

Merchant Street Bridge Project
City of Pittsburgh, Allegheny County
FREQUENTLY ASKED QUESTIONS

July 27, 2020

1. What is the purpose and need for this project?

The purpose of the Merchant Street Bridge Project is to maintain safe freight and passenger rail operations along the Fort Wayne Line to continue the efficient transportation of goods and people between Chicago and the New York/New Jersey commercial markets, as well as within local markets. The bridge structure has reached the end of its useful life and engineering inspections have identified a need to address these problems in order to maintain safe interstate rail transportation along the Fort Wayne Line. The bridge carrying the Fort Wayne Line over Merchant Street has safety deficiencies that have the potential to create risks to current rail traffic and forecasted rail traffic increases throughout the United States and within Pennsylvania and the Pittsburgh region in particular.

The project need for the Merchant Street Bridge project is to address safety, reliability, and facility deficiencies. Additionally, the City of Pittsburgh has requested the roadway profile at Merchant Street be lowered to allow emergency vehicles to pass under the bridge.

2. How will the Merchant Street Bridge Project affect air quality, noise, and vibration in the area?
The Merchant Street Bridge Project would not result in any significant effect on air quality, noise, or vibration.

The on-alignment replacement of the Merchant Street Bridge would not significantly affect air emissions. Minor temporary emissions will result for a short duration relating to construction equipment for the bridge replacement work. According to the Federal Transit Administration's Transit Noise and Vibration Impact Assessment Manual, adopted by Federal Railroad Administration, the reconstruction of facilities that occupy substantially the same geographic footprint and do not result in a change in functional use, such as improvements to existing bridges, would not require noise impact analysis because the project would not change the noise source. An on-alignment replacement of a bridge with one of identical capacity is not something that would change the noise-generating source; therefore, the Merchant Street Bridge Project will not significantly change the noise level relative to the existing condition. The Merchant Street Bridge Project will have no direct effect on vibration because the vibration source is not changing in intensity or location. Likewise, no potential indirect effects are predicted.

3. Are decisions related to the proposed design of the Merchant Street Bridge constrained by design decisions at other bridge projects along the rail corridor where the vertical clearance project is proposed?

The closest bridges to the Merchant Street Bridge are the Ridge Ave., W. Ohio Street, and then W. North Avenue Bridges, in order from closest to farthest in the northwest direction. Even if the tracks were lowered to the full depth required to achieve a 22' vertical clearance under the present W. North Avenue Bridge as part of the separate Pittsburgh Vertical Clearance Projects, the track lowering would terminate approximately 350' northwest of the W. Ohio Street Bridge and approximately 1,200' northwest of the Merchant Street Bridge. Simply stated, any elevation changes that may occur at the railroad tracks under

other bridges that are part of the separately proposed Pittsburgh Vertical Clearance Projects have no bearing on the Merchant Street Bridge Project.

4. What will the bridge design look like?

The proposed replacement bridge will be very similar to the existing bridge in size, scale, and appearance, subject to final design following completion of the consulting party and public involvement processes. Minimal visual differences will result from how the new bridge is fabricated using modern fabrication techniques. The new bridge will not have a trough floor system but will have a series of modern rolled beams. The new bridge will not use riveted, built-up members but will use welded and bolted connections. Design plans are included in Appendix B of the Determination of Effects Report.

5. What is the load posting of this bridge and what's the anticipated loading increase for the project? NS statement of need anticipates an increase in train volume by 2045. Is the proposed new bridge going to be able to carry the 2045 anticipated load capacity? What will the new bridge capacity be?

Railroads don't load post bridges the way Departments of Transportation do but they do rate their bridges and will put slow orders on the track if there is a capacity concern. Currently, the existing Merchant Street Bridge rates at an acceptable level for Cooper E-80 Live Loading and there is no slow order at this location.

The replacement bridge studied in the course of this project was designed to meet current freight rail engineering and safety requirements including American Railway Engineering and Maintenance-of-Way Association (AREMA) recommendations. The design of rail bridges is governed by the more severe of the Cooper E-80 Live Loading or the Alternative Live Loading under AREMA recommendations. Fatigue considerations govern the durability of the bridge and are controlled by the number of stress cycles, which is dependent on the length of the span. Spans under 100 feet long fall into the "greater than 2,000,000 cycles category," which is the worst-case scenario and is intended to provide an infinite fatigue life. An increase in rail traffic volumes would not change the design live loading or fatigue classification. The design as proposed will accommodate the current traffic and forecasted increases in traffic.

6. Does the volume of traffic over the bridge affect load capacity?

The volume of traffic over the bridge has nothing to do with load capacity. There are currently four tracks on the Merchant Street Bridge and the bridge is capable of carrying four trains simultaneously.

7. Is there any consideration to close Merchant Street permanently to vehicular traffic?

The City of Pittsburgh was given the opportunity to respond to comments related to city matters and provided the following: "...the Department has been working to restore what we can of the traditional urban grid that once existed in this part of the city. Urban renewal definitely taught us – and this neighborhood most particularly – the consequences of eliminating redundant connections and operations. Merchant Street is an important connection for all modes of travel (vehicles, bikes, pedestrians). The only other remaining connections under the SR 65/I-279 highway are Federal Street or Allegheny Avenue—each about a third of a mile away. This is an important connection for transportation resiliency and emergency response and the city is not supportive of closing the street or limiting any viable modes of use."

8. Has there been coordination with the City of Pittsburgh Department of Mobility and Infrastructure (DOMI) on pedestrian and bike path design under the bridge?

Yes, DOMI has provided direction on the use of “advisory” bike lanes where there will be a center shared lane for vehicles and flanking lanes for bicycles.

9. What are advisory bike lanes?

An advisory bicycle lane, or ABL, is a roadway striping configuration that provides for two-way motor vehicle and non-motorized traffic using a center lane and “advisory” or edge lanes on either side.

The center lane is dedicated to and shared by motorists traveling in both directions. Vulnerable road users (VRUs), such as cyclists or pedestrians, have the right of way in the edge lanes but motorists can use the edge lanes to pass oncoming vehicles after yielding to the VRUs there.

This roadway configuration originated in the Netherlands over 50 years ago and has been used on many hundreds of road-kilometers in the Netherlands alone. The ABL concept has worked well in many countries and in cities across the United States.

10. Why experiment with advisory bike lanes on Merchant Street?

The City of Pittsburgh provided the following information for the public meeting presentation. “Advisory bike lanes are a traffic calming feature more than anything else. This is a very narrow underpass that is already used by both vehicles and people on bicycles. The advisory bike lanes do just that – they advise motorists to expect people on bicycles – very similar to the sharrow treatment used throughout the city but with the perception of a narrower travel path which helps to slow traffic. They have no impact on street capacity. This is a safety feature deemed appropriate using engineering judgment.”

11. Will the sidewalks still protect pedestrians?

The sidewalk will have a curb and conforms to typical design standards in PennDOT Publication 13M, Design Manual 2, Section 6.7. This section of the publication states “Sidewalks must be separated from vehicular travel lanes by curbs, planting strips or other barriers which will be continuous except where interrupted by driveways, alleys or connections to accessible elements.” Section 2.18, Part R. Curbs and Driveways addresses the safety of pedestrians by implementing curbs along sidewalks as a delineation between pedestrians and the roadway. “The type and location of curbs affects driver behavior and, in turn, the safety and utility of a highway. Curbs serve any or all of the following purposes: (1) drainage control; (2) roadway edge delineation; (3) right-of-way reduction; (4) aesthetics; (5) delineation of pedestrian walkways; (6) reduction of maintenance operations; and (7) assistance in orderly roadside development.”

12. Will there be any adverse effect on Allegheny Commons Park?

No. Currently, there are no anticipated impacts to the park or a need to remove any trees. If temporary construction easements are required, the affected portion of the park would be restored to its present condition.

The Merchant Street Bridge Project is currently a stand-alone, on-alignment bridge replacement project as the rehabilitation alternative has been dismissed. The replacement bridge will be constructed at the same elevation on the same alignment. Anticipated potential effects to the park were identified and assessed to determine if they were adverse in the Determination of Effects Report. The agency, in this case PennDOT,

determined that the project effects on the Allegheny Commons Historic District will not be adverse. It has been demonstrated in the Determination of Effects Report that the application of the Definition of Effect and the Criteria of Adverse Effect resulted in an adverse effect finding for only one property, the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District.

We understand the public's concern for Allegheny Commons, but it has been determined that the replacement of the Merchant Street Bridge will not adversely affect the characteristics of the Allegheny Commons Historic District that qualify it for inclusion in the NRHP.

13. How will the "girder rivets" be replicated to maintain the "paneled" look of the bridge?
The current girder has riveted stiffeners that create a paneled look. The current design of the replacement structure incorporates welded stiffeners on the face of the girder that will create a similar paneled appearance, but the bridge members will lack visible fasteners (rivets or bolts). While bolted vertical shear stiffeners are an acceptable alternative, it is not preferred because it is a less efficient fabrication technique and increases maintenance requirements.

14. What will be done regarding the repair of the historic fence from the Post Office property to the western edge of area of potential effects (APE)?
Repair of the fencing is one of the mitigation options being considered in the discussion of the resolution of adverse effects on historic properties.

15. Is the bridge being replaced to encourage more rail traffic in the future?
The Merchant Street Bridge Project will not change railroad capacity. As stated in the purpose and need statement, the purpose of the project is related to safety in light of the structure having reached the end of its useful life, and engineering inspections have identified a need to address these problems in order to maintain safe interstate rail transportation along the Fort Wayne Line. The Merchant Street Bridge Project would replace the current bridge due to its condition and required future maintenance.

16. How much is rail traffic expected to increase on this line in the future?
Based on preliminary analyses being conducted for the separate Pittsburgh Vertical Clearance Projects, an average of 36 trains per day (34 freight and 2 passenger) traveled along the Fort Wayne Line on Pittsburgh's North Side in 2019. In the No Build scenario for those projects, 62 trains per day (60 freight and 2 passenger) are projected to travel along the Fort Wayne Line on Pittsburgh's North Side in the year 2045. With the implementation of the Pittsburgh Vertical Clearance Projects, 58 trains per day (56 freight and 2 passenger) are projected to travel along the Fort Wayne Line on Pittsburgh's North Side in the year 2045. As such, while projections of future rail traffic hold an increase in trains per day by the year 2045, the cumulative impact of the separate Pittsburgh Vertical Clearance Projects will be to decrease the number of trains per day along the Fort Wayne Line, where the Merchant Street Bridge is located.

17. Is the only historic district of interest the Allegheny Commons Park?
The Merchant Street Bridge is not a contributing element of the Allegheny Commons Historic District, and no contributing elements of the park will be adversely affected by the project. The historic property being adversely affected by the replacement of the bridge is the Pennsylvania Railroad: Main Line (Pittsburgh to Ohio State Line) Railroad Corridor Historic District. The Merchant Street Bridge was part of a massive

grade-separation project undertaken in the early twentieth century and is a contributing element of the railroad corridor historic district.

18. Is this project tied to the Pittsburgh Vertical Clearance Projects in any way?

Although PennDOT awarded funding for both the Merchant Street Bridge Project and the Pittsburgh Vertical Clearance Projects, the proposed Pittsburgh Vertical Clearance Projects are being progressed separately from the Merchant Street Bridge Project because of their separate purposes and needs and independent utility. As such, all of the Pennsylvania History Code and Section 2002 of Act 120 issues, including cultural resources coordination and the visual and auditory effects of double-stack trains relating to those projects, are being addressed in a separate proceeding. No mediation or decision regarding the W. North Avenue Bridge Project or any other project that is a part of the Pittsburgh Vertical Clearance Projects will affect the replacement of the Merchant Street Bridge.

19. Is the current bridge capable of handling double-stack trains?

The Merchant Street Bridge has no vertical clearance restrictions and is currently capable of handling double-stack trains. It is being replaced for safety reasons due its current condition and required future maintenance.

20. Will railroad operations need to stop during construction?

Railroad operations will remain in service throughout construction except for necessary, specific short-term outages arranged in advance.

21. How will the roadway be changing?

The existing dimensions of the roadway are two 11'-6" lanes, with a sidewalk varying between 4.5' and 9'. The proposed roadway will have one 11'-6" lane, with two 5'-9" advisory bike lanes, and a sidewalk varying between 6' and 10'. The existing roadway vertical clearance is being raised from 9'-3" to 11'-3" in accordance with requests from the City of Pittsburgh.

22. What detours will be in order?

Plans show a pedestrian and bicycle detour of 1.0 mile length utilizing W. Commons, S. Commons, Federal Street, Reedsdale Street, Scotland Avenue, Martindale Street, and Ridge Avenue. A 2.4-mile vehicular detour will utilize a similar loop, adding the perimeter of the Allegheny Commons Park (turning left onto Brighton Road from Ridge Avenue).

23. When is construction scheduled to begin?

Construction is anticipated to begin in Spring of 2021.