Columbia-Wrightsville Bridge Overview

The Pennsylvania Department of Transportation (PennDOT), in coordination with the Federal Highway Administration, has been performing engineering and environmental studies since 2016 for a major rehabilitation of the Route 462 Veterans Memorial Bridge. This bridge carries Route 462 over the Susquehanna River and is in West Hempfield Township and Columbia Borough in Lancaster County, and Wrightsville Borough in York County. The bridge is also known as the "Columbia-Wrightsville Bridge" the Veterans Memorial Bridge" or the "Route 462 Bridge."

The bridge is 1.26 miles long and has 48 spans. Twenty-eight concrete arch spans extend mostly over the Susquehanna River, and twenty "approach" spans cross over Route 441 (N. Front Street in Columbia Borough), Route 624 (S. Front Street in Wrightsville Borough), and the Norfolk Southern Railroad. The bridge was opened to traffic in 1930 and is listed on the National Register of Historic Places. It is also a National Historic Civil Engineering Landmark. Route 462 is part of the historic Lincoln Highway.

The bridge carries two 19-foot traffic lanes and a 6-foot sidewalk on the bridge's south (downstream) side. More than 10,000 vehicles use the bridge daily, along with pedestrian and bicycle traffic. Route 462 is designated as Pennsylvania State Bike Route S and is part of Rabbit Transit bus Route 12.

The Route 462 Bridge is also used to share emergency services between Columbia and Wrightsville Boroughs. The Bridge is the incident management detour route for the Route 30 bridge, located a half mile north, when emergency closures become necessary. The next available crossing of the Susquehanna River is approximately 50 miles to the north and 60 miles to the south in overall detour length.

Previous Bridge Projects

Since opening in 1930, the bridge has been maintained and in good repair through several minor rehabilitation projects.

- In 1963, a deck overlay was placed, drainage was improved, and the curbs and sidewalk were replaced. Communication conduits were installed beneath the sidewalk.
- In 1987, patching the top portion of the concrete deck occurred along with a surface overlay, replaced deck joint seals, and some approach span bearings and additional drainage improvements
- In 1991, a small section of a bridge barrier was repaired due to vehicular damage
- In 2014, the bridge-mounted lighting fixtures on the pier pilasters (i.e., the columns above the bridge deck) were changed to replicate those in place when the bridge opened in 1930. Decorative lighting along the bridge approaches on each shore was also added

Project Description

The Columbia-Wrightsville Bridge major rehabilitation and associated roadway improvements would occur along Route 462 roughly from 2nd Street in Columbia Borough to the 2nd Street and Hellam Street intersection in Wrightsville Borough. Engineering and environmental studies for the major rehabilitation of the Route 462 bridge are ongoing.

The rehabilitation project aims to ensure the bridge's structural adequacy and modern functionality, including effective connections with adjacent intersections, and provide for safe access and use by vehicles, pedestrians, and bicyclists. The overall needs of the project include:

- Structural deficiencies of the Route 462 bridge
    - The bridge deck is cracking throughout
    - Primary load-bearing members of the arch spans have large cracks, which affect its ability to service daily traffic

    - The bridge superstructure exhibits cracking, spalling, and exposed corroded rebar
    - The sidewalk has broken sections and is uneven throughout
    - Water infiltrating cracks and joints in the bridge has caused damage or failure of various structural components
    - The bridge barriers do not meet current crash or bicycle safety requirements

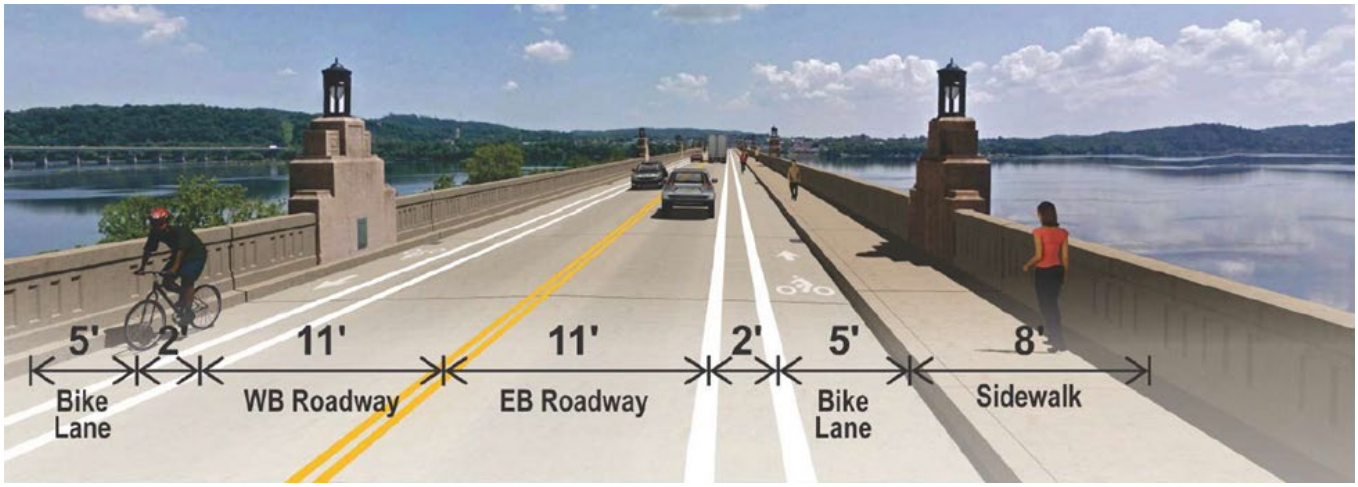
- Inefficient movements at the intersection of 2nd Street and Hellam Street in Wrightsville Borough
    - Unusual five-point intersection
    - Bicycle and pedestrian movements are not marked and have no traffic control devices
    - Some turns at the intersection are prohibited
    - Sight distances are limited

- Inadequate bicycle and pedestrian mobility
    - Currently no bike lanes exist on the bridge
    - Inadequate markings and signage directing pedestrians and cyclists to riverfront trails and parks on both sides of the bridge

The project goals include:

- Preserving the historic character of the bridge
- Improving bridge aesthetics
- Minimizing disruptions to traffic
- Enhancing recreational use and tourism of the Columbia-Wrightsville region and the greater Susquehanna National Heritage Area
- Reducing impacts from seasonal swarms of mayflies on the bridge

The proposed layout of the rehabilitated bridge would include two 11' vehicular lanes, two 7' shoulders (consisting of 5' dedicated bicycle lanes with an approximate 2' striped buffer), and a widened 8' sidewalk on the south (downstream) side. **A rendering is shown below**.



There are several additional roadway enhancements included in the project:

- Adding wayfinding signs, pavement markings and sidewalk improvements to connect bicycles and

pedestrians from the bridge to
    - the Northwest River Trail and River Park in Columbia Borough
    - the Mason-Dixon Trail and Riverfront Park in Wrightsville Borough
- Constructing a roundabout to improve the five-point intersection of Routes 462, 2nd Street and Route 624 (Hellam Street) in Wrightsville Borough
- Adding a central median at the 2nd Street intersection with Rotary Park in Columbia for traffic calming
- Providing lighting improvements above the bridge deck to help with traveler safety during annual mayfly swarming in spring

Project Schedule and Approach

The major rehabilitation project was originally scheduled for construction bids in December 2023. However, during a routine bi-annual bridge inspection in June 2023, significant deficiencies were identified in multiple primary load-bearing members across the bridge. The condition of these members affects the bridge's ability to carry the weight of traffic. Based on this new inspection information, PennDOT subsequently, posted a 10-ton weight restriction in July 2023 and changed the overall project schedule and approach. Work is advancing in two phases: "interim repairs" and long-term "permanent repairs."

Interim Bridge Repairs

An "interim bridge repairs" project (MPMS# 120050) was released for construction bid in February 2024. These interim repairs are intended to prevent further degradation and avoid potential bridge closure until long-term permanent repairs occur. The interim repairs at select locations include beam repairs and installing steel brackets under the floor beams to strengthen the bridge.

Vehicular, bicycle and pedestrian traffic will be maintained on the Route 462 bridge during the interim repairs work through either a long-term work zone involving minor travel lane shifts or the use of flaggers. **A graphic of the bridge interim repairs is included in the website's resources section.** This work is anticipated to begin in spring 2024 and be completed by late summer 2024.

Route 30 Improvements

A Route 30 Incident Management Plan was developed and approved in 2023 through a cooperative effort with local and regional emergency management service organizations.

Work on the US 30 corridor, originally planned to occur during the Route 462 major rehabilitation, is now currently under construction. The work on Route 30 includes building contraflow gates and a crossover system to allow for two-way traffic flow on Route 30 if determined by PennDOT to be necessary as a result of major closures during major incidents. This work also includes installing a regional message board system for secondary detour routes and other corridor improvements.

Long-Term / Permanent Repairs Project

PennDOT now recognizes that a more robust bridge rehabilitation is required based on the June 2023 bi-annual inspection results. The overall project needs remain the same (as described above). Still, the bridge's condition requires the work to include a more extensive rehabilitation or replacement of additional bridge elements. Thus, while the short-term improvements are being completed, PennDOT, FHWA, and their design team will revise engineering and environmental studies to address the long-term rehabilitation of the bridge.

The long-term rehabilitation is now anticipated to include replacing the existing deck, beams, barriers and columns that hold up the deck. PennDOT is currently evaluating bridge design alternatives for long-term rehabilitation of the river arch spans and approach spans, including recommendations for constructability, construction access and staging areas. Rehabilitation activities will consider the existing historic appearance and architectural features of

the bridge, as well as the interests of the many stakeholders and the unique environmental features of the project area.

Previously completed design work for related enhancements such as the bridge's roadway and sidewalk layout, improving trail connections, the roundabout in Wrightsville, and bridge lighting that received final approvals, should require little to no modification as a result of the updated project approach. These project elements are also anticipated to be combined into one construction contract.

During much of the bridge rehabilitation and construction of the associated improvements, traffic will be detoured to Route 30. This primary detour route is approximately 4.5-miles.

Next Steps

An evaluation of structural alternatives for the bridge rehabilitation is now underway. Minimizing the duration of the Route 462 bridge closure with primary detour to Route 30 is a key goal for the project team.

Various meetings with stakeholders and a public meeting are anticipated in the spring/summer of 2024 to share initial plans and receive feedback on the project, which will include a long-term bridge rehabilitation. The potential effects on environmental and community resource permits, schedule, traffic control, etc., will be considered during plan development.

The long-term bridge rehabilitation project is anticipated to begin construction as soon as Winter /Spring 2027, pending all approvals, environmental clearances, and funding availability.