

FINDING OF NO SIGNIFICANT IMPACT
TENNESSEE VALLEY AUTHORITY
WILSON DAM BRIDGE DECK REFURBISHMENT
LAUDERDALE AND COLBERT COUNTIES, ALABAMA

The Tennessee Valley Authority (TVA) is proposing to refurbish the Wilson Dam Bridge deck and other concrete surfaces, reseal the fly-over epoxy overlay, remove and replace the fly-over expansion joints, and repaint the fly-over handrails.

The purpose of the proposed action is to stop the flow of water through the deck and parapets. The bridge deck and sidewalk are cracking due to water entering the space (void layer) between the original arch concrete and the newer concrete deck. The concrete arches exhibit a large amount of concrete spall and cracks near the top surface due to water passing through the existing deck and deteriorating the arch face. Due to age and wear and tear, the epoxy overlay, expansion joints, and handrails on the fly-over section of the bridge are deteriorating. If the bridge is left unrepaired, deterioration of keyways, arches, fly-over overlay, and expansion joints may worsen over time, which would increase the potential for public safety risks including falling debris.

Alternatives

TVA evaluated two primary alternatives in the EA: Alternative A – No Action; and Alternative E – Remove and Replace Existing Bridge Deck, Patch Deteriorated Surfaces of Arches, Rails, and Sidewalks, Reseal the Fly-over Epoxy Overlay, Remove and Replace the Fly-over Expansion Joints, and Repaint the Fly-over Handrails.

Under *Alternative A - No Action Alternative*, TVA would not refurbish the Wilson Bridge deck or other concrete surfaces, reseal the fly-over epoxy overlay, remove and replace the fly-over expansion joints, or repaint the fly-over handrails. The spalling, efflorescence, and cracking would not be addressed, and the deterioration of keyways and arches may worsen over time, which would increase the potential for public safety risks. Similarly, a lack of repairs on the fly-over expansion joints and overlay would also lead to worsening public safety conditions. Continued deterioration of the bridge could lead to additional water infiltration affecting the integrity of the bridge and dam below.

Alternative E would include the following: remove and replace the existing bridge deck; patch deteriorated surfaces of arches, rails, and sidewalks; reseal the fly-over epoxy overlay; remove and replace the fly-over expansion joints; and recoat/repaint the fly-over handrails. The repairs would be limited to the concrete arches on the dam above the spring line, bridge deck, fly-over, curbs, parapets, and sidewalks between the control building and the north end of the fly-over.

The project area includes an approximately 1.6-acre staging area located within the lock operations area. The proposed staging area is an existing gravel and fenced staging area previously used as part of the Wilson Dam Bascule Bridge Replacement project.

The existing concrete bridge deck and deteriorated material between the arch faces and existing concrete bridge deck would be removed. The method to remove concrete would be hydrodemolition which utilizes high-pressure water. A skid steer loader would be used to put concrete debris in a dump truck. A new reinforced concrete bridge deck would be constructed, and joints would be sealed. Deteriorated concrete arch faces, bridge rails, and sidewalks would be patched. Project construction would occur over an estimated 8-month period.

During refurbishment activities, existing curbs, deck drain plates, and light fixtures set into the guard rails of the bridge would be removed, retained, and reinstalled as a part of the project. In places where curbs are missing, in-kind replacements would be installed. Additionally, any concrete or paint applied textural finishes would be matched to Wilson Dam's current appearance.

In addition, the epoxy overlay with a flint aggregate wearing surface on the fly-over would be replaced. As part of the process, a small surface preparation milling machine would scarify the surface, the surface would be pressure washed, and then the epoxy would be applied using a trailer mounted mixer/applicator. This epoxy resurfacing would take approximately two weeks with the most time involving surface preparation activities. To replace the six expansion joints, a cut would be made in the concrete a few inches behind the joint and then the joint would be chipped out with small pneumatic hammers. A replacement joint would be set from the bottom and concrete would be poured around the new joint. Each expansion joint would take approximately a week to replace. To remove the paint/coating on the handrails, an abrasive pressure wash would be used. Operations to remove the expansion joints and prepare the handrails would be fully contained to avoid or minimize releases of materials.

TVA's preferred alternative, Alternative E, has the best potential to fully meet TVA's asset management and structural preservation goals. Alternative E scored highest for achieving the purpose and need of the project and the longevity of the repair.

Impacts Assessment

Based on the analyses in the EA, TVA concluded that the implementation of Alternative E would not affect aquatic resources, dam safety, navigation, land use, vegetation, floodplains, managed areas, prime farmland, wetlands, wildlife, threatened and endangered species, or climate and would have a no adverse effect on cultural and historic resources. Minor impacts would occur to air quality, surface water, solid and hazardous waste, visual, transportation, noise, and socioeconomic and environmental justice.

Temporary air pollutant emissions would occur during the 8-month construction phase. Construction-related air quality impacts would primarily result from the staging of construction vehicles, equipment, and supplies and the operation of construction vehicles and equipment and worker personnel vehicles. Emissions from construction activities would have, at most, a minor, temporary impact on air quality and would be well below the applicable ambient air quality standards.

Construction activities with the potential to affect surface water include those that generate dust, debris, and stormwater runoff. Specific activities that could affect surface water include using high-pressure water (i.e., hydrodemolition) to remove deteriorated and sound concrete, cutting and chipping out the expansion joints, and using aggregate under high pressure to remove coating/paint on the fly-over handrails. Where possible, preparation activities would be contained (e.g., cutting/chipping out of expansion joints or removing coating/paint from handrails) to avoid/minimize potential impacts to water quality. Water used during cutting operations would be collected using shop vacuums. Even with the use of full containment, the possibility exists of minimal amounts of concrete dust/chipping debris, saw wash water, paint dust from the use of

abrasive media on the handrails, and the abrasive media entering the surface water. With implementation of minimization and control measures, there would be temporary, minor impacts on water quality because these measures would help to prevent and minimize contaminants entering stormwater drains on the bridge. No long-term water quality impacts to Wilson or Pickwick Reservoirs are expected.

Under Alternative E, approximately 4,000 tons of concrete and debris would be generated during deck and expansion joint removal as well as repairs to the arches, sidewalks, and guardrail face. All solid waste would be managed in a permitted landfill. The steel expansion joints would be recycled. Generation of construction wastes would be short-term and temporary; therefore, with implementation of standard TVA procedures including recycling, direct or indirect effects associated with construction wastes would be minimal.

Hazardous materials used during refurbishment may include limited quantities of fuels, solvents, paints, and other hazardous materials. All wastes would be characterized for appropriate disposal and a TVA approved permitted third-party waste disposal facility would be used for ultimate disposal of the wastes.

Refurbishment activities would temporarily affect the visual environment of the Wilson Dam and Bridge. In the long term, TVA would rehabilitate the bridge such that deteriorated features would be repaired to match the original features in design, color, texture, and other visual qualities. The textural finishes of any concrete or paint applied would be matched to the Wilson Dam's current appearance. Existing curbs, deck drain plates, and light fixtures set into the guard rails of the bridge would be removed, retained, and reinstalled as a part of the project. Overall, the project would provide long-term visual benefits as it restores the scenic attractiveness of the dam, bridge, and fly-over by removing spall and the cracks in the roadway, sidewalks, and parapets.

To repair the bridge deck, fly-over, and sidewalks, Reservation Road over the Wilson Dam Bridge would be closed for approximately 8 months. Detoured traffic would use existing arterial roads and cross the Tennessee River using the nearby Singing River Bridge on AL 133. The detour would add approximately 5 minutes to an average crossing. The small volume of detoured traffic, approximately 3,500 vehicles per day, is not anticipated to negatively affect existing traffic on nearby roads or the Singing River Bridge, where traffic volumes would temporarily increase by approximately 10 percent during repairs. After repair work is completed, no change in vehicle traffic volume is anticipated and traffic patterns should return to current levels. Therefore, the Project is expected to have a temporary, minor adverse impact on transportation during repairs and have a long-term transportation benefit as the bridge and fly-over would be able to continue to accommodate current or forecasted traffic volumes.

During repairs at the Wilson Dam, vehicle traffic would detour to the Singing River Bridge and therefore, traffic noise would decrease in the project area. At the same time, worker personnel vehicles (approximately 35) would park at the staging area. Construction activities would primarily occur during the day on weekdays; however, some construction activities could occur at night or on weekends, if necessary. Typical noise levels from construction equipment are expected to be 85 dBA or less at 50 feet. It is estimated that construction phase noise levels would attenuate to below the US Environmental Protection Agency guidelines at nearby receptors (e.g., residences, parks). Given the temporary and intermittent nature of construction noise, the impact of noise generated from construction activities is expected to be minor.

Implementation of the proposed action would result in minor, short-term beneficial impacts on socioeconomics, primarily due to the use of 35 construction workers to conduct refurbishment activities. Because workers would likely be local to Colbert and Lauderdale Counties, there would be no anticipated increase in sales or lodging taxes. However, the proposed action would provide

employment for these workers for the duration of refurbishment activities. Beneficial impacts would extend to environmental justice if workers are hired from minority or low-income populations. Indirect effects would be minor and include spending by workers in the local economy.

The Wilson Dam is considered a National Historic Landmark (NHL) and bridge refurbishment activities would have effects. Given that the design of the bridge refurbishment is in keeping with the Secretary of the Interior's Standards for Rehabilitation, it is unlikely that the rehabilitation of the bridge, arches, and fly-over would diminish the integrity of the NHL. Therefore, Alternative E would have no adverse effect to historic properties. The Tennessee State Historic Preservation Officer (SHPO) concurred with this determination.

Public and Intergovernmental Review

The Draft EA was released for public review and comment on April 28, 2019. TVA notified local, state, and federal agencies and federally recognized tribes of its availability. One public comment was received during the public comment period.

Pursuant to Section 106 of the National Historic Preservation Act, TVA consulted with the SHPO requesting concurrence that the proposed action would have no adverse effect on cultural resources. The SHPO concurred with this determination in letters dated February 28, 2019 and May 10, 2019.

Mitigation

TVA would implement routine best management practices listed in the EA to avoid or reduce minor adverse environmental effects from the construction of the projects in Alternative E. In addition, TVA has identified the following non-routine mitigation measures to reduce potential impacts further:

- *Cultural Resources.* As specified in the 100% Wilson Dam Bridge Deck Refurbishment Design, TVA and the contractor would ensure that the character-defining features of the bridge would be retained in accordance with Secretary of the Interior's Standards for Rehabilitation.
- *Surface Water.* TVA would implement BMPs and control measures in a Construction Best Management Practices Plan (CBMPP) to prevent the discharge or loss of potential pollutants into the Wilson or Pickwick Reservoirs and to contain and properly dispose of all wastes, accidental spills, surface runoff, or other potential contaminants. TVA would comply with applicable environmental laws and regulations, including Alabama Department of Environmental Management (ADEM) National Pollutant Discharge Elimination System permit (ALG 36-0012) for Wilson Dam and ADEM's General Permit for Construction Activities.

Conclusion and Findings

Based on the findings in the EA, TVA concludes that implementing Alternative E – Remove and Replace Existing Bridge Deck, Patch Deteriorated Surfaces of Arches, Rails, and Sidewalks, Reseal the Fly-over Epoxy Overlay, Remove and Replace the Fly-over Expansion Joints, and Repaint the Fly-over Handrails, would not be a major federal action significantly affecting the environment. Accordingly, an environmental impact statement is not required.



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Date Signed