

# Pennsylvania Railroad Harsimus Branch Bridge

As commerce boomed after World War I, the United States War Department led an effort to provide a steady and uninterrupted flow of railroad, vehicular, and marine traffic through and over the waterways within the Port of New York and New Jersey. As part of the effort to create clear passage along the Hackensack River, a series of vertical lift bridges were constructed between 1928 and 1930.

The Pennsylvania Railroad replaced its swing bridges (a bridge type that created only a narrow channel when open) with a pair of vertical lift bridges (a bridge type which provided for ships with a much wider berth). Two of the replacement bridges, the Harsimus Branch Bridge and the PATH Bridge,<sup>1</sup> carried freight and passenger traffic across the Hackensack between Kearny Town and Jersey City.

The Harsimus Branch Bridge represents a good example of movable bridge technology developed by American engineers in the early twentieth century.

## The Harsimus Branch Bridge boasts the following:

- Historically carried two tracks of freight rail traffic between Kearny Town and Jersey City, toward the Pennsylvania Railroad's Harsimus Cove terminal on the banks of the Hudson River.
- Has a lift span of 198 feet stretched between two towers which carry the span from a height of only 13 feet above high water to 135 feet in the air using a system of pulleys and counterweights.
- The bridge also comprises a number of trussed spans, composed of a series of steel triangles, most of which are supported by concrete piers.

Both Pennsylvania Railroad bridges were designed in consultation with the prominent engineering firm, Waddell & Hardesty. The firm's founder, John Waddell, pioneered



**Top:** Pennsylvania Railroad Harsimus Branch Bridge, as it appeared in 1928, at the center of the photo. Photo from Historic American Engineering Record: NJ-43, "Conrail Bridge, Spanning Hackensack River, Kearny, Hudson County, NJ," *Courtesy of the Library of Congress.*

**Background image:** View northwest of the two Pennsylvania Railroad's swing-style bridges before their replacement with the lift bridges that are extant today. In the foreground is the passengers bridge; in the background the freight bridge can be seen, with its swing span open.

lift bridge technology in the first decades of the twentieth century, facilitating the safe and efficient movement of goods along and across the nation's waterways.

## Wittpenn Bridge Replacement Project

The New Jersey Department of Transportation (NJDOT) is in the process of replacing the historic 1930 Wittpenn Bridge with a new vertical lift structure. In 2019, the NJDOT executed an Amended Memorandum of Agreement to mitigate the effects of replacing the Wittpenn Bridge, which included multiple forms of public outreach. This document was produced as part of these public outreach efforts. More information on the Wittpenn Bridge replacement project can be found at <https://www.state.nj.us/transportation/commuter/roads/rt7wittpenn/>.

<sup>1</sup>: The full names of the two Pennsylvania Railroad bridges over the Hackensack River are the Pennsylvania Railroad Harsimus Branch (Conrail/CSX) Bridge over the Hackensack River and the Pennsylvania Railroad (PATH) Bridge over the Hackensack River.