Hackensack River Lift Bridges

Historic District

In the wake of World War I the United States economy was booming but transportation networks were not keeping pace. In 1924 the United States War Department decided that, in order to keep the economy in the Port of New York and New Jersey vibrant, commodities had to pass smoothly over and under the bridges and roads throughout the Port.

The existing swing bridges over the Hackensack River were too low and too dangerous to passing ships, so they needed to be replaced. State-of-the-art vertical lift bridges, which open the widest-possible channel between the bridges' towers, were constructed to replace the swing spans.

Between 1928 and 1930, all four swing bridges that crossed the Hackensack River between Kearny and Jersey City were replaced with steel vertical lift bridges. The replacement bridges included:

- Lower Hack Draw Bridge over the Hackensack River, completed in 1928. This railroad bridge was operated by the Delaware, Lackawanna, and Western Railroad as part of its Morris and Essex Division.
- Pennsylvania Railroad Harsimus Branch (Conrail/CSX) Bridge over the Hackensack River, completed in 1930. This bridge carried railroad freight over the Hackensack and routed it towards the Pennsylvania Railroad's Harsimus Cove terminal on the Hudson River in Jersey City.
- Pennsylvania Railroad (PATH) Bridge over the Hackensack River, completed in 1930. This railroad bridge still carries passenger traffic over the Hackensack from Newark to Jersey City. Riders then continue on to Manhattan.
- Wittpenn Bridge (NJ Route 7) Bridge over the Hackensack River, completed in 1930. This vehicular bridge carries cars and trucks over the Hackensack to major road intersections on the east side of the river. A bridge crossing for over-land travel has existed at this location since at least 1795.

Top: Photograph of the Hackensack River Lift Bridges Historic District taken in 1979. In the foreground is the Lower Hack Draw Bridge. In the middle-ground are the Wittpenn (NJ Route 7) Bridge, the Pennsylvania Railroad Harsimus Branch Bridge, and the Pennsylvania Railroad (PATH) Bridge. In the distance, the Pulaski Skyway and the Lincoln Highway Hackensack River Bridge are visible. Historic American Engineering Record #NJ-42 — Erie & Lackawanna Railroad Bridge [Delaware, Lackawanna & Western Railroad Bridge]; *Courtesy of the Library of Congress.*
Background image: This 1931 photo looks westward over the new Pennsylvania Railroad (PATH) Bridge; partially visible on the right are the freight and vehicular bridges. Image from *Railway Signaling*, May 1, 1931.

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 2010, the NJDOT executed a 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/.

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,[1] 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 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.

1: 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.

Top: Pennsylvania Railroad Harsimus Branch Bridge, as it appeared in 1978, 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.

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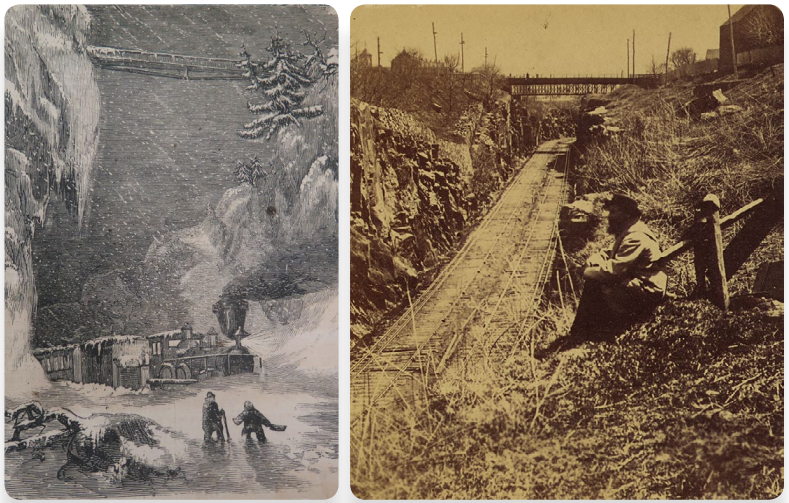
New Jersey Railroad Bergen Cut Historic District

The New Jersey Railroad Bergen Cut Historic District stretches along the former New Jersey Railroad right-of-way, beginning at the Hackensack River, passing through Bergen Hill, and ending just west of the Hudson River waterfront, in Jersey City. This historic district includes the Bergen Cut and a number of bridges and railroad embankments along its almost 2.7-mile length.

At the center of the historic district is the Bergen Cut, marked by a deep crevasse "cut" through Bergen Hill. Built between 1832 and 1838, the Bergen Cut was part of the New Jersey Railroad's initiative to gain the most direct route possible for the delivery of products to and from New York City. At the time, multiple companies were jockeying for control of rail transportation and freight traffic in New Jersey. For the New Jersey Railroad, Bergen Hill stood as a formidable barrier between the interior rail networks of northern New Jersey and the prime real estate of the Jersey City Waterfront, directly across the Hudson River from Manhattan.

Excavations for the Bergen Cut followed a former streambed, resulting in a winding path for the rail line. The resulting cut was between 20 and 40 feet deep. When completed, it was the first rail route opened through Bergen Hill and was considered an engineering marvel. The Bergen Cut provided the only passage through Bergen Hill for more than 20 years until the completion of the Erie Tunnel in 1861.

The Bergen Cut was widened and straightened beginning in the late 1870s. Today it remains in use by the Port Authority Trans-Hudson Corporation (PATH).



Top left: In 1856 a blizzard marooned a train in the Bergen Cut. An account of the snowstorm described: "It was in vain that the engineer, mounted on his iron horse, attempted to make headway." The passengers "ingloriously wended their way on foot to the terminus of the road — Jersey City" Frank Leslie's Illustrated Newspaper, January 26, 1856. **Top right:** 1863 Stereograph view of the Bergen Cut. Photographer: William Mead; *Courtesy of the Library of Congress.* **Background image:** The Bergen Cut, near present-day Journal Square Station in the early twentieth century, when it was controlled by the Pennsylvania Railroad. *Courtesy of the New Jersey State Library.*

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