

Jacobs Creek Bridge

Frequently Asked Questions

What type of bridge is Jacobs Creek Bridge?

The existing Jacobs Creek Bridge is a fracture critical through truss. This type of structure will not lend it self to partial removal or widening.

What is the history of the bridge?

The existing structure was built in 1882 and rehabilitated in 1950. It has experienced minor repairs and deck replacement at various times since 1950. The proposed realignment of Bear Tavern Road (County Route 579) at the bridge has been in discussion for more than 40 years. In 1966, Mercer County acquired Right of Way to accommodate a new alignment.

Why did Mercer County close Jacobs Creek Bridge?

The recent closure of Jacobs Creek Bridge was necessitated as a result of an independent engineering assessment that the structure could no longer sustain the repeated misuse of vehicles in excess of 3 tons. The evaluation found the bridge safe for the current 3-ton posting, but rather than waiting for the inevitable catastrophe of the bridge collapsing, the County Executive, in consultation with County Engineering staff, concluded that the bridge should be closed. The closure occurred on Sept. 24, 2009, after an independent engineering firm, IH Engineers of Princeton, working as consultants to the New Jersey Department of Transportation to inspect Mercer County bridges 20 feet or longer, thoroughly analyzed the viability of the bridge. Based on the findings of its inspection, the firm determined the bridge has been stressed to such a degree that it believes safe passage of vehicles heavier than the 3-ton maximum weight limit could not be guaranteed, and stated that if vehicles over that limit were to use the span, the bridge might experience further structural deterioration. In its report, IH recommended immediate closure of Jacobs Creek Bridge. The bridge is closed to all traffic indefinitely and a detour route has been established as the County moves forward with its plan to replace the existing bridge. The detour takes vehicles from Bear Tavern Road (County Route 579) to Nursery Road (County Route 647) to Washington Crossing Road (County Route 546).

Why does Mercer County need to replace Jacobs Creek Bridge?

Prior to its closing, the existing structure received a sufficiency rating of 6.5 out of 100 by the New Jersey Department of Transportation's bridge inspection consultant, making it the lowest rated bridge in Mercer County. It was also deemed structurally deficient and functionally obsolete. The reason for the low weight-limit on the bridge was due to its' deteriorated condition and the fact that it was not designed for current minimum weight loads. The structure is not safe for vehicles, especially those weighing more than 3 tons, such as emergency vehicles, fire trucks, and school buses.

What is the County's current plan regarding Jacobs Creek Bridge?

The project consists of constructing a new bridge adjacent to the present site of the existing bridge and removing the existing Jacobs Creek Bridge to a park setting after rehabilitation to be exclusively used by pedestrians. Section 106 of the National Historic Preservation Act of 1966 requires analysis for economical mitigation and Section 4 (f) of the Department of Transportation Act of 1966 requires a demonstration of "no prudent or feasible alternative" to the impact. As part of the Historic Bridge Alternatives Analysis Report (*more information on this analysis below*), more than 15 different options were presented to the Hopewell Township Committee, New Jersey Historic Preservation Office (NJHPO) and to the Hopewell Township Historic Society. After several iterations, finally all three bodies gave their approval for a plan that calls for: **the new alignment of Bear Tavern Road** (County Route 579), **a new bridge** and **relocation of the existing structure**. The new bridge will be designed to current standards that include no weight restrictions. The type of structure the new bridge will be has not been determined.

Why does the County's plan call for a new bridge rather than rehabilitating the existing Jacobs Creek Bridge?

Rehabilitation of the existing structure was strongly considered as one of the alternatives in the Historic Bridge Alternatives Analysis Report. However, due to the original configuration of the structure, the extent of deterioration and addition of numerous repairs, rehabilitation would require substantial and intricate strengthening and select component replacement of main and secondary members. Because of the level of strengthening that would be required, a rehabilitation effort on the bridge would significantly affect the original design and workmanship of the existing bridge and cause it to lose all historical significance. The required work on the original trusses also does not comply with the Secretary of the Interior Standards. Consequently, a rehabilitation option was not deemed viable. Even if a rehabilitation of the existing structure were deemed feasible, it would only extend the life span of the bridge for a few years after which time other options would need to be considered.

The new structure has a projected lifespan of approximately 75 to 100 years. It is the County's responsibility to be fiscally frugal and to improve safety. The new structure will provide the availability to allow fire apparatus and ambulances a better response time to an emergency and also school buses a more direct route to the Bear Tavern School. Finally, the County's plan to relocate the existing bridge to another area of the township for use as a pedestrian bridge in a park will not only ensure its historical value is retained,

but allow it to be used and admired for many generations of Hopewell residents in the future.

Has the County made an effort to include the public in this process?

The proposed realignment of County Route 579 at Jacobs Creek has been in discussion for more than 40 years. In 1966, Mercer County acquired Right of Way to accommodate the new alignment of Bear Tavern Road. In 1991, the New Jersey Historic Preservation Office determined the bridge was eligible as a historic resource. In 2004, Hopewell Township created a Bridge Task Force composed of local residents, township representatives, and County representatives to examine the options for the rehabilitation or replacement of Jacobs Creek Bridge. The task force selected a preferred option, which called for rehabilitation of the existing bridge, an option later determined not viable. Since any changes to the existing structure would require approval by the New Jersey Historic Preservation Office, Mercer County subsequently contracted with a consultant in 2005 to perform an independent Historic Bridge Alternative Analysis, which examined more than 15 options. Results of the report were subsequently presented and discussed at meetings with the State Historic Preservation Office and Hopewell Township Bridge Task Force members. Two public meetings were later held with the Hopewell Township Preservation Commission (HPC).

In February 2009, the township's HPC officially supported the Alternatives 5A/5B Modified 3, which calls for a new single-span bridge and relocation of the original structure to a location selected by the HPC. These efforts culminated in the township's adoption of a resolution in March 2009 supporting the same. In May 2009, the State Historic Preservation Office concurred and also supported the plan. Most recently, area residents were provided the opportunity to present their concerns for the proposal at the Sept. 8, 2009 meeting of the Mercer County freeholder board as well as the Sept. 9, 2009 meeting of the Hopewell Township HPC. Mercer County will continue to engage the public as it moves forward with required studies and how to best preserve this historic setting.

What is the cost of the plan for a new bridge? Where is the funding coming from?

The project is anticipated to cost approximately \$5 million, which includes the cost of construction of the new bridge, the roadway realignments, and the relocation of the existing bridge. All of the funding for this project is secured. Mercer County obtains funding for its bridge replacement program from the New Jersey Department of Transportation through the Annual Transportation Program (ATP). A requirement of this funding is that the bridge be designed to current standards that include unlimited loading, lane width, and other specifications.

Could the County use its own funding and build a new bridge with the same parameters as the current bridge?

All funding for the replacement of Jacobs Creek Bridge is being derived from State transportation programs. In the construction of a new bridge, the County can request “design exceptions” from NJ Department of Transportation for such items as a substandard radius, vertical geometry, and other elements. However, NJ DOT has never granted a design exception for weight restriction or a height restriction when state funding is being used. Building a bridge to the same width and height requirement that currently exists does not meet current standards and would be considered functionally obsolete. The State would not allow its funds to be utilized to construct a substandard bridge.

What is the County doing to ensure the historic value of the site is preserved?

Mercer County understands and appreciates the history of the area and the passion that the residents in the immediate area and beyond share for it. The singular reason this project has been more than 40 years in the making is precisely because of the delicate nature of the history at the site, and the County’s steadfast determination to make sure the project is done correctly and with minimal impact to the area or the original, historic bridge itself. To that end, the County’s plan calls for saving the entire original bridge for use as a pedestrian bridge into perpetuity. In addition, before any actual disturbance of the land surround the bridge can be done, the County will conduct archeological surveys of the area. These surveys are being expedited at the request of Hopewell Township. The surveys will allow for the area to be professionally surveyed, and eventually protected and interpreted as a Revolutionary War resource. In addition, Mercer County Executive Brian M. Hughes, County Department of Transportation and Infrastructure staff, Hopewell Township Mayor Vanessa Sandom, representatives of the Old Barracks Museum in Trenton, and representatives of the Crossroads of the American Revolution Association met on Oct. 1, 2009 to discuss the importance of historical preservation around Jacobs Creek Bridge. In this meeting, the significance of the landscape, the terrain of the Washington Victory Trail, and sensitivity to the history of the area as the project moves forward were all discussed at length. The County also took under advisement a request by the Association for the installation of interpretive Revolutionary War-era signage and a vehicle pull-off area as part of the project.

Will an archeological survey be done in the area?

The County worked in close consultation with the New Jersey State Historic Preservation Office to select the best qualified firm to conduct archeological surveys of the immediate area surrounding the existing bridge. Archaeological surveys are required under the NJ Department of Environmental Protection’s Fresh Water Stream Encroachment permitting process.

The County’s Request For Proposal (RFP) was sent to engineering firms recommended by the Historic Preservation Office due to their expertise in this field. Included as part of the RFP were the Historic Preservation Office’s specific instructions about which

historical features the firms would be expected to examine. The County has received responses and is currently reviewing the responses in order to recommend a firm to the County Executive for recommendation to the freeholder board. The decision to award the bid will be made by the board. The freeholder board will likely consider a resolution to hire this firm at a public meeting in November or December 2009.

The area to be studied in the Phase 1A of the survey can be found by visiting the DOT home page on the Mercer County website at <http://nj.gov/counties/mercer/departments/transportation/index.html>. It is important to note this phase is not a dig, but a study of local history and maps. The consultants will not need access to privately owned lands.

How would the proposed realignment of the bridge address traffic safety concerns?

The existing structure is currently posted at 3 tons, which precludes use by emergency vehicles, school buses, and most delivery and service vehicles. Consequently, operators of vehicles that exceed 3 tons wishing to access Bear Tavern Road between Washington Crossing Road and the Jacobs Creek Bridge must enter from the north and travel *past* Bear Tavern School. With a new structure in place, vehicle operators, particularly those entering and exiting the Janssen Pharmaceutical site, could avoid this section of Bear Tavern Road altogether. It is also noted that since 2004, 11 crashes have been reported involving motorists losing control on the roadway curve approaching the Jacobs Creek Bridge and a total of 6 crashes have occurred where the bridge intersects Bear Tavern Road. Other incidents involving motorists losing control on the curve have been communicated anecdotally. Many of the conditions and circumstances that contributed to these crashes would be alleviated with the realignment of Bear Tavern Road and replacement of Jacobs Creek Bridge.

Would realignment of the bridge worsen traffic safety conditions at the curve on Bear Tavern Road near Jacobs Creek Bridge?

Presently, the distance between the bridge and the beginning of the subject curve is approximately 800 feet. There are concerns that the realigned bridge would impact the safety of the curve on Bear Tavern Road immediately south of Jacobs Creek Road in Ewing Township.

The southerly terminus of the proposed curve associated with the Jacobs Creek Bridge realignment would be approximately 400 feet south of existing Jacobs Creek Bridge and would have a posted speed limit of 35 MPH. According to national engineering design standards (*A Policy on Geometric Design of Highways and Streets*, American Association of State Highway Transportation Officials, 2001), a vehicle could achieve a 40 MPH travel speed from a full stop in approximately 360 feet. In the northbound direction, vehicles would also be limited by the 40 MPH design speed of the proposed curve. Since the distance between the southerly terminus of the proposed realignment and Jacobs

Creek Bridge is in excess of the distance needed to stop and turn left from a 40 MPH travel speed, no increase in travel speed would result at the subject curve in either the northbound or southbound direction whether the bridge is realigned or not. In fact travel speeds may actually decrease on the curve immediately south of Jacobs Creek Road with the new alignment. In summary, **realigning Jacobs Creek Bridge does not increase travel speed on the curve near the Jacobs Creek Bridge and would consequently not worsen traffic safety conditions on this section of Bear Tavern Road.** Also, as discussed in previous correspondence, many of the conditions and circumstances that have contributed to the crashes on Bear Tavern Road north of the bridge would be alleviated with the realignment of Bear Tavern Road and replacement of Jacobs Creek Bridge.

What has the County done to address related traffic safety concerns?

Mercer County is examining speed limit reductions on Bear Tavern Road including a reduction in the school speed limit in front of Bear Tavern School. Mercer County is also considering traffic calming measures proposed by Hopewell Township. Most recently, acknowledging concerns from township and school officials as well as local residents, Mercer County in cooperation with Hopewell Township eliminated the passing zone in front of Bear Tavern School.

The County recognized and concurred with local residents that the Passing Zone in front of Bear Tavern School was inappropriate and should be eliminated. The County and the County Freeholder Board quickly responded this issue, and in mid-October 2009, the Passing Zone at this location has been eliminated and the road was re-stripped. There is now “no passing” along the majority of Bear Tavern Road.

Also, in 2008, Mercer County was contacted by local residents as well as the Ewing Township police and asked to address traffic safety conditions at the curve on Bear Tavern Road near Jacobs Creek Road. There was a reported history of numerous crashes involving motorists losing control and veering off of the roadway. The relatively steep grade and a sharp horizontal curve were presumably significant contributing factors. Both short and long term measures to address these conditions were evaluated.

Realignment and regrading of Bear Tavern Road in the vicinity of Jacobs Creek Road is neither practical nor feasible. Upon conducting a review of this situation, however, it was determined that existing signs should be upgraded and new signs installed. In November 2008, advance warning signs were added and existing signs were replaced with larger signs. Mercer County also installed “chevron” signs to better delineate the curve. Recent crash data provided by the Ewing Township Police Department shows a significant decrease in crashes from 15 in 2007 to 3 in 2009. Mercer County is also installing in-pavement reflectors or Raised Pavement Markers (RPMs) on the approaches and through the subject curve, which will further increase the visibility of the roadway, particularly during low ambient light and wet weather conditions.

Will a new Jacobs Creek Bridge attract additional truck traffic to the area, especially with the widening of the Scudder Falls Bridge?

Mercer County, together with Hopewell Township and Ewing Township officials, has lobbied the New Jersey Department of Transportation to prohibit commercial vehicles in excess of 4 tons on Bear Tavern Road north of I-95, and Hopewell Township has adopted a resolution in support of this measure. Mercer County officials held a very positive meeting with NJ DOT Commissioner Stephen Dilts on this issue, and, as a follow up to the meeting, Mercer County provided required information to the State for approval these restrictions. At this time, the NJ DOT is reviewing the submission package.

Motorists traveling to and from Pennsylvania are now often faced with delays using Scudder Falls Bridge. Consequently, commuters divert to alternative routes, including Bear Tavern Road and Washington's Crossing Road to cross the Delaware River. An improved Scudder Falls Bridge would presumably provide a more desirable and direct route to regional employment centers thereby diverting traffic from local roads. Furthermore, if approved by the State, trucks over 4 tons would not be permitted to use Bear Tavern Road north of I-95.

What are the next steps?

Mercer County will conduct the archaeological surveys that are required under the Fresh Water Stream Encroachment permitting process as soon as an archaeological consultant can be hired, and will work with the New Jersey Historic Preservation Office to establish the scope of work that the consultant will be asked to perform. The County continues to work with the New Jersey Historic Preservation Office and Hopewell Township.