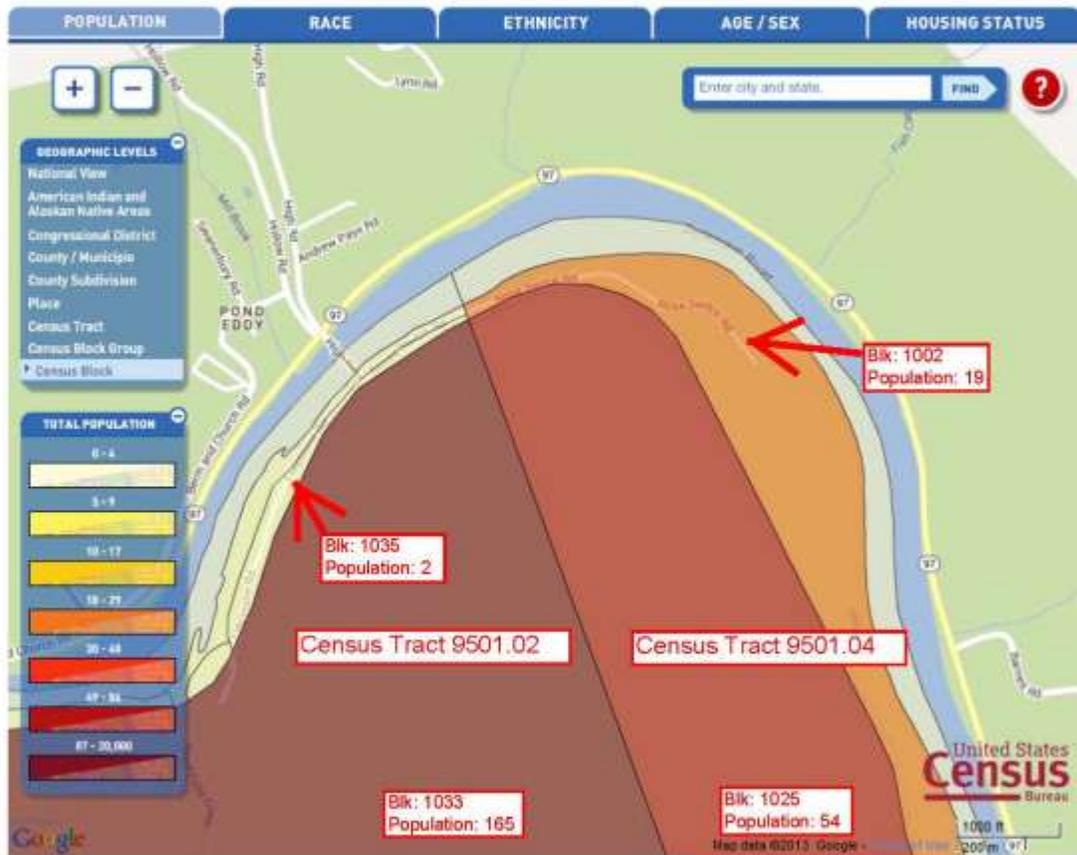
Pond Eddy/Lumberland, NY Population: 292

Text View: [2010 Census Interactive Population Search](#)

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Flagstone and Rosa Switch Road Population: 21
Population Other: 219

Local Pennsylvania Residents (Pond Eddy, PA) – Pond Eddy, Pennsylvania is a small community located between the Upper Delaware River and Pennsylvania State Game lands and State Forest. The only access to the community of Pond Eddy, Pa is via the existing Pond Eddy Bridge. The community of Pond Eddy is located within both Shohola and Westfall Townships. Representatives from the community of Pond Eddy and Shohola Township participated in the DAC meetings for the project. The local residents from the Pond Eddy community signed a petition in 1999 stating their desire not to be bought out and favored the existing bridge be replaced. Shohola Township passed Resolution 1999-2 stating the township’s support of their residents in the community in Pond Eddy, not to be bought out, and preference for the existing bridge to be replaced with a structure sufficient to provide access for basic and emergency services. Shohola Township has continued their support of the project, including participation in the all project public and consulting party meetings, in addition to the DAC meeting in 2012. Additionally, the DAC committee also included a representative from the Pennsylvania Historic Museum Commission and Preservation Pennsylvania. The groups participated in the Section 106 – Cultural Resource review process for the project and provided additional input from the Pennsylvania perspective in the DAC process. The residents from the community along with Shohola Township have expressed the need for adequate access over the Delaware River for basic and emergency services. As part of the DAC meetings, the representatives for Pennsylvania expressed their desire for the bridge to blend into the natural setting of the river corridor.

Since Pond Eddy residents utilize the bridge regularly, their view appraisal is influenced through other emotional responses emanating from the substandard structural quality of the bridge. Pond Eddy resident’s feelings of insecurity and frustration associated with the lack of personal safety and convenience affect their visual perception. Lumberland and Mill Brook residents’ assessment is more purely visual in nature because they more frequently view the bridge rather than use it for its intended purpose. Therefore, while similar in the desire to retain community character, Pond Eddy (PA) residents moderate their inherent resistance to change that is inevitable when replacing a vintage structure and embrace design elements that satisfy their visual goals. Pond Eddy residents focus on a bridge that combines design elements that are pleasing but subordinate to the natural scenery rather than seeking an identical replacement. Not burdened with the apprehensions associated with the recurrent use of a tenuous bridge, Lumberland and Mill Brook residents’ value preservation of the historic image and the distinctive character provided by the current structure. They prefer continuity over modification of the current vista.

The US Census 2010 Census Interactive Population Search indicates that 21 residents live along Flagstone Road and Rosa Switch Road. (Refer to preceding map) Since no delivery vehicles can legally cross the bridge, the NYSDOT Annual Average Daily Traffic can further substantiate the estimated resident population. The counts show 61 trips across the Pond Eddy Bridge, daily, which is consistent with the small population and limited trips to and from work or other destinations.

The following table summarizes the value each viewer group places on the view characteristics of the Pond Eddy Bridge.

Viewer Group Value Assessment Chart

Group	Bridge Image	Like/Dislike /Neutral	Value (High, Medium, Low)	Source of Value Assessment
Touring Motorist (Upper Delaware Scenic Byway DAC representative responses represent this viewer group) Estimated touring motorist population: 750 per day 273,750 per year	Scenic River Landscape	L	H	1,2, 3, 4, 5
	Historic Structure	L	H	1, 2, 4, 5
	Iconic Place	L	H	1, 2, 4, 5
	Dominant Natural Vistas	L	H	1, 2, 4,5
	Dominant Bridge View	N	M	1
	Maintenance of Existing Provincial Character	L	H	1, 2, 3,4, 5
	Bridge Form	-	-	
	Bridge Color	-	-	
	Bridge Texture	-	-	
	Substantial and sturdy appearance ,	D	H	1
Recreational Boater (National Park Service & Upper Delaware Council DAC representatives responses represent this viewer group) Estimated boater population: 81,608 per year	Scenic River Landscape	L	H	1, 2, 3,4
	Historic Structure	L	H	1, 2, 4
	Iconic Place	L	H	1, 2, 4
	Dominant Natural Vistas	L	H	1, 2, 4
	Dominant Bridge View	D	H	1
	Maintenance of Existing Provincial Character	M/H	M	1, 2, 4, 5
	Bridge Form	L	H	1
	Bridge Color	L	H	1
	Bridge Texture	L	H	1
	Substantial and sturdy appearance	N/L	M	1

Local PA Resident (Pond Eddy) Population: 21	Scenic River Landscape	L	H	1
	Historic Structure	L	M	1, 5
	Iconic Place	L	M	1, 5
	Dominant Natural Vistas	L	H	1
	Dominant Bridge View	D	H	1
	Maintenance of Existing Provincial Character	L	M/H	1, 5
	Bridge Form	L	M	1
	Bridge Color	L	M	1
	Bridge Texture	L	M	1
	Substantial and sturdy appearance	L	H	1
Local NY Resident (Lumberland & Mill Brook) Population: 219	Scenic River Landscape	L	H	1, 5
	Historic Structure	L	H	1, 5
	Iconic Place	L	H	1, 5
	Dominant Natural Vistas	L	H	1
	Dominant Bridge View	D	M	1
	Maintenance of Existing Provincial Character	L	H	1, 5
	Bridge Form	L	H	1, 5
	Bridge Color	L	H	1
	Bridge Texture	L	H	1
	Substantial and sturdy appearance	D	H	1

Sources: 1. DAC Meeting

2. Enhancement Concept for the Upper Delaware Scenic Byway: HRG Consultants, Inc. and Shepstone Management Company; January 2002

3. Website: Upper Delaware Scenic Byway (<http://www.upperdelawarescenicbyway.org/attractions/river/river.php>)

4. Comprehensive Interpretive Plan - Upper Delaware Scenic and Recreational River; National Park Service; 1999

5. Letters from Stakeholders

Two viewer groups were firmly rooted in preserving the existing structure to the exclusion of other alternatives. They were the Lumberland residents and the Touring Motorists, represented by the Upper Delaware Scenic Byway representative on the DAC.

The recreational boating community, represented by the National Park Service (NPS) and the Upper Delaware Council (UDC) on the DAC were divided on the issue. The NPS representative received significant pressure for preservation and preferred concepts that best duplicated the essential character of the existing structure. However, the NPS was amenable to alternatives with the provision that the alternative be attractive in form color, texture and setting to provide the river user an experience consistent with the “scenic river” definition. The UDC representative strongest value was provision of a strong durable bridge that also was attractive. The UDC was also willing to consider a dominant bridge. The UDC opinion regarding the appearance of strength, durability and aesthetically pleasant was reflective of the Pond Eddy residents’ assessment but, the Pond Eddy residents preferred the bridge to be subordinate to the natural setting.

VIII. Alternatives Considered

PennDOT and NYSDOT propose the replacement of the existing Pond Eddy Bridge. As part of the environmental approval process, the DOT’s executed a Memorandum of Agreement with the FHWA, state historic offices, and Advisory Council for Historic Preservation (ACHP) as mitigation for the adverse impact to the historic bridge. As part of the MOA, the DOT’s formed a Design Advisory Committee consisting of local interest groups and stakeholders to solicit input on the aesthetic appearance of the replacement bridge. The different DAC members are described in the previous section, Viewer Groups, of this report. The formation of the DAC involved the participation of three project meetings design to solicit local input and identify aesthetic bridge option(s) for the DOT. The purpose and goal of each meeting is summarized as follows.

Meeting 1 - solicit input from the DAC members regarding general likes and dislikes in regard to visual elements and aesthetic components of the proposed replacement bridge. The goal of the meeting was to identify Homework assignments for the Project team to complete follow-up investigation or evaluation of member recommendation and input.

Meeting 2 - The purpose of this second meeting was to review replacement structure options and solicit input from the DAC members regarding general likes and dislikes in regard to visual elements and aesthetic components of the options for the proposed replacement bridge. The goal of the meeting was to select Bridge Type(s) and Aesthetic features for further comparison by narrowing options for advancing to Meeting 3.

Meeting 3- The purpose of this third meeting was to review replacement structure options and solicit input from the DAC members regarding general likes and dislikes in regard to visual elements and aesthetic components of the options for the proposed replacement bridge. The goal of the meeting was to select Bridge Type(s) and Aesthetic features for the DOTs’ consideration.

The DAC process resulted in the selection of two bridge replacement options for the DOT's consideration for selection. The details of each meeting and the input from the DAC members are provided in Attachment 1.

The following bridge types were evaluated by the DAC:

- Four-Span Concrete
- Three-Span Steel
- Two-Span Steel
- Two-span Continuous Truss
- Single Arch
- Dual Arch
- Cable-Stayed
- Truss-hybrid
- Arch-hybrid

Dismissed Bridge Options

The bridges that were considered and / or dismissed are pictured below. The captions specify the bridge type and summarize the reason that the alternative was dismissed or pursued for further consideration:



Photograph 8.A: Four Span Steel Girder: Bridge type dismissed. The form of the bridge was too conventional. Did not enhance vista.



Photograph 8.B: Three Span Steel Girder: Bridge type for further consideration with revision. The form of the bridge is conventional. However, the design is more pleasing than the four-span because it is more open. Less dominant with respect to the river.



Photograph 8.C: Two Span Steel Girder: Bridge type dismissed. The required depth of girder makes the bridge appear too heavy and dominant.



Photograph 8.D: Two Span Truss: Structure of bridge encloses the motorist user. Interferes with desirable views of the river from the bridge (i.e. too enclosed). Pictured bridge type dismissed, but truss type considered further with revision.



Photograph 8.E: Single Arch: Bridge option dismissed. Only Preservation Pennsylvania liked the bridge. Justification for dismissal was based upon large scale and dominance. The option was disliked.



Photograph 8.F: Cable-Stayed: Bridge is too dominant. Option dismissed.



Photograph 8.G: Truss Hybrid: Bridge option dismissed.



Photograph 8.H: Arch Hybrid: Bridge Option Dismissed



Photograph 8.1: Dual Arch: Bridge Option initially advanced, but later dismissed. Initially the bridge was affirmed because the Dual Arch was perceived to best replicate the existing bridge in form and density and its topline repeated the surrounding ridgelines in an appealing way

Selected Bridge Options:

The design team interpreted the feedback provided by the DAC representatives and refined the designs. After additional consideration the two finalists, the dual truss and the 3-span haunched girder emerged. The two bridges are pictured below and this report's analysis focuses solely on these alternative designs.



Photograph 7.J: Dual Truss: The bridge option was of interest to the DAC group. Its further refinement resulted in dual truss option to be one of the two selected alternatives.



Photograph 7K: 3-span haunched steel girder bridge: The design of the 3-span steel girder bridge was refined to address the DAC group distain for traditional highway appearance and massiveness. Tapered steel added a slight curve to the bridge profile and reduced bulk that appealed to the viewers, and resulted in finalist status for this bridge option

IX. Visual Impact Assessment

The result of the Design Advisory Committee Meeting process was the identification of two proposed bridge types, including the dual truss and the 3-span haunched steel girder bridges. The replacement of the bridge will result in a minor change in the location; the existing truss bridge will be replaced with a new bridge immediately adjacent to the existing crossing location. To determine the visual impact, consideration is given to the change in the visual resources and the viewer response to those resources caused by the bridge replacement. The visual resource consists of the bridge crossing over the Upper Delaware River along wooded mountainous terrain along the Pennsylvania side and the Route 97 Scenic Byway corridor along the New York side of the river. The replacement of the bridge crossing would occur immediately upstream of the existing crossing; therefore, the mountainous wooded rural setting along the Pennsylvania Side or to the Route 97 Scenic Byway setting on the New York side would not be impacted by the proposed project.

A. Visual Resource

In consideration of the visual resource, the DAC was developed to solicit local input regarding the appearance of the replacement structure. A general theme to the DAC was to develop and select a bridge option that would meld with the natural landscape or be an iconic structure along the Upper Delaware River. As part of the DAC, aesthetic qualities considered included the pattern elements and characters of the bridge type. Pattern elements consider the form, line, color and texture as defined below:

- Form: Visual mass, bulk or shape
- Line: Edges of objects or parts of objects
- Color: Value or reflective brightness (light, dark) and its hue (red, green)
- Texture: Apparent surface coarseness

Pattern characters include the dominance, scale, diversity, and continuity as further defined:

- Dominance: Prominence due to position, extent or contrast of basic elements
- Scale: Apparent size relationship between a landscape component and its surroundings
- Diversity: Function of the number, variety and intermixing of visual pattern elements
- Continuity: The uninterrupted flow of pattern elements in a landscape and the maintenance of visual relationships between immediately connected or related landscape components

The following table addresses the pattern elements and characters for the dual truss and 3-span haunched steel girder bridge alternatives as they compare to the existing petit truss bridge. It was highly important to some stakeholders to preserve the existing bridge. The comparison provides a practical basis for evaluating the visual variation presented by each alternative that will be determinative in judging the relative impact of bridge replacement. The relative compatibility of each characteristic is scored as similar (S) or dissimilar (D) for each bridge type.

Comparison of Alternatives to Existing Bridge

Bridge Aesthetic Pattern	Existing Petit Truss Bridge Description	Dual Truss	3-Span Haunched Steel Girder
Element – Form	Curved top-line, Delicate mass	S/D Similar overall shape, Heftier superstructure	D/S Different Shape, similar mass-graceful
Element – Line	Abundant linear features including pier, deck and erector-set super structure	S Replicates erector-set frame; many angles and intersecting lines	D Smooth lines, few intersecting edges
Element – Color	Low reflectivity, dull rust hue	D High reflectivity Hue – to be determined	D High reflectivity, Hue – sandy colored concrete bridge deck
Element – Texture	Complex texture-angular stone pier, rough plank wood deck, lacey steel frame provides texture even at a distance	S Piers to be surface to emulate stone, lacey steel framework	D Smooth
Character - Dominance	Subordinate within the landscape. Bridge is clearly visible , but is less prominent than the wooded slopes and river valley landscape	S Bridge will have a little more mass but be secondary to natural landscape	D Bridge will be <u>less dominant</u> due to its lower profile
Character - Scale	Balanced scale: Scale matches cottages and other man-made river valley features, neither larger or smaller	S Bridge will match scale of landscape	S Bridge will match scale of landscape
Character - Diversity	High quality diversity: Bridge setting is a diverse mixture of tree-covered mountain-river valley landform, with a quaint hamlet along a curvaceous road	S Diversity of the setting and crossing will remain intact	S Diversity of the setting and crossing will remain intact
Character - Continuity	High quality continuity: Bridge form mimics ridgelines and literally and figuratively provides connection across the river valley.	S Continuity of the landforms and crossing will remain integrated	S Continuity of the landforms and crossing will remain integrated

The overall pattern elements and characters of the dual truss are generally similar because the dual truss is designed to replicate the existing truss. The proposed dual truss was planned to be not more than 30 feet in width and therefore, would appear to be larger than the existing truss (15-feet in width). A recent design change resulted in narrowing of the proposed dual truss bridge to 22' 4" inside width to better replicate the scale of the existing bridge and still maintain vehicular functionality. In aesthetic pattern criteria, form, line, texture, diversity and continuity, the bridge would be undistinguishable from the current structure from the distant view. As the viewer moves closer to the dual truss bridge, the slightly wider bridge width and the stouter structural components would be perceived as a more dominant feature of the landscape than the existing bridge.

The pattern elements and character of the 3-span haunched steel girder bridge are equally similar and dissimilar to the existing petit truss Bridge. The haunched steel girder bridge with concrete and steel railing parapets presents different form shape, but similar mass. The line will be less complex. Color will be more intense, and texture will be smoother. While a resident viewer will require an adjustment period to normalize the new bridge form, the design will fulfill the same pattern character within the context of the Pond Eddy setting. The proposed bridge will be less dominant in the overall landscape, while diversity and continuity characters will be perceived similarly to the existing bridge within the landscape.

As previously stated, the proposed 3-span haunched steel girder bridge design is responsive to the DAC input to reduce the scale and dominance of a girder bridge so it does not resemble the Shohola-Barryville bridge and develop elements to allow the proposed bridge to create a harmonious impression within the existing setting. The steel girder bridge's low, sleek profile supplies continuity for the bridge within the natural setting. The tapered under girder not only reduces the bridge profile, its mild arch visually duplicates the river's bend producing a harmonious form.

B. Visual Quality

Visual Quality typically considers the vividness, intactness, and unity of the viewshed. Because of the nature of the historic truss bridge structure, NYSDOT has requested that uniqueness also be considered in the assessment of visual quality.

Vividness: The memorability of the visual impression received from contrasting landscape elements as they combine to form striking and distinctive visual patterns

Intactness: The integrity of visual order in the natural and man-build landscape and the extent to which the landscape is free from visual encroachment

Unity: The degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or inter-compatibility between landscape elements.

Uniqueness: The degree to which the visual resource is different from others in a way that makes it something special and worthy of note.

FHWA Visual Assessment for Highway Projects developed a scoring system for vividness, intactness, and unity with 1 being very poor, 4 being medium and 7 being very high is used as the basis for a ratio expressing visual quality. Uniqueness was added in the assessment using the same rating scale.

$$\text{Visual Quality} = \frac{\text{vividness score} + \text{intactness score} + \text{unity score} + \text{uniqueness score}}{4}$$

The visual quality of the existing bridge and the two proposed bridge options are addressed in the following table.

Visual Quality Summary Table

Bridge	Vividness	Intactness	Unity	Uniqueness	Visual Quality Score
Existing Petit Truss	7	7	6	7	6.75
Dual Truss	6	7	6	6	6.25
3-span Steel Girder	5	7	6	3	5.25

The standard for determining the uniqueness score for the proposed bridge types was based upon the existing petit truss bridge. Per National Park Service correspondence dated May 21, 2004, the existing bridge is “one of only four surviving petit truss bridges remaining in New York State”. The bridge is on the National Register of Historic Places, and it serves as a visible “authentic artifact” of the region’s cultural history from the perspective of the National Park Service the Upper Delaware Scenic Byway representatives, and other viewer groups.

The landscape will maintain a high visual quality regardless of which bridge is selected for the Pond Eddy bridge replacement. However, the visual quality will diminish from its current very high 6.75 score to a high, 6.25 or 5.25 depending on the selected bridge.

Existing Petit Truss- The vividness of the existing bridge is the benchmark. The bridge is memorialized in a number of publications and has been present in the landscape since 1905. In addition to the character of the bridge in its current setting, its longevity and documentation make it a memorable landscape feature. The intactness score is also indicative of its generational presence in the community. The form, composition, line and character are familiar, yet iconic. The unity score is high. The bridge setting creates a balanced image. The character is consistent with the era of nearby architecture. The slender structure frames the river without dominating the scene.

Dual Truss - The vividness of the visual observation for the Dual Truss is high. The proposed truss is designed to replicate the existing truss and continue the vivid presence of a truss crossing at this location. The uniqueness of a truss bridge in an environment where simplified concrete bridges are plentiful makes the truss bridge memorable and therefore, warrants a high score. The Intactness and unity high ratings emanate from both the local viewer's familiarity with the line and form of the exposed structural components of the truss, and from the first-time viewer who will likely associate the image with the compatibility to the age of the surrounding architecture. The region is devoid of contemporary architecture. The development pattern and building construction appear to be more typical of the eras preceding the popularity of concrete highways and bridges. To the extent that a truss bridge provides both visual interest and compatibility with other architectural elements, the dual truss bridge provides an intact visual experience that is in unity with its surroundings.

3-Span Steel Haunched Girder – The vividness of the visual observation is slightly above medium. While the form, line and construction material of the bridge form a striking and distinctive visual pattern, the ability of the bridge to instill a memorable visual impression is limited due to the high number of similar bridges in current landscapes. Despite the presence of similar bridges along contemporary highways, some DAC meeting participants responded positively to the strong design elements, including the tapered girders, the low profile of parapet, the balance and the scale of the proposed girder bridge. Others perceived the proposal as incongruent with the age of the surrounding architecture and history of the area. The vividness score is reflective of the mixed reaction.

The intactness score is reflective of visual order in the juxtaposition of the constructed bridge within the natural landscape. The group agreed that the low profile freed the mountain valley landscape from visual encroachment. The proposed girder bridge has been designed to reduce the overall line, form, and dominance of a conventional girder bridge. The haunched girder depths have been reduced to minimize the vertical scale of the substructure and the parapets have been designed to include a combination of minimal concrete with steel railings to maximize the transparency of the structure, thereby reducing the dominance of the bridge and contributing to the continuity with the surrounding landscape and results in a moderately high intactness score.

The group also responded to the degree that the bridge form provided a coherent, harmonious visual pattern. The reduced and sleek nature of the design strongly contributes to the overall unity and intactness of the proposed bridge with the surrounding landscape.

C. Impact to Viewer Groups

The evaluation of the visual effect is addressed from the various viewing perspectives, including the traveling motorist, local residents, pedestrians, and bicyclists. The visual impact expresses the degree of change in visual resources and viewer response to those views caused by bridge development and operations. The replacement of the bridge is a major change for the surrounding communities and Upper Delaware River users. A new bridge will have different dimensions and materials. Its color will be more intense. It will be a change.

There will also be a temporary, but highly visible visual impact during construction. Vegetation will be removed and earth disturbance is unavoidable during the construction of the new bridge and the demolition of the existing bridge. It can be expected that the River embankments will require clearing approximately 50 feet west of the existing bridge to accommodate the proposed construction. There will also be disturbance associated with the demolition of the existing bridge. The visual impact of the disturbance will be mitigated through planting of similar vegetation immediately following cessation of construction activities. Since the disturbance is temporary, unavoidable and mitigation through prompt re-vegetation is planned, the focus of the report will be on the replacement bridge, itself, and not on the re-vegetation effort.

The viewer response for the different viewing perspectives is summarized as follows:

Very Negative = 1

Neutral = 4

Very Positive = 7

Dual Truss – Visual Impact to Viewer		
Viewer Group	Response	Remarks
Touring Motorist – NY Scenic By-way	6	<p>NYS Route 97 is designated as a scenic by-way and the Pond Eddy Bridge is within the viewshed for the traveling motorist. The majority of the view to the motorist along Route 97 is blocked by the wooded tree line along the river corridor. The existing truss bridge is slender in appearance, harmonizes with the natural setting and serves as a part of the local history of the town of Lumberland.</p> <p>The proposed dual truss bridge has been designed to mimic the existing truss. The replacement of the structure will result in a limited change in the current viewshed. The proposed design provides a structure that is similar in appearance to the existing structure.</p> <p>DAC representatives for this viewer group preferred this alternative, if bridge replacement proceeds.</p>
PA Local Resident	4	<p>The proposed Dual truss will provide full access to the Pennsylvania residents. The proposed truss will mimic the appearance of the existing bridge. The view to the residents is limited due to the forested nature of the riparian zone along Flagstone Road and Rosa Road. The proposed truss will conform to the natural setting of the crossing.</p> <p>Both the Shohola and Pond Eddy representatives supported the selection of the steel girder bridge.</p>
NY Local Resident	4	<p>The proposed dual truss is designed to mimic the existing truss. The view to the existing truss from the local community is limited because of the forested nature of the</p>

		<p>surrounding landscape. The local residents will continue to view the crossing on their local trips to and from their homes. The proposed truss would be slightly larger in scale, but designed to mimic the appearance of the existing truss; thereby minimizing the change in the viewshed for the local area.</p> <p>Lumberland resident representatives of the DAC oppose any change to the current bridge; but in consideration of truss or girder, truss would mimic existing and would not be a girder bridge. The truss is a “least unpleasant” option.</p>
Recreational Boater	6	<p>The proposed truss is designed to mimic the type and appearance of the existing structure. The proposed dual truss is designed with one center pier, similar to the existing structure. The width of the proposed bridge is slightly wider than the existing, but the slight width increase is minimized to limit the effect to the boating traffic. The bridge width has been minimized to 22' 4" (in to in) and the bridge is positioned above the 100-year flood water surface elevation; thereby, avoiding any tunneling and visual effect to the boating traffic.</p> <p>The NPS, who represented the boating community on the DAC, indicated a preference for the dual truss due to the single pier and unique design.</p>
Overall Response	20/4=5 Positive	The dual truss bridge fulfilled the expressed viewer values of enhancing the river landscape, paying homage to the historic structural form, providing an iconic place, allowing natural views to dominate, honoring the form color and texture of the existing structure and projecting the image of strength and durability.
3-Span Haunched Steel Girder - Visual Impact to Viewer		
Viewer Group	Impact	Remarks
Touring Motorist – NY Scenic By-way	4	<p>The existing truss bridge serves as a part of the local history of the town of Lumberland and is well-documented.</p> <p>The proposed 3-span haunched steel girder bridge combines design elements attractively. The tourist will enjoy a beautiful and harmonious river valley view, but the historic nature of the crossing will be lost.</p>
PA Local Resident	6	The proposed 3-span haunched steel girder bridge will adequately address resident desire to see a structure exuding strength and durability. The bridge will also be subordinate to the natural landscape and provide unfettered river views while using the crossing.

NY Local Resident	1	The proposed 3-span haunched steel girder bridge is an undeniable departure from the existing bridge. Regardless of design efforts to create an appealing image, Lumberland resident DAC representatives opposed any change to the bridge.
Recreational Boater	6	The proposed three span two pier structure provides an open mid-section of the river. The existing crossing has one large pier located with in the middle of the stream channel. The proposed structure will utilize two smaller piers outside of the central portion of the channel, which opens the center portion of the channel for the boating traffic. The width of the propsoed bridge is slightly wider than the existing, but the slight width increase is minimized to limit the effect to the boating traffic. The total bridge width has been minimized to 30 feet and the bridge is positioned above the 100-year flood water surface elevation; thereby, avoiding any tunneling and visual effect to the boating traffic.
Overall Response	17/4 =4.25 Slightly Positive	The 3-span haunched steel girder bridge fulfilled the expressed viewer values of enhancing the river landscape, allowing natural views to dominate, even to a larger extent than the current or proposed truss bridge. The bridge departs from the form, color, and texture of the existing structure. The bridge will not be consistent with the historic structural form or provide an iconic place. However it will project the image of strength and durability and maintain the openness of the river corridor from viewing and travel perspectives.

Summary Conclusion

The assessment above acknowledges that any bridge replacement will cause a visual impact. However, the anticipated visual quality will remain high, and the viewer response to the change will generally be positive. The dual truss scored slightly better on the visual quality and minimizing the visual impact when compared to the 3-span haunched girder. The impacts are summarized below:

Visual Factor	Existing Petit Truss	Dual Truss	3-Span Haunched Steel Girder
Visual Quality Score	6.75	6.25	5.25
Visual Quality Change	-	-0.5	-1.5
Resource Change (C)	-	1	1

Viewer Response (R)	-	5.0	4.25
Visual Impact (C+R)		6.0	5.25

The Pennsylvania and New York Departments of Transportation are advancing the replacement of the Pond Eddy Bridge. As part of the Memorandum of Agreement for the project, a Design Advisory Committee was formed and a series of three meetings were held to solicit local input on the type and appearance of the replacement structure. The DAC included both New York and Pennsylvania representatives along with the National Park Service. The result of the DAC was the identification of two bridge types for the DOT’s consideration: dual truss or 3-span steel girder.

Aesthetic features were considered as part of the development of both bridge types. The dual truss represents a similar type of structure to the existing bridge, thereby mimicking the appearance of the existing crossing. Selection of the truss bridge would result in an iconic structure, with a vivid and memorable profile across the river’s viewshed. Aesthetic preferences were incorporated into the 3-span steel girder bridge to reduce the scale and dominance and to provide a new bridge that melded with the natural setting. Selection of the girder bridge would minimize the profile of manmade architecture within the setting, discreet from the viewer’s perspective and permit dominance of the mountain and river scenery. Both bridge types would result in a change in the existing appearance of the existing crossing; however, with the input from the DAC, both bridge types would result in a moderately high to high quality visual experience with limited visual impact to the overall visual setting.

The essential point of contention throughout the process was the irreplaceability of the visual character of a limited obsolete bridge. The history attached to the bridge and its unique construction is undeniable. It is also undeniable that some of the realities of the site limit alternatives that would allow the bridge to remain in place. A vehicular capable bridge is necessary. Limitations to the number of crossings of the Upper Delaware Scenic and Recreational River preclude repurposing the bridge to pedestrian use and building a vehicular capable bridge elsewhere. Therefore, although a visual impact is certain, it appears that either the dual truss bridge or the 3-span haunched steel girder bridge that replace the current one will result in a minimal degradation to the visual landscape.

X. Mitigation

Generally, mitigation plans evaluate how to minimize the view of an objectionable manmade structure that will intrude into an existing landscape. In this case the bridge itself is the visual resource that is viewed as an authentic visual artifact for the area. The existing visual resource will be removed and replaced by an alternative resource. The weight and dimensional limits of the existing Pond Eddy bridge denies the Pond Eddy, Pennsylvania residents north of the river basic and emergency services. Home delivery trucks exceed the bridge’s limitation. The bridge requires replacement. There are no reasonable alternatives for safe access required for these residents.

The primary mitigation measure to minimize the visual impacts of a new bridge is the proactive design to incorporate the aesthetic preferences of the DAC group representative of the diverse spectrum of viewers into the replacement alternatives.

Per the visual impact section above, the visual quality impact of either bridge alternative is in the acceptable range. While both bridges will result in a moderately high to high quality visual experience, albeit a different view than the current bridge, the truss bridge has been selected as the proposed replacement bridge style. The dimensions of the truss bridge have been further reduced from a 30-foot wide two-lane bridge to a slightly wide, 22' 4" (in to in), one-lane bridge. The generous one-lane width will provide an allowance for traffic shifting to allow for future maintenance and repair of the structure without bridge closure, and the more diminutive scale of one-lane design versus a full-width two-lane bridge will better emulate the scale of the existing petit truss bridge. The superstructure beams will be as slender as possible to minimize the visual impact of the change from the petite truss to the new dual truss crossing.

The remainder of planning will focus on protection, enhancement, and conservation of bridge viewing opportunities. The mitigation measures address the visual aspects and view points for the proposed bridge and commitments to coordinate the development of commemorative documentation of the former bridge.

There are six priority vantage points:

1. Along NYS 97 downstream (east);
2. Along NYS 97 view upstream (west);
3. From the water surface;
4. NYS 97 and Pond Eddy Bridge (south);
5. Rosa Road and Pond Eddy Bridge (north); and
6. From Mill Brook

Viewpoint	Viewers	Rank	Reason for Rank
Along NYS 97 downstream (east)	Tourist, Residents-PA, Residents-NY	2	Existing pull off. High number of benefitting viewers.
Along NYS 97 view upstream (west)	Tourist, Residents-PA, Residents-NY	5	Poor safety. No pull-offs. Private Land with limited likely hood of public purchase for safe stopping
From the water surface	Recreational Boaters	1	Unobstructed view
From Bridge Deck	Tourist, Residents-PA	3	Unobstructed view
NYS 97 and Pond Eddy Bridge (south)	Tourist, Residents-PA, Residents-NY	4	Village center
Flagstone & Rosa Roads and Pond Eddy Bridge (north)	Tourist, Residents-PA, Residents-NY	6	Vegetation buffer that provides resident privacy and preserves natural character of River, obscures

			views
From Mill Brook	Residents-NY	7	Seasonally obscured views

Mitigation to protect, enhance conserve or mitigate prioritized views is listed below:

1. From the water surface: The boaters' perspective from the water is the first priority view. It is unobstructed and is revealed by the course of the river as the use floats through the landscape.

- Mitigation: The selection of the 2-span truss serves as the mitigation for the water use perspective. The 2-span truss with one central pier maintains the existing openness of the river and mimics the existing visual experience of a steel truss over head from the boaters perspective. The proposed 2-span truss would to protect or enhance unobstructed view of the river, itself.
- The dual-truss bridge will frame the view from the river with similar line and texture, mitigating the visual impact of bridge replacement to the greatest extent possible, while providing safe access across the river. The scale will resemble the current bridge.
- Vegetation disturbed along the river banks between the water's edge and the adjacent roads will be replaced with native species to restore the uninterrupted natural habitat along the river corridor.
- DOT will coordinate with NPS to determine if the existing bridge abutments can be retained in place. Retention of the bridge abutments would be visible from the water's surface and serve to memorialize the historic bridge.

2. Along NYS 97 downstream (east): There is an existing pull-off along the north side of NYS 97, east of the Pond Eddy Bridge. This is the only nearby public pull off where the touring motorist can safely stop to view the bridge.

- Mitigation: As listed in the implementation and mapping section of *An Enhancement Concept for the Upper Delaware Scenic Byway* there is an opportunity for enhancing river and bridge viewing through strategic vegetation removal. The plan makes further suggestions regarding the addition of thematic fixtures, walls, informational kiosks, etc. to enhance the user experience. Removal of vegetation could also intensify the viewing pleasure of the residents traveling the road. The existing riparian vegetation along Route 97 is relatively thin in width with low density. Strategic limb removal along Route 97 within 500 feet of the bridge replacement could be proposed as a visual mitigation measure; however, tree removal is inconsistent with current stormwater management policies emanating from the Clean Water Act, and is not proposed.

3. From Bridge Deck: The view from the deck is the only variation between the two alternative bridge concepts. The selected truss bridge offers views framed by the steel super structure similar to the existing bridge. Additionally, from the DAC meetings, the creation of a commemorative sign was suggested as a potential mitigation measure to be incorporated into the project.

- Mitigation: A sidewalk would be provided on the proposed 2-span truss to maintain the opportunity to experience river views from the crossing structure.
- A commemorative sign could be provided at the new bridge or at the old bridge abutment to document the historic bridge at this location. Coordination with the DOT's, Sullivan County and the National Park Service would be undertaken in final design to determine if the development of a commemorative sign would be practical and feasible.

4. NYS 97 and Pond Eddy Bridge (north): These views are from the village center. Currently the landscape in this area features large parking areas adjacent to the former Millbrook hotel. Motorists can use the pull off from Route 97 and walk to or across the bridge.

- Mitigation: This area offers an investment opportunity for improving the appearance and safety of the wide-open parking areas. While such improvements will not significantly affect views of the bridge itself, a safe pedestrian crossing across Route 97 is desirable.
- A commemorative sign could be provided at the new bridge or at the old bridge abutment to document the historic bridge at this location. Coordination with the DOT's, Sullivan County and the National Park Service would be undertaken in final design to determine if the development of a commemorative sign would be practical and feasible.

5. Along NYS 97 view upstream (west): Views approaching the Pond Eddy bridge from the south/west consist of glimpses between roadside trees. There is no safe stopping area, and no likely public land purchases to provide such an area. Viewing along this section will continue to be at the posted travel speed.

- Mitigation: Selected trees could be removed and branches trimmed to provide framed view openings; however, vegetation should be retained to protect outward views from the scenic river corridor. Anticipatory tension can be heightened for motorists by sequencing openings in a pattern that starts with narrow openings for quick glimpses and progresses to wide openings that reveal the larger picture as the viewer draws closer to the bridge. No visual mitigation measures. Therefore, no visual mitigation is proposed. Conserve existing vegetation

6. Flagstone & Rosa Roads and Pond Eddy Bridge (south): Views for the Pennsylvania side of the river are currently filtered by riverbank vegetation. It is recommended that the vegetation should be entirely preserved along this bank. The trees buffer the river users from the adjacent residences and provide privacy for the residents. The trees also provide a natural guiderail protection for vehicles utilizing the narrow cartway. The safety and buffering functions of the vegetative screen is more important than viewing opportunities.

- Mitigation: No visual mitigation measures. Conserve existing vegetation.

7. From Mill Brook: The views of the bridge are revealed only during the winter months when the leaves are off the trees. In other seasons views from the Mill Brook area are largely from private land,

and not from the public street rights-of-way. As such, there is no proposal for mitigation or view enhancement.

Summary

In conclusion mitigation plans for the Pond Eddy Bridge area are consistent with the implementation proposed in *An Enhancement Concept for the Upper Delaware Scenic Byway*. The selected dual truss bridge design serves as a visual mitigation. It will offer the closest visual experience to the removed historic bridge. The existing bridge is viewed as an authentic visual resource for the area. A commemorative sign could be provided at the new bridge or at the old bridge abutment to document the loss of the authentic artifact at this location. Coordination with the DOT's, Sullivan County, and the National Park Service would be undertaken in final design to determine if the development of a commemorative sign would be practical and feasible. PennDOT has created a comprehensive file including photographs to document the historic nature of the bridge. Should the development of a commemorative sign at the Pond Eddy Crossing not be practical, feasible, or desirable, PennDOT could provide access to the material for an entity wishing to pursue implementation of a future memorial.

The DOT's also support retention of the elements of the bridge, that can be safely retained, so that future memorialization is feasible. The central pier of the existing bridge must be removed to address the National Park Service directive to limit obstruction and maintain the free flowing condition of the river. Coordination with the DOT's and the NPS would be undertaken during the final design process to determine if the historic bridge abutments could be retained in place along the River's edge.

Attachment 1 - Design Advisory Committee Meeting Minutes

DAC Meeting 1

The first of three Design Advisory Committee (DAC) meetings for the Pond Eddy Bridge Project was held on the evening of December 7, 2011 at the Shohola Township Municipal Building. The purpose of this first meeting was to solicit input from the DAC members regarding general likes and dislikes in regard to visual elements and aesthetic components of the proposed replacement bridge. The following summarizes the members input on the aesthetics for the replacement.

- The project team presented a Powerpoint slideshow regarding the role and functioning of the DAC, engineering constraints that would need to be considered, and various design elements of a bridge, respectively. One member of the DAC indicated that bridge design is a technical concept that most DAC members are not qualified to make decisions about. As such, it was recommended that PennDOT's consulting team present several feasible options for the replacement bridge, and let the DAC choose one of the pre-approved options. PHMC indicated that a previous DAC they participated in was very successful, and ultimately resulted in community input leading to a well-received and successful project.
- Two basic design themes were presented by one of the DAC members. These design themes include minimizing the bridge to "blend" it into the natural environment of the river corridor or maximizing its appearance by developing an iconic or "signature"-type structure. Ultimately, the DAC will need to decide which of these design themes best suits the character and fabric of the Upper Delaware Scenic and Recreational River corridor.
- Of these two basic design themes, it was noted that most DAC members want to avoid the concrete appearance of the Shohola-Barryville Bridge. To that end, steel components may be the best option for minimizing the visual aspects of the bridge, as steel components would have less bulk and volume than concrete components.
- NPS indicated that the number of piers in the river is the most important factor from a free-flowing river perspective. As such, they would likely advocate for a design that has the fewest number of piers in the river as possible, without compromising the aesthetic elements of the bridge superstructure.
- A member of the project design team asked if one center pier in the middle of the river (i.e., presumably in the main channel) would be an issue from a recreational boating perspective, or if two piers straddling the main channel would be better. The NPS responded that one center pier in the middle of the river would be okay with the NPS in regard to recreational boat traffic. Ultimately, the NPS would like to see something unique and beautiful at this location to blend into the natural environment of the Upper Delaware Scenic and Recreational River corridor. The NPS understands that the design of the bridge will need to be a balance between the number of piers in the river and the resulting aesthetic appearance of the superstructure. The

NPS would not object to an iconic/signature-type structure depending on its overall appearance.

- Discussion ensued regarding the option of developing an iconic/signature-type bridge (i.e., cable-stayed or suspension) at this location. A question was raised as to what the down side of such a bridge would be. Increased cost, longer construction times, and construction challenges were noted as being likely to accompany a signature bridge. It was also noted that cable-stayed and suspension bridges are typically used for “mega bridges” where spans exceed 500 feet in length. This doesn’t mean that a cable-stayed or suspension couldn’t be built at this location, but it would likely be overkill in design and bulky in appearance for this location. Someone asked how tall the tower would be for a cable-stayed bridge at this location, and would it conflict with migratory birds. The project team speculated that the tower would be somewhere between 75 and 100 feet in height. Further, the project team indicated that the possibility exists for wind noise to be generated by the resulting cables. Nobody was really able to render a good answer about the migratory bird question. The height of the cable-stayed tower was assigned as a “homework” item to be reported on at the next DAC meeting.
- Discussion ensued regarding the possibility of reconstructing a truss bridge. A member of the DAC asked if long-term maintenance would be an issue for a new truss bridge, just as it has been for the existing bridge. It was indicated that long-term maintenance costs for a truss bridge would certainly be higher than for a concrete bridge because of the need to maintain the truss’s paint system. Over a 100-year period, a new truss bridge would need to be painted 2-3 times. The bridge would need to be painted in order to resist corrosion and deterioration issues associated with winter road salts.
- A question was raised regarding the types of barrier that could be used on the bridge. One person commented that it would be desirable to be able to see the river, and to stay away from the use of concrete barriers like that of the Shohola-Barryville Bridge. The project team indicated that there were a number of options that could be used for bridge barrier, and that a concrete barrier was not a mandate. Further, Scott felt confident that given the low volume of traffic on this bridge, a thinner, less bulky open-railing TL-4 barrier could be used instead of the standard TL-5 barrier. The TL-4 would still meet the necessary crash test ratings, but allows for a thinner, more open barrier design. Investigation into different types of barriers was established as a “homework” assignment to be reported on at the next DAC meeting.
- A member of the DAC asked if a cable-stayed bridge would require more final design time. The project team indicated that a unique bridge design would surely require more effort during the final design process. Further, the project team indicated that when dealing with a unique bridge design, the pool of contractors capable of building such a bridge goes down, which could equate to an increased bid cost from a lower number of competent bidders.

- The Upper Delaware Council stated their primary concerns are safety and longevity of the new bridge, but indicated that the aesthetic appearance is also important to the river corridor. To that end, the UDC would support the development of a signature bridge if the DAC went in that direction. The UDC also inquired if a new river access was still being proposed as part of the project. The project team indicated that the river access would need to be handled by the NYSDOT, because the right-of-way for a new river access would need to be purchased on the NY side of the river. At this point in time, it is uncertain if a new river access will be advanced as part of the bridge project.
- A member of the DAC inquired about the width of the new Pond Eddy Bridge. It was indicated that the out-to-out width of the new bridge must be a minimum of 30 feet to accommodate at least one lane of traffic during future maintenance activities. For comparison purposes, the total width of the Shohola-Barryville Bridge is 52 feet. The project team indicated that the roadway striping/line painting on the bridge can be whatever the group wants.
- Deck options were discussed as one of the potential design elements to be considered as part of the DAC process. Someone inquired if an open grid deck could be used. The project team noted that open grid decks are generally less sturdy and louder than concrete or asphalt decks. Wood decking was also discussed, but notable maintenance concerns would accompany this kind of deck, and PennDOT generally tries to avoid them for that reason. The investigation of various deck options was assigned as a “homework” item to be reported on at the next DAC meeting.
- A member of the DAC questioned what other regulatory or timing restrictions would the project be subject to. The project team noted that the project would be subject to certain regulatory/timing restrictions associated with the shad and bald eagle. These restrictions are to be included and factored into the project via the environmental clearance process. Accommodation of boaters through the development of an Aids-to-Navigation Plan will also need to be coordinated with the PA Fish and Boat Commission and the NPS.
- Pedestrian accommodation was also discussed as a pending issue in need of clarification. The need to accommodate pedestrians, and in what manner to accommodate them was assigned as a “homework” item to be reported on at the next DAC meeting. It was noted that if a sidewalk is required, a barrier separating the traffic from the sidewalk would likely compromise the ability to see the river from the bridge. This is an issue that will need to be clarified and decided through the DAC process.
- In closing, the project team indicated that the selected bridge type could very well impact the amount of time required to be in the river, as well as the resulting impact on the river itself. In short, if speed of construction is desired, then a more typical bridge design should be selected.

If a specialty bridge is selected, more time in the river will be necessary to accommodate the construction of a unique bridge design.

- A member of the public commented that budget should be an important consideration in the DAC process, and that an iconic/signature bridge may be too prohibitive from a project budget perspective. The project team Paul DeAngelo that cost will be a factor of analysis for consideration in the DAC process.

As a follow-up to the input from Meeting 1, the following homework assignments were assigned to the project team.

- Investigation the proposed height of the cable-stayed tower;
- Investigate the different types of barriers;
- investigate of various deck options;
- Investigate how pedestrian traffic would be accommodated on with the new bridge.

DAC Meeting 2

The second of three Design Advisory Committee (DAC) meetings for the Pond Eddy Bridge Project was held on the evening of February 14, 2012 at the Shohola Township Municipal Building. The purpose of this second meeting was to review replacement structure options and solicit input from the DAC members regarding general likes and dislikes in regard to visual elements and aesthetic components of the options for the proposed replacement bridge. The goal of the meeting was to select Bridge Type(s) and Aesthetic features for further comparison by narrowing options for advancing to Meeting 3.

The following is intended to summarize the evening's proceedings.

- The project team provided a general overview of the purpose of the meeting and reminded the group that the intent of the DAC meetings is focused on the visual aspects of the structural configuration and aesthetics features of the replacement structure. The project team indicated that there was recent local interest targeting rehabilitation of the existing structure, but clarified that the DOT's and FHWA have decided to replace the existing bridge and the focus of the DAC meetings was only to discuss the structural configuration and aesthetic features of the replacement structure.

The project team presented a PowerPoint slideshow reviewing the Homework Assignments presented at Meeting #1, including the: Typical section (30 feet out to out), Bridge Deck, Bridge Type, Tower height, Piers, Railings, and Comparison Matrix (river impact, construction time, costs). A copy of the Power Point presentation is attached (Attachment 1). The presentation included nine bridge replacement structure options with renderings and cross section displays, for the following:

Four-Span Concrete, Three-Span Steel, Two-Span Steel, Two-span Continuous Truss, Single Arch, Dual Arch, Cable-Stayed, Truss-hybrid, and Arch-hybrid.



Photograph 2.1: Four Span Steel Girder



Photograph 2.2: Three Span Steel Girder



Photograph 2.3: Two Span Steel Girder



Photograph 2.4: Two Span Truss



Photograph 2.5: Arch



Photograph 2.6: Cable-Stayed



Photograph 2.7: Truss Hybrid



Photograph 2.8: Arch Hybrid

- The project team provided an overview of the comparison matrix that would be used to compare and contrast each option. The comparison matrix included the following parameters: number of piers, complexity/specialty contractors, final design time, project cost, 100-year life cycle cost, future maintenance requirements.
- The project team stated that the DOT's have determined that the bridge width would be 30 feet. This would allow for half-width construction for maintenance activities so that the potential for future river encroachments could be avoided and/or minimized.
- After presentation of the options, the project team reviewed the comparison matrix.

**Pond Eddy Bridge Replacement Project
Design Advisory Committee Meeting # 2
Alternative Comparison Matrix**

	4-Span Concrete	3-Span Steel	2-Span Steel	2-Span Truss	Arch	Cable Stay	2-Span Arch	3-span hybrid steel-arch-steel	3-span hybrid steel-truss-steel
Number of Piers in Water	3	2	1	1	0	1	1	2	2
Complexity/Specialty Contractors Needed	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Final Design Time Required*	12 months	12 months	12 months	12-15 months	15-18 months	15-18 months	15-18 months	15-18 months	12-15 months
Construction Duration	15-18 months	15-18 months	15-18 months	15-18 months	18-24 months	18-24 months	18-24 months	18-24 months	15-18 months
Project Cost**	\$9.70 Million	\$10.48 Million	\$11.15 Million	\$12.94 Million	\$13.45 Million	\$17.98 Million	\$15.04 Million	\$12.40 Million	\$12.53 Million
100-year Life Cycle cost***	\$3.00 Million	\$3.70 Million	\$4.37 Million	\$7.02 Million	\$8.79 Million	\$9.53 Million	\$9.65 Million	\$6.79 Million	\$6.28 Million
Future maintenance Requirement	Routine; Dept staff or local contractors	Routine; Dept staff or local contractor	Routine Dept staff or local contractor	Routine; Dept staff or local contractor	Complex Specialty contractor needed	Routine Dept staff or local contractors			

* Additional Time may be required for utility relocation, right-of-way acquisition, or permitting.

** Project cost includes Utility Coordination, Right-of-Way, Initial Construction (including aesthetic treatments), and Construction Engineering/Inspection.

*** Value reflects Present Worth Bridge Cost; Includes Original construction cost plus maintenance

- FOPEB inquired about the changes in the project costs, from previous meetings and project documentation. The project team stated that earlier costs accounted for causeway costs that allowed for boat traffic to pass through the construction zone and for that to occur, the causeways needed to be of greater size with resulting higher costs. Previous costs included costs for aesthetic treatments which have been removed from the presented bridge options in order to provide baseline costs for comparison.
- The project team explained that the construction season would vary between options and that with all options a full-length causeway would be required because of limited access from the PA side of the river. The project team noted that the full-length causeway would not be in the river for the entire time of construction.
- It was agreed amongst the DAC members to review each bridge option and provide a yes or no regarding each member's preference as the replacement option. UDSB stated that his agency prefers the existing bridge remain in place and as such stated the UDSB would abstain from participating in the consideration of the replacement options. The UDSB left the meeting before the member evaluation of the options commenced. FOPEB also left the meeting before the evaluation of replacement options, thereby abstaining from participating in the evaluation of replacement options. The remaining DAC members agreed that members need to be present to vote on options and if members leave; they forego their opportunity to vote and participate in the DAC process in their absence.
- The DAC members reviewed each bridge option and provided their position on each, as summarized in the following table.

DAC Member – Bridge Option Voting Summary

	CONVENTIONAL			NON-CONVENTIONAL						
Type/ Member	4- Span	3- Span	2- Span	Cont* Truss	Truss hybrid	Dual truss	Single Arch	Dual Arch	Arch hybrid	Cable Stayed
Cost** (million)	7.8	8.5	9.2	11.0	10.6	----	11.5	13.1	10.5	16.1
UDPC	N	N	N	Y	N	Y	N	Y	N	N
Shohola	Y	Y	Y	N	N	N/y	N	N	N	N
NPS	N	***N/y	Y	N	N	Y	N	Y	N	N
Pond Eddy	N	Y	N	N	N	N	N	N	N	N
Pike	N	Y	N	N	N	Y	N	Y	N	N
PHMC	N	Y	Y	N	N	N/y	N	Y	N	N
Pres. PA	Y	Y	N	N	N	N/y	Y	Y	N	N
UDC	N	N/y	N	N	N	N	N	Y	N	N
Lumberland	N	N/y	N	N	N	Y	N	Y	N	N
Total: yes	2	8	3	1	0	7	1	7	0	0
no	7	1	6	8	9	2	8	2	9	9
Preferred Bridge Option										
*Cont Truss = Two-span Continuous Truss										
** Cost = Construction costs (does not include inspection, right of way, aesthetics, demolition, dismantling)										
***N/y = indicates the initial vote was not in favor, but in consideration of the accompanying types, that option										

was preferred.
For example, of all the conventional types, that 3-span was preferred or of all the truss options, the single truss was preferred.

4-span comments:

UDC – too conventional

UDPC – don't like conventional bridges for Upper Delaware Setting

Shohola – likes the low cost

3-span comments:

PHMC – Two piers aesthetically pleasing

Pres PA – favorite of all conventional types

UDC – too conventional

Lumberland – big bridge, if considered need open railing

2-span comments:

Shohola – simplistic

UDC – too heavy

General note of the three conventional bridges (4-span concrete, 3-span steel, & 2-span steel), 8 of the 9 members agreed that the 3-span steel was preferred (UDPC do not like conventional).

Continuous Truss Comments:

UDPC - could it be rendered with an open rail

Pike – too enclosed

Truss Hybrid Comments:

All members do not like truss hybrid

Dual Truss Comments:

Seven of the nine members prefer the Dual Truss of the truss options.

UDPC - could it be rendered with an open rail

Lumberland - concerned about costs.

General concern for members regarding the bulkiness and enclosed feeling of truss

Pres PA – Truss is too bulky, Arch is much lighter in appearance; Truss will not have the same feel as Arch

Single Arch Comments:

All members don't like this option, except Pres PA, liked this option because it opened the river

Dual Arch Hybrid Comments:

All members do not like this option

Dual Arch Comments:

Shohola concerned over the high costs

Pond Eddy – liked continuity

Pike – concerned about high cost

PHMC – best replicates existing bridge structure

NPS – Arch best mimics existing bridge and surrounding mountain range

All members do like this option, except Shohola, it costs too much

- After review of the alternatives, it was determined that the 3-span steel, dual arch, and dual truss be carried forward for further consideration (Colored in Yellow in Voting Table).
- The NPS requested the project team further explore the potential for alternative railing types in an attempt to provide alternative artistic/aesthetic options in place of concrete. The project team provided an overview of railing and pier options. They also acknowledged the NPS's request and committed to review alternative options for Meeting #3.
- NPS asked if there were methods to improve the appearance of concrete bridge. The project team indicated that colored concrete could be used to improve the appearance, slides of colored/formed/stamped concrete were shown.
- There was a generalized consensus from the DAC members that open railings were preferred to a solid concrete railing or barrier.
- Pres PA asked if adding lattice work to railings to replicate the appearance of the existing bridge would be possible. The project team indicated that it would be possible but the lattice would likely be in addition to the structural elements of the railings.
- NPS requested if renderings of the proposed structures could be developed from the boating traffic perspective (underside of the bridge). The project team indicated that a computer simulation could be developed but not a photo image.
- The NPS asked if the replacement structure would accommodate pedestrian traffic. The project team indicated that the new bridge would accommodate pedestrian traffic using the shoulder and would not include additional widening for sidewalks.
- In closing, the project team summarized the follow-up Homework Assignments for the project team in preparation for Meeting #3.
 - Set date for Meeting #3.
 - Prepare rendering of Dual Truss.
 - Prepare alternative railing options.
 - Prepare alternative pier options and aesthetic concrete treatments.
 - Provide a photograph of existing truss bridge that would mimic the proposed truss.
 - Provide river cross-sections

DAC Meeting #3

The third of the three Design Advisory Committee (DAC) meetings for the Pond Eddy Bridge Project was held on the evening of March 29, 2012 at the Shohola Township Municipal Building. The purpose of this third meeting was to review replacement structure options and solicit input from the DAC members regarding general likes and dislikes in regard to visual elements and aesthetic components of the options for the proposed replacement bridge. The goal of the meeting was to select Bridge Type(s) and Aesthetic features for the DOTs' consideration.

The following is intended to summarize the evening's proceedings.

- The project team provided a general overview of the purpose of the meeting and reminded the group that the intent of the DAC meetings is focused on the visual aspects of the structural configuration and aesthetics features of the replacement structure. The project team reviewed that DAC#1 solicited design and aesthetic input from the members. At DAC#2, illustrations and renderings of the replacement options and aesthetics were provided and the group members narrowed the options for consideration to the 3-span steel, Dual Truss and Dual Arch. The project team stated that aesthetic refinements would be provided for these options for the members' consideration.
- The project team provided an overview of the comparison matrix for the different options, noting that one of the follow-up items from DAC#2 was consideration of a Dual Truss option as opposed to the continuous truss. The project team noted that a Dual Truss option was developed and was added to the comparison matrix.
- PennDOT provided an overview of the programming budget for the project, indicating that the DOTs have \$10.5 million programmed for the project. The NPS stated that it was inappropriate to discuss a project budget during these meetings, because the DAC was to focus on the design. The NPS also voiced concern that design options would not be evaluated fairly because the cost exceeds the \$10.5 million programmed budget. The project team clarified that the programmed budget information was provided as a matter of disclosure for the group and that all options would be fully covered in the presentation to the DAC, including the 3-span steel, Dual simple Trusses, and Dual Arch. PennDOT stated that both PA and NY states have limited budgets, overall, and with the current poor economy, both states are in a very constrained fiscal time. Both states continue to receive stakeholder and political pressure questioning the expenditures for this project as a whole. PennDOT also stated that if the DAC recommended an option that exceeded the programmed budget, the DOTs would consider if additional funds could be obtained for the project. PennDOT requested that the DAC members assist the DOTs by contacting their political representatives and express support for additional funding.
- DAC members asked if demolition costs were included within the project costs. The project team stated that each option included costs for demolition. Disassembly for re-use at another location, in accordance with the MOA's marketing plan, would cost \$750,000 in addition to the

costs of each alternative. The party assuming ownership and re-use would be responsible for this additional cost.

- The project team presented a PowerPoint slideshow prepared by Michael Baker Jr., Inc. showing the aesthetic refinements for the 3-span steel, dual truss, continuous truss, and dual arch, including different colors, railing types, and pier types, in addition to the general span and crossing configuration. Additionally, animations of the boater's view through the crossing were also provided, as prepared by Baker. A copy of the presentation is attached **in Appendix __**.



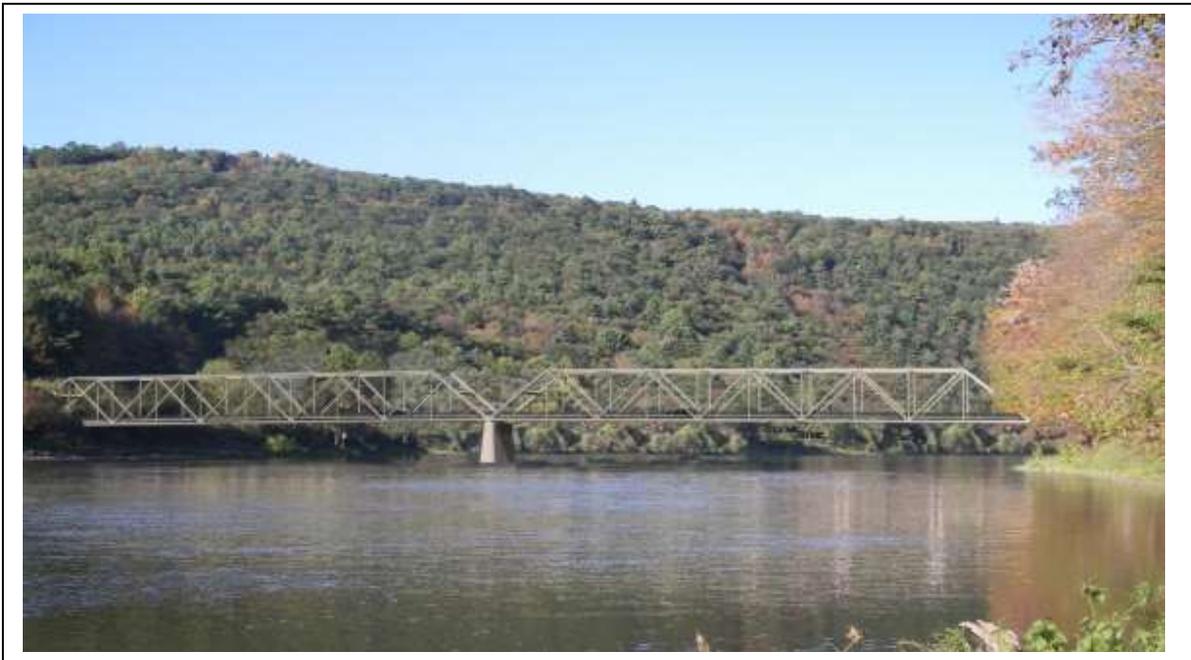
Photograph 3.1: 3-Span Steel



Photograph 3.2: Continuous Truss



Photograph 3.3: Dual Arch



Photograph 3.4: Dual Truss

- The Town of Lumberland inquired about the construction access, construction staging and impact to traffic along New York State Route 97. Lumberland expressed concern about traffic phasing and severe impacts during the 2009-2011 Matamoras-Port Jervis bridge rehabilitation. The project team stated that all of the details regarding construction access would be worked out during the final design phase. Lumberland stated they have concerns regarding the maintenance of traffic along SR 97 that they don't want to be notified of at the last minute. The project team stated that the DOTs would need to obtain temporary construction easements for access and staging and this would be coordinated during final design.
- DAC members inquired how much would PennDOT get for selling the bridge to a new owner. PennDOT indicated that because the buyer would likely be putting much more money into the bridge than getting in funding, the selling price would be nominal. Federal (80%) and State (20%) for disassembly, moving, and re-erection is limited by the estimated cost of demolition. FHWA has money available for helping the buyer up to the cost of the bridge demolition. FHWA rules of eligibility allow for relocation or conversion of a vehicular bridge to pedestrian at a cost not to exceed demolition. This is when FHWA bridge funds are being used.
- The project team explained that the construction season would vary between options and that with all options a full-length causeway would be required because of limited access from the PA side of the river. Bob noted that the full-length causeway would not be in the river for the entire time of construction.

- Shohola Township commented that the crossing over the Upper Delaware River should be consistent with the goals of the river management plan, meaning that there should be a focus on a bridge design that blends in with the setting and not some large bridge structure. He noted that the 3-span steel has been developed to be thin in appearance and blends into the background of the crossing at the Pond Eddy location. The NPS stated that “scenic river” means more than just scenic, but relates to the cultural, free flow, fish and wildlife, viewshed, and recreational aspects of the river and that the look of the existing bridge is one of the important scenic elements at this location. Shohola Township commented that the historic aspect of the existing bridge could be commemorated with a kiosk and the new bridge should be minimized to blend into the natural setting.
- It was agreed amongst the DAC members to review each bridge option and their preference to the aesthetic treatment for each bridge type. UDSB, FOPEB, and the Town of Lumberland stated that their respective groups prefer the existing bridge remain in place and as such they stated they would abstain from participating in the consideration of the replacement bridge types or the aesthetic options. FOPEB stated they wanted more information related to the rehabilitation of the existing bridge. The remaining DAC members agreed to commence with the evaluation of the replacement types and aesthetic options.
- The DAC members reviewed each bridge type and aesthetic option and provided their position on each, as summarized in the following table.

DAC Member – Bridge Option Voting Summary

Type	3- Span Steel			Continuous Truss			Dual truss			Truss Option	Dual Arch			Overall Bridge Type Preference
Cost (million)	\$8.5			\$11.0			\$11.5				\$13.1			
Member	Color	Rail	Pier ¹	Color	Rail	Pier	Color	Rail	Pier		Color	Rail	Pier	
Pike	tan ²	Pa10	#3 ³	tan-grey	Pa10	#3	tan-grey	Pa10	#3	Dual	grey	Pa10	#3	3-Span Steel or Dual Truss
Shohola	grey	Pa10	#1	tan-grey	Pa10	No vote	tan-grey	Pa10	No vote	Dislike	grey	Pa10	No vote	3-Span Steel
Pond Eddy	green ⁴	Pa10	#5	grey	Pa10	#3	grey	Pa10	#3	Dual	dislike			3-Span Steel
NPS	grey ²	Pa10	#3	tan-grey	Pa10	#3	tan-grey	Pa10	#3	Dual	deep green	Pa10	#3	Dual Truss
PHMC	grey ²	Pa10	#1or 3	grey	Pa10	#3	grey	Pa10	#3	Dual	grey	Pa10	#3	3-Span Steel
UDC	grey	Pa10	#3	grey	Pa10	#3	grey	Pa10	#3	Dual	dislike			Dual Truss
Lumberland	Selected not to participate or vote on the replacement options or aesthetics													
UDSB	Selected not to participate or vote on the replacement options or aesthetics													
FOPEB	Selected not to participate or vote on the replacement options or aesthetics													

Footnotes
<p>¹ Pier type and shape as referenced from the slides: #1 ² earth tones ³ with stone design - form liners ⁴ army green</p>

General Voting Comments

Can a timber cap be placed on PA 10 rail for aesthetics?

Concerns were expressed with respect to stone-look form liners about the close-up aesthetic quality and durability over time

Can pier surface be roughed up in texture to deter graffiti?

Consider blue stone and poured color concrete with piers. Blue stone was suggested since it is aesthetically and culturally appropriate in this area. Integral-color concrete was suggested for consideration because it may be more appropriate aesthetically overtime because if there are breaks in the concrete, a different color wouldn't be exposed.

NPS stated that there were no boating safety concerns with blending in the appearance with the natural setting.

The project team indicated they would look into railing heights greater than the minimum 2' 10" for bike/ped safety.

- After review of the alternatives, each member provided their preference for the Replacement Bridge Type for the DOTs' consideration (Colored in **Yellow** in Voting Table).
 - Pike County indicated they could support either the 3-span steel or the Dual Truss, but definitely support a replacement bridge for the residents of Pond Eddy.
 - Shohola Township selected the 3-span steel.
 - Pond Eddy selected the 3 span steel.
 - NPS indicated that the 3-span steel is not intrusive, but is typical and boring; NPS selected the Dual Truss because of its single pier and unique design. NPS noted that they are under a lot of local pressure for preserving the existing bridge. Sean McGuinness noted that he personally would like to see the existing bridge rehabilitated but the NPS is on record for supporting the replacement. He wants to be proud of what is selected as the replacement.
 - PHMC indicated they liked the dual arch originally, but now like the 3-span haunched girder because of the sleek design.

- Lumberland stated that the existing bridge should be preserved and an independent study should be conducted for the project. Lumberland does not like the 3-span steel.
- UDC indicated that there is a fiscal responsibility for the project but also wants something that is attractive. UDC selected the dual truss as its preferred structure. UDC would like to be included in future discussions about the causeways and river impacts.

Photographs of each preferred bridge type, as voted on above, are provided as follows.



Photograph 3.5: 3-span haunched steel girder bridge



Photograph 3.6: Dual Truss

- The NPS requested that after the replacement type and aesthetic options are selected, could there be follow-up meetings in final design that provided the opportunity to see “real life” examples of the color, rails, and other design amenities, including form liners, color samples, colored stone-concrete, abutment treatments, old abutment preservation, etc. Debbie Noone stated that follow-up meetings will be set up in the project design process to provide examples of the planned aesthetics.
- In closing, the project team concluded that with the conclusion of the DAC#3 meeting, the DOTs would be meeting in April – May to determine the replacement bridge type and aesthetics.