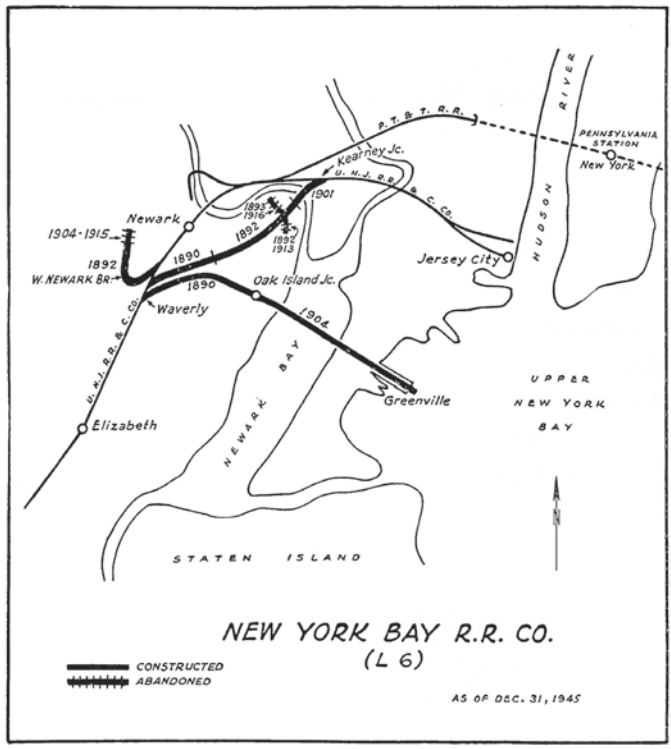
*The Pennsylvania Railroad Company's*

# New York Bay Railroad

*in Essex and Hudson Counties, New Jersey*

*Below: The routes of the New York Bay Railroad's existing and abandoned branches as of December 31, 1945 are bolded on a map adapted from* The Pennsylvania Railroad Company: Corporate, Financial and Construction History of Lines Owned, Operated and Controlled to December 31, 1945, Volume II, Lines East of Pittsburgh *(New York, New York: Coverdale & Colpitts, Consulting Engineers, 1947).*




This publication was produced in 2023 by Cultural Heritage Research Services, Inc. (CHRS, Inc.), of Lansdale, Pennsylvania, in accordance with the Section 106 *Memorandum of Agreement among the Federal Railroad Administration, the National Railroad Passenger Corporation, and the New Jersey Historic Preservation Office Regarding the Amtrak Passaic Towers Replacement Project in the City of Newark, Essex County and the Town of Kearny, Hudson County, New Jersey*. This document serves as partial mitigation for the Project's anticipated adverse effect on the Pennsylvania Railroad (PRR) New York Bay Branch Historic District. 

*On the cover: Detail of* Newark-New Jersey 1916 *panoramic map produced by T.J. Shepherd Landis. (Library of Congress)*

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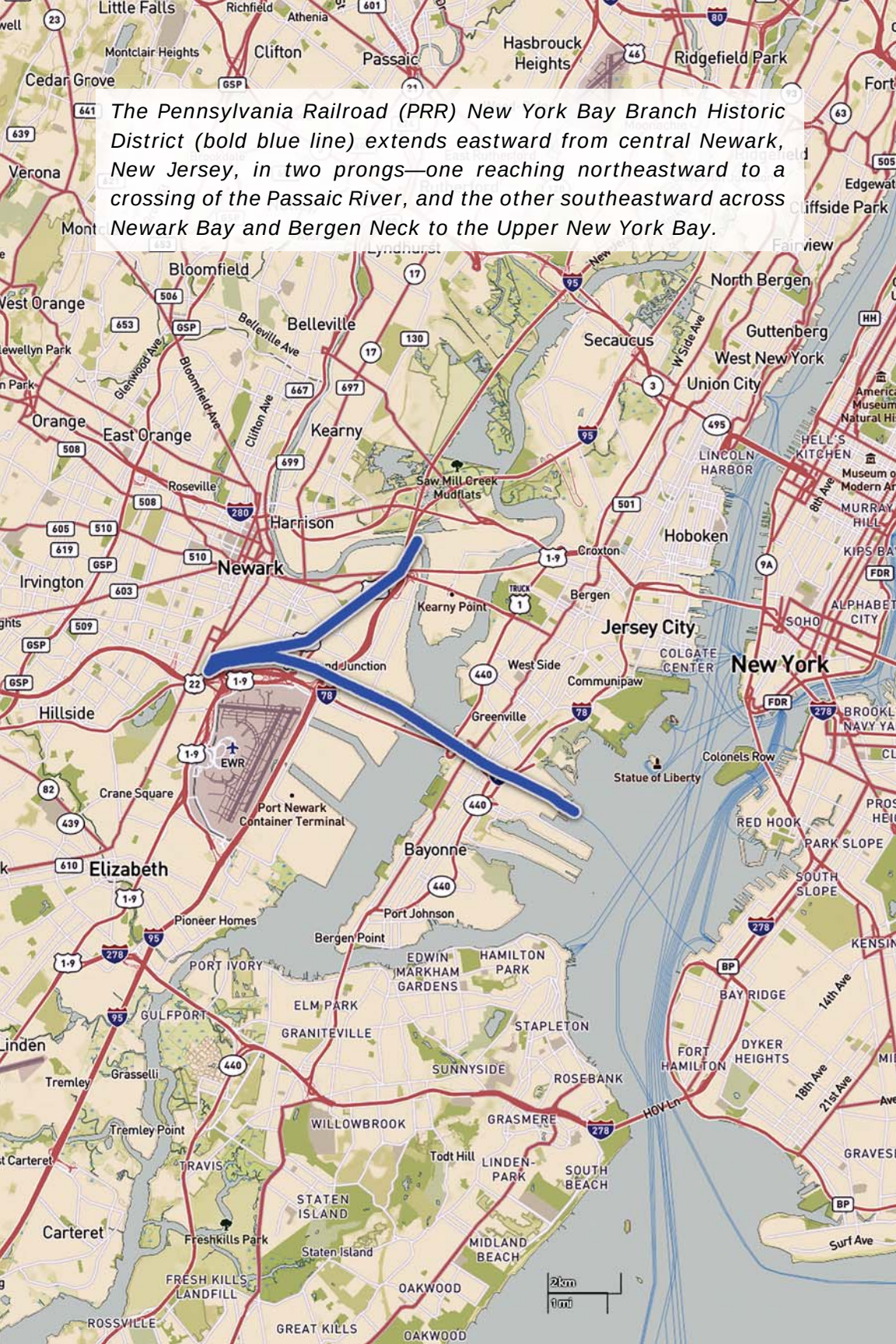
2023




*The Pennsylvania Railroad (PRR) New York Bay Branch Historic District (bold blue line) extends eastward from central Newark, New Jersey, in two prongs—one reaching northeastward to a crossing of the Passaic River, and the other southeastward across Newark Bay and Bergen Neck to the Upper New York Bay.*

# Contents

*Westward aerial view of transfer bridges at the eastern end of the Greenville Yard on the Pennsylvania Railroad Company's New York Bay Railroad, from the 1949 pamphlet* Pennsylvania Railroad Harbor Facilities: Port of New York.

# Introduction

In the early 2000s, a team of historians, archaeologists, and historic structures experts surveyed an area in northeastern New Jersey where Conrail—a switching and terminal railroad owned by Norfolk Southern Corporation and CSX Corporation—proposed extensive infrastructure improvements. The surveyors were tasked with identifying historically significant properties or cultural resources (tangible remains of past human activity, such as buildings and structured landscapes) that might be affected by the project, known as "The Conrail North Jersey Terminal Capacity Improvement Infrastructure Project in the Cities of Newark and Elizabeth."

The investigators discovered five historic properties—all associated with railroads—lying at least partly within the survey area. Four of the properties had been previously identified and deemed eligible for including in the National Register of Historic Places, the official list of the Nation's historic places worthy of preservation:

- Central Railroad of New Jersey Main Line Corridor Historic District
- Lehigh Valley Railroad Oak Island Yard Historic District
- Newark and Elizabeth Branch of the Central Railroad of New Jersey
- Lehigh Valley Railroad Historic District

The fifth historic property discovered in the course of the survey, which the surveyors called "The Pennsylvania Railroad (PRR) New York Bay Branch Historic District," had yet to be formally assessed for National Register of Historic Places eligibility. In order to be deemed eligible for the National Register, a property must meet at least one of four criteria:

A. The property must be associated with events that have made a significant contribution to the broad patterns of our history.

B. The property must be associated with the lives of persons significant in our past.

C. The property must embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction.

D. The property must show, or may be likely to yield, information important to history or prehistory.

The surveyors who identified the Pennsylvania Railroad (PRR) New York Bay Branch Historic District completed a detailed and illustrated cultural resource report concerning the historic district in October 2004. That document was then included in a much larger report submitted by the investigators to the Historic Preservation Office (HPO) of the New Jersey Department of Environmental Protection in March 2005 under the title *Cultural Resources Investigation: Conrail North Jersey Terminal Capacity Improvement Infrastructure Project, City of Elizabeth, Union County and City of Newark, Essex County, New Jersey* (Richard Grubb & Associates, Inc. 2005).

In the Pennsylvania Railroad (PRR) New York Bay Branch Historic District cultural resource report, the surveyors described the district as "covering 12.94 miles and extending in two forks from a common connection with the former PRR Main Line (Northeast Corridor) at Waverly. The three-track Greenville line forks due east and extends across the Newark Meadows and Newark Bay to Greenville Yard. The two-track Passaic Bridge line forks northeast to a swing bridge over the Passaic River and a connection with the PATH line at Kearny (Meadows) Yard."

A few weeks after receiving the cultural resource report, the NJ HPO issued a letter concurring with the surveyors' assessment that "the Pennsylvania Railroad (PRR) New York Bay Branch Historic District is eligible for inclusion in the National Register of Historic Places under


*The Pennsylvania Railroad (PRR) New York Bay Branch Historic District (blue highlight), determined eligible for listing in the National Register of Historic Places in 2005, is superimposed on an OpenStreetsMap map.*

Criterion A, for its association with important patterns of history, and Criterion C, for engineering significance." The letter quoted the statement of significance presented in the cultural resource report as follows:

> As part of the Pennsylvania Railroad [Company's] massive and comprehensive program to reach the Port of New York, the New York Bay Branch allowed the PRR to become one of the leading contributors to the state's industrial, commercial, and urban expansion. The railroad became the critical link in both local and regional railroad systems, and constitutes the second half of the PRR[C]'s better known and equally important program to bring passenger service into Manhattan, enabling

the company to secure a dominant place in the nation's busiest port and establishing itself as the country's largest railroad during the 20th century.

The NJ HPO also concurred with the surveyors' conclusion that the "period of significance" for the PRR New York Bay Branch Historic District began in 1889—when the companies responsible for building the associated railroads were organized—and concluded in 1945, "when the PRR[C] and the Lehigh Valley Railroad [Company] completed the last car float bridge at the Greenville Piers," in the historic district's southeast tip.

The HPO further specified that the PRR New York Bay Branch Historic District comprised the following components:

- the Greenville Line (a.k.a. New York Bay Railroad Greenville Branch)
- the Passaic Bridge Line (a.k.a. New York Bay Railroad Passaic Branch)
- the former PRR Bay Line and Garden Yards (Old and New)
- the timber box culvert over Pierson's Creek
- the surviving overhead catenary system (OCS) poles

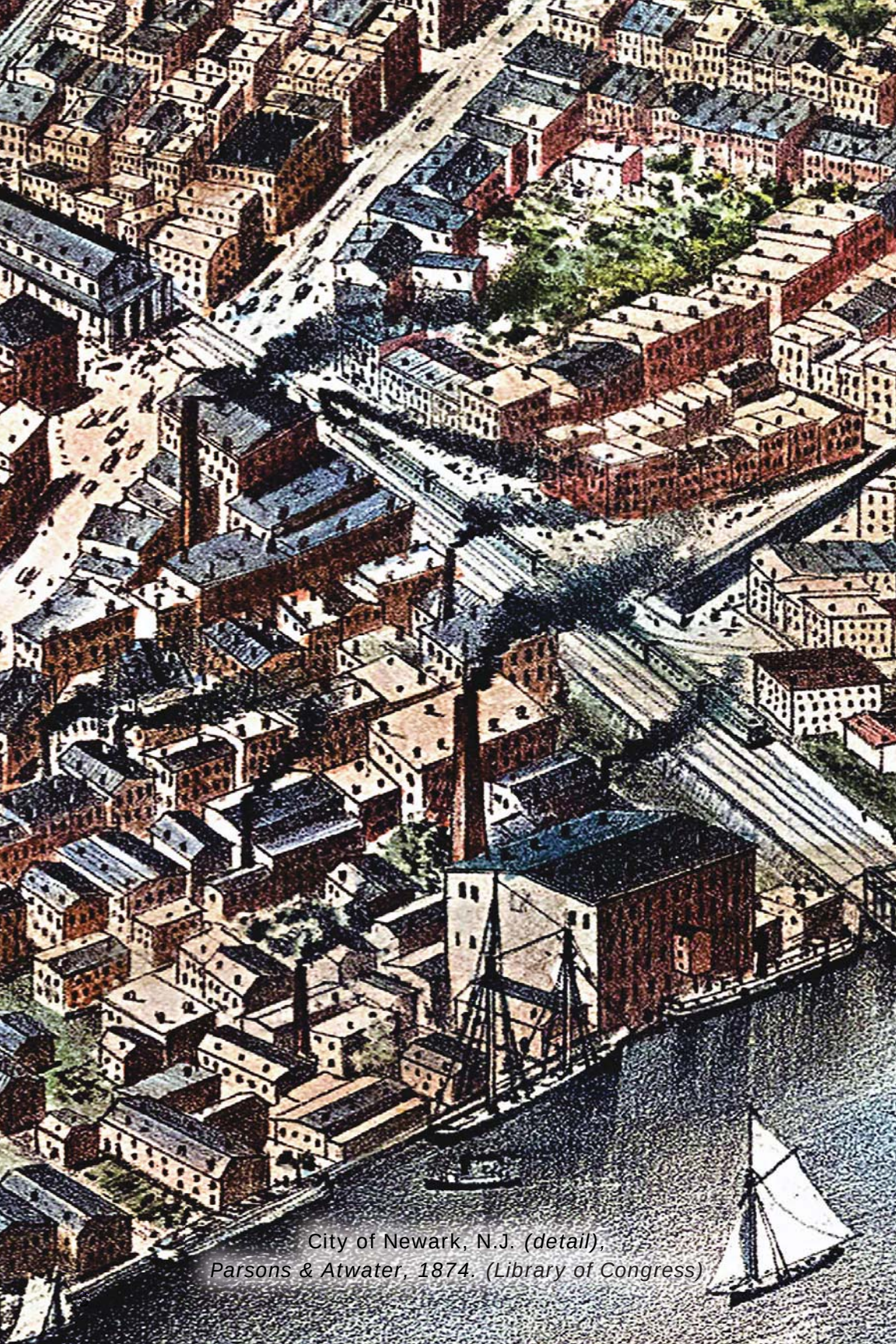
The HPO confirmed that the Greenville Line includes "the Newark Bay Bridge (shared with the Lehigh Valley Railroad), the Greenville Yard Historic District (SHPO Opinion 8/21/1998), and the Greenville Yard and [Car Float] Piers (Determination of Eligibility 9/8/1981)." The Passaic Bridge Line includes "bridges over Bay Avenue, Avenue I, Wilson Street, Niagara Street, Magazine Street, Saint Charles Street, Berlin Street, CRRNJ Newark and Elizabeth Branch, Roanoke Avenue, Foundry Street, Raymond Boulevard, and the Passaic River," the latter being a "railroad swing bridge" known as the Point-No-Point Bridge.

In 2011, the National Railroad Passenger Corporation (Amtrak) proposed replacing two 76-year-old transmission towers within the PRR New York Bay Branch Historic District along the Passaic River. The towers contributed to the district's historical significance. Because the Federal Railroad Administration (FRA) provided public funding for the project, federal regulations required Amtrak to mitigate the project's "adverse effects" on the Historic District, namely the towers' demolition.

*Major elements of the PRR New York Bay Branch Historic District (highlighted in green) are denoted on 2020 Google Earth aerial imagery.*


Amtrak worked with the Federal Railroad Administration and the NJ HPO to execute a Memorandum of Agreement laying out measures designed to mitigate the adverse effects of the Amtrak Passaic Towers Replacement Project. One of the measures entailed preparing an illustrated history of the New York Bay Railroad, based on information presented in the 2004 PRR New York Bay Branch Historic District cultural resource report, and augmented by data gleaned from primary and secondary historical sources. Upon completion and printing, the illustrated history would be distributed to the public.

The result of that mitigation effort is this publication, written and designed by Philip Ruth, Director of Research for Cultural Heritage Research Services, Inc., of Lansdale, Pennsylvania.



City of Newark, N.J. *(detail)*,
*Parsons & Atwater, 1874. (Library of Congress)*

# ·1·

# Rise of the United New Jersey Railroad
## *1832-1885*

In March 1832 the New Jersey Legislature granted the New Jersey Railroad and Transportation Company a charter to build a railroad extending from the west bank of the Hudson River opposite lower Manhattan (in present Jersey City) westward then southwestward via the towns of Newark, Elizabeth, and Rahway, to New Brunswick in Middlesex County, a distance of 34 miles. Work on an eight-mile section of the New Jersey Railroad between the Hudson River and Newark began immediately, and over the course of two years "road bed was laid across the meadows, and bridges were built across the Passaic and Hackensack [Rivers]," historian Henry Farmer recounted in his 1884 *History of Essex and Hudson Counties*. On September 1, 1834, horses drew an inaugural excursion train over the Newark-Jersey City section. Two weeks later, railroad officials instituted a schedule of eight daily half-hour trips. Horses provided motive power initially because "it was not then deemed safe to use locomotives on the embankments extending over the marshes," wrote Farmer. "Not until the embankments were thoroughly settled was steam power considered secure upon them. The first engine passed over the [rail]road, from Jersey City to Newark, on December 2, 1835."

Farmer further reported that the New Jersey Railroad was extended from Newark to Elizabeth in 1835, to Rahway in 1836, and to New Brunswick in 1837. Just south of New Brunswick, on the first day of 1839, the New Jersey Railroad attached to the Camden & Amboy Railroad's recently completed Trenton Branch, which had access to Philadelphia through a connection with the Philadelphia & Trenton Railroad. The linking of those railroads created the first continuous rail route between Philadelphia and Jersey City, reducing the time required to make the 57-mile journey from the better part of a day to under six hours.


*The swerving course of the New Jersey Railroad in the Newark vicinity is highlighted in yellow on a detail of Curtis B. Graham's 1836* Map of Newark and East Newark, N.J. The map has been rotated counterclockwise to orient it with north at the top. *(Library of Congress)*

The original route of the New Jersey Railroad through Newark was depicted on a map published in 1836 (*Page 8*), the year in which the New Jersey Legislature incorporated the town as a city. From Newark's southern end the railroad extended northeastward in a straight line along recently-named New Jersey Railroad Avenue to a depot beside the railroad's Market Street crossing. The line then veered northwestward and paralleled the west side of the Passaic River for several blocks before looping eastward to cross the river via the new Centre Street Bridge. After that crossing, the railroad extended eastward through Bergen County toward the Hackensack River Bridge, four miles distant.

The New Jersey Railroad and Transportation Company intended to lay its tracks across the Passaic River in Newark on a new bridge created as an extension of Railroad Avenue. A corridor of land on the northeast side of the river had been acquired for that purpose. But "commercial and shipping interests forced the [Company] to relocate their crossing of the Passaic, to avoid obstructing vessels on the river," Leslie E. Freeman Jr. explained in his 1953 article "The New Jersey Railroad and Transportation Company." "As a result of this opposition," Freeman continued, "the first Board of Directors ordered that the bridge be constructed [a third of a mile upstream] at Centre Street, to avoid any possible law suits by the navigation interests. In order to comply with the Directors' orders, the engineers were forced to include two very sharp curves in the bridge approach, one at Centre Street and the other near the Morris Canal."

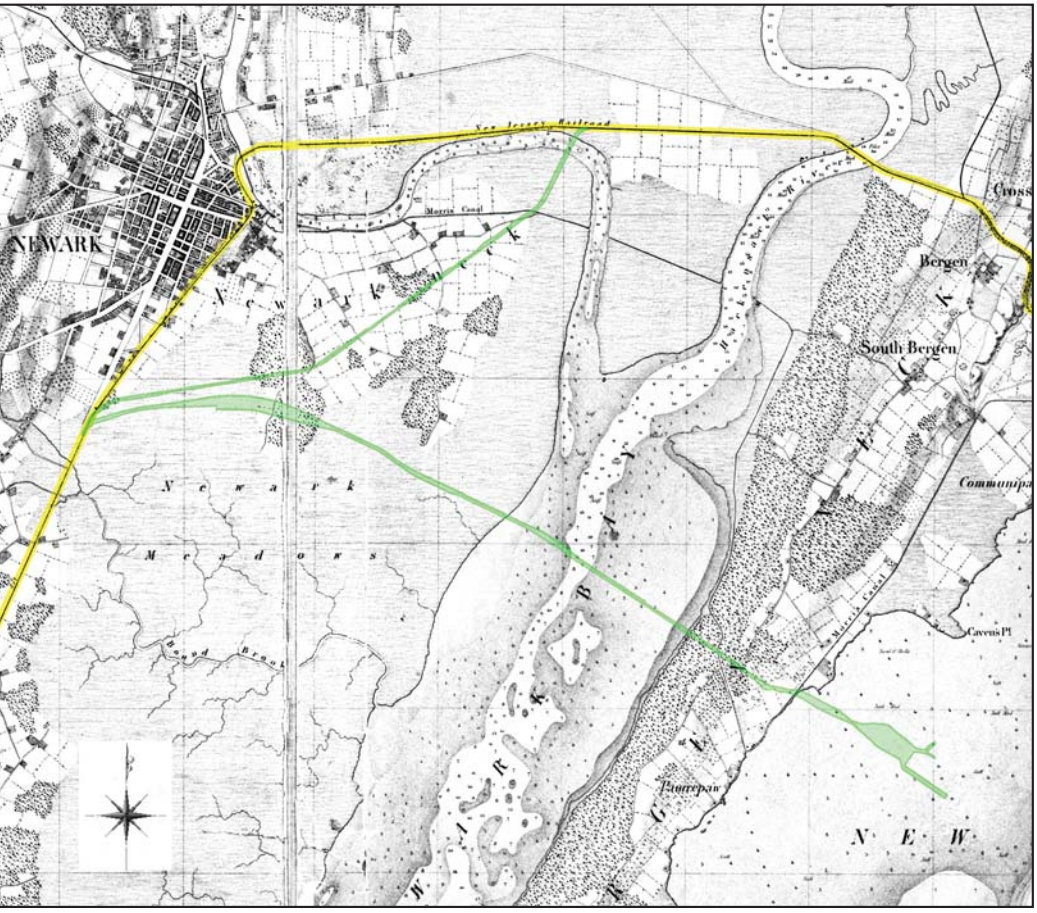
The omission of nearly all of Newark's buildings from the 1836 map could create the impression that the New Jersey Railroad passed through the city's center. A more detailed *Map of New-York Bay and Harbor and the Environs*, published in 1845 by the Survey of the Coast of the United States (*Pages 10-11*), reflected the Railroad's actual skirting of Newark's eastern edge, forming a boundary between the city proper (to the west) and a cultivated portion of the swampy Newark Meadows, labeled "Newark Neck." Only a handful of houses were denoted in the Neck, most of them clustered near the railroad, with only a few others scattered across the adjoining farm fields. But, largely through the railroad's influence, Newark was quickly expanding eastward into the meadowlands. The number of houses in that area more than doubled during the latter half of the 1840s, as reflected on a map

of Essex County published in 1850 (*Page 12*). The region's surging population at that time was summarized by Freeman as follows:

> The mid-century mark is an excellent point at which to survey what influences the New Jersey Railroad and Transportation Company had in the growth of the Jersey City-Newark area. The railroad's northern terminus, Jersey City, despite its excellent site facing the Port of New York, was a small village of less than 3,000 inhabitants, in 1840, but, within a decade after the opening of the railroad, its population had more than doubled and, by 1850, totaled 6,856. The City of Newark rapidly expanded its boundaries and population sufficiently to retain its position as the largest city in New Jersey. In 1836, shortly after the first trains entered the town, Newark had 19,732 citizens; by 1850, its population had grown to 38,894. Although the growth of these towns cannot be entirely attributed to the New Jersey Railroad, it must be remembered that a railroad was by far the most satisfactory means of [overland travel] in the early nineteenth century.

A map of Essex County published in 1859 reflected the continued expansion of Newark into the meadowlands east of the New Jersey Railroad corridor during the 1850s (*Page 13*). The railroad now effectively bisected the burgeoning city, and, after crossing to the northeast side of the Passaic River via the Centre Street Bridge, it passed through a growing municipal section called "East Newark," in Hudson County's Harrison Township. South of Newark, the New Jersey Railroad and Transportation Company added a second set of tracks as far as Rahway in 1855, increasing both movement and safety. The double-tracking extended to New Brunswick in 1859, by which time the railroad served over two million passengers annually, while running more than a hundred trains over its lines daily. By 1860, Newark's population count had mushroomed to 71,941, "an increase of over 400 percent in twenty years," Frank John Urquhart reported in his 1913 *History of the City of Newark, New Jersey*. "Within this cycle remarkable strides in industrial conditions had also been made, both in the introduction of new trades

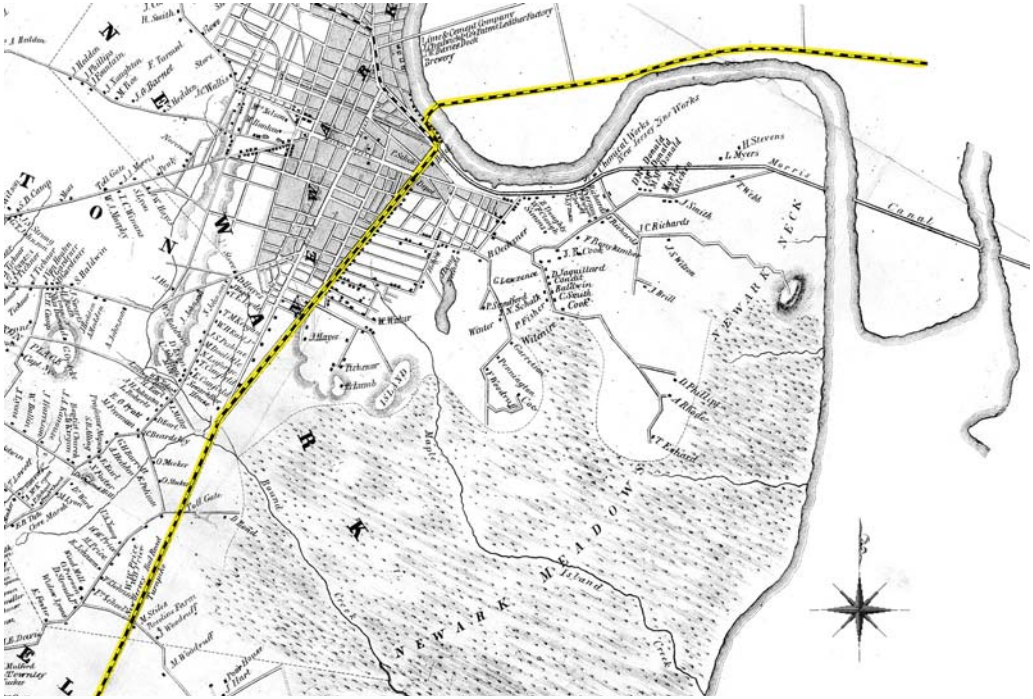
*The portion of the New Jersey Railroad approaching and passing through Newark is highlighted in yellow on a detail of* Map of New-York Bay and Harbor and the Environs, *published by the U.S. Coast Survey in 1844. The area eventually included in the Pennsylvania Railroad (PRR) New York Bay Branch Historic District is highlighted in green. The Historic District's southeastern tip was still underwater in 1844. It was filled in and occupied by the Pennsylvania Railroad's Greenville Yard after 1900. (Cartography Associates)*




by men who had found it advantageous to select Newark as a safe place for the location of industry, as well as by the expansion of home concerns, influenced by the introduction of new processes of manufacture, improved means of transportation, and the opening up of new markets of trade."

Although a U.S. Supreme Court decision in 1862 finally cleared the way for the New Jersey Railroad and Transportation Company to build a bridge over the Passaic River at the Commercial Dock so that its railroad could be extended in a direct line from the Market Street depot to a connection with the main line in Harrison Township, construction of the bridge and railroad approaches was delayed until after the Civil War. The "new branch" of the New Jersey Railroad, featuring a "splendid iron" double-tracked swing span bridge, finally opened for service on February 22, 1870, according to an article published the following day in *The New York Times*. Bypassing the Centre Street Bridge and its sharply curved western approach, the more direct connection was expected to "save through passengers a considerable amount of time."

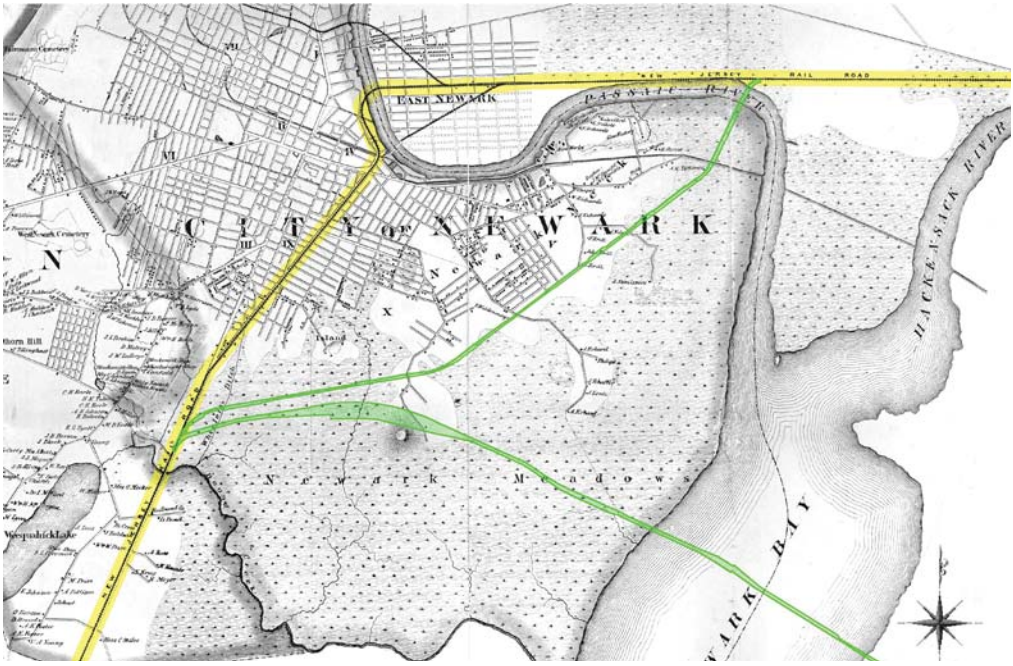
By the time trains began rolling over the Market Street Bridge between Newark and the recently-incorporated Town of Harrison early




*The route of the New Jersey Railroad approaching and passing through Newark in 1850 is highlighted in yellow on a detail of* Map of Essex County, New Jersey, *produced by surveyor J.C. Sidney. (Library of Congress)*

in 1870, the New Jersey Railroad and Transportation Company was a member of the United Canal and Railroad Companies of New Jersey (UC&RRCNJ). The latter was formed in 1867 when the Joint Companies (comprising the Camden & Amboy Railroad Company and the Delaware and Raritan Canal Company) joined forces with the New Jersey Railroad and Transportation Company. The confederation ushered in a new era of cooperation between the member companies, setting the stage for a comprehensive corporate merger a few years in the future.

In the meantime, however, the expansion-minded Pennsylvania Railroad Company (PRRC) set its sights on the physical assets of the three-member UC&RRCNJ. Incorporated by an act of the Pennsylvania Legislature in 1846, the PRRC had constructed lines across central and western Pennsylvania during the early 1850s, then ramped up expansion efforts through purchasing, acquiring controlling interests in and leasing



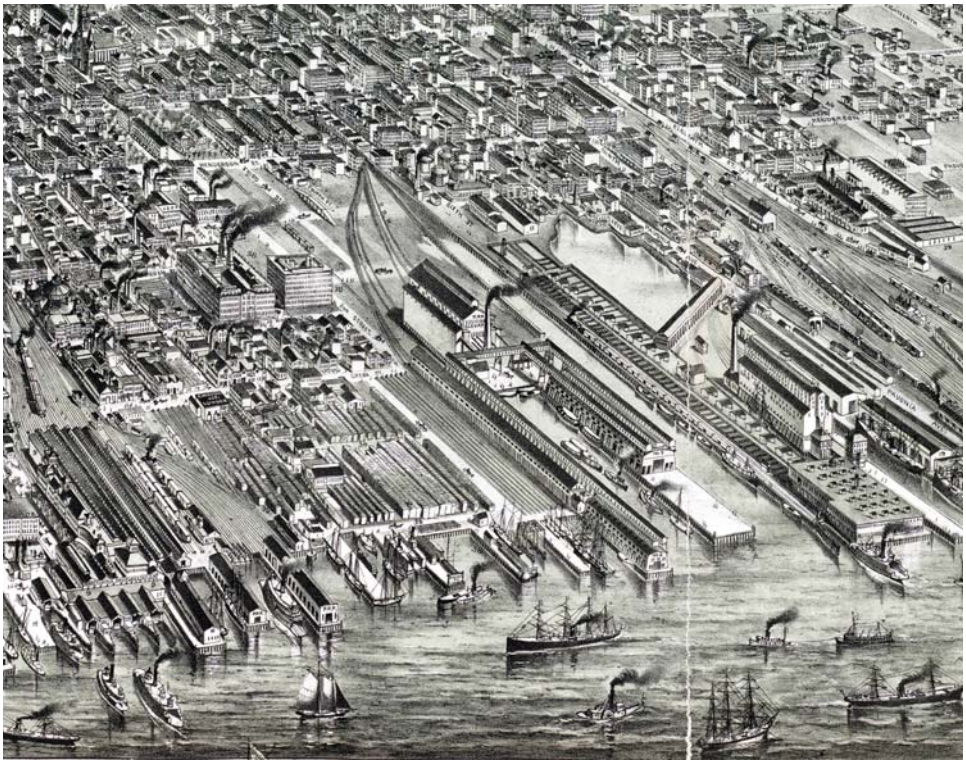

*On a detail of* Map of Essex County, New Jersey, 1859, *produced by surveyor Henry Francis Walling, the portion of the New Jersey Railroad in the Newark vicinity is highlighted in yellow, while the area eventually included in the Pennsylvania Railroad (PRR) New York Bay Branch Historic District is highlighted in green. (Library of Congress)*

existing railroad and canal systems. By 1870, the PRRC operated either through ownership or agreement hundreds of miles of track extending westward from Philadelphia as far as the Great Lakes and the Mississippi valley. Expansion eastward and southward from Pennsylvania was proving much more difficult, however, and the PRRC still had not secured access to key ports along the eastern seaboard, the busiest of which was at New York City. As noted in an 1875 review of the origins and development of the Pennsylvania Railroad, "a large portion of the trade of the Mississippi valley went to [New York] for shipment abroad, and the [PRRC] found it impossible to arrange with the New Jersey canal and railroads for the facilities it required. In consequence, its business was restricted, and the expense to shippers was necessarily increased."

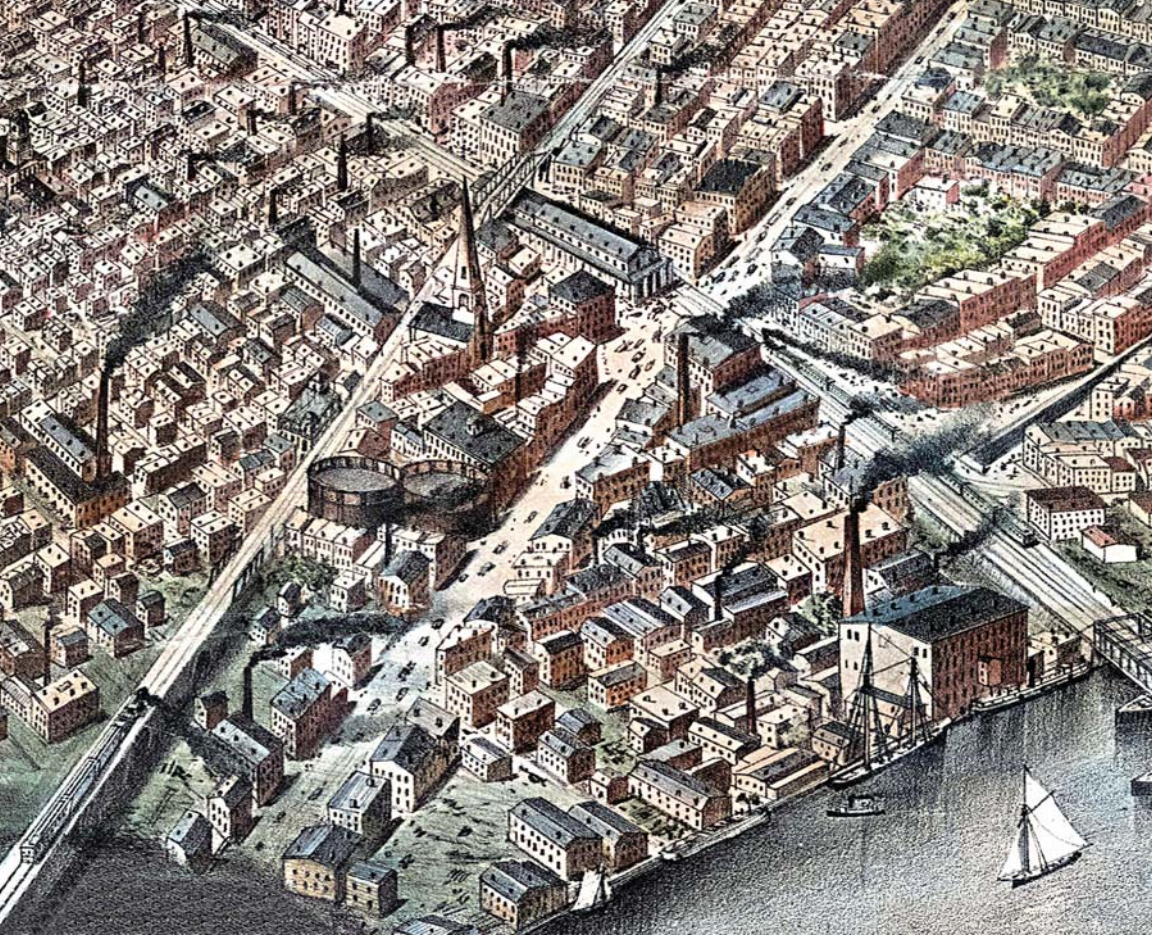
The 1867 confederation creating the UC&RRCNJ finally gave the PRRC a targeted opportunity to negotiate rights for a complete Philadelphia-to-New York transportation system. Discussions between the PRRC and the UC&RRCNJ began in the fall of 1870, and the terms of a 999-year lease were negotiated over the course of the next half-year. Upon approval of stockholders in the several companies constituting the UC&RRCNJ, the lease went into effect on July 1, 1871. From that date forward, the New Jersey Railroad formed a vital link in the PRRC's vast and expanding system. However, the UC&RRCNJ's ownership of the New Jersey Railroad lasted only another year. In May 1872, the three companies constituting the UC&RRCNJ formally merged into a single corporation, known as "The United New Jersey Railroad and Canal Company." With that merger, the New Jersey Railroad became the "United New Jersey Railroad."

While passenger traffic was the New Jersey Railroad's lifeblood under New Jersey Railroad and Transportation Company management, the PRRC was primarily interested in the line's potential for moving freight, especially cargo sent eastward from the railroad's rapidly expanding network of "Western feeders." The $12.8 million that the PRRC earned from "general freights" in 1870 was nearly four times greater than its passenger revenue ($3.6 million). Now that the PRRC could send cars directly from the Midwest to the New York harbor over the leased United New Jersey Railroad, the company's freight revenues were expected to skyrocket. But, before that could happen, the PRRC had to improve and expand the waterfront facilities in Jersey City,

where a system of barges, car floats, steam boats, tug boats, lighters, and ferries shuttled cargo and passengers across the Hudson River. In a section of Jersey City known as "Harsimus Cove," the PRRC built a complex of piers, slips, sheds, stock yards, slaughterhouses, grain elevators, and rail yards fronting 1,100 feet on the Hudson. Pennsylvania Railroad historian William B. Sipes declared in 1875 that the improvements were "made at a cost of several millions of dollars, and probably exceed, in their magnitude and perfectness, anything of the kind on the continent." The PRRC also invested heavily in constructing a massive passenger depot and ferry house south of the freight terminal. Between the expanded facilities for both passengers and freight, "nearly two hundred trains arrive and depart from Jersey City over the lines of



*The congested riverfront at Harsimus Cove, lined with Pennsylvania Railroad freight and passenger facilities, is depicted in a detail of* Jersey City, N.J., 1883, *produced by O.H. Bailey & Co. (Library of Congress)*



the company every day," Sipes reported. More than half of the trains were devoted to freight, and tended to be at least twice as long as their passenger-carrying counterparts.

West of Jersey City, on a tract of marshland in Hudson County's recently incorporated Kearny Township, the PRRC built a complex of repair shops, warehouses, coal-loading platforms, and rail sidings that became the Meadows Yard of the United New Jersey Railroad. Here, according to the 1875 account, westbound and southbound "freight and passenger [trips were] separated, each running over its own tracks to its destination." But whether southbound trains proceeded to cross the Passaic River into Newark via the older Centre Street Bridge or over the newer and more direct Market Street Bridge, they all converged into a narrow four-track corridor beside the city's Market Street depot, before continuing southward at-grade through the growing metropolis. The

*A detail of Parsons & Atwater's 1874* City of Newark, N.J. *panoramic map presents a westward view of the two bridges carrying United New Jersey Railroad trains over the Passaic River in the metropolis' downtown. The Centre Street Bridge (on right) had operated since 1834. The swing-span Market Street Bridge (center) was only six years old when this view was sketched. The latter provided a more direct connection between the sections of the New Jersey Railroad on opposing sides of the river, but it still formed a bottleneck that became increasingly problematic as passenger and freight traffic swelled on the PRRC-controlled railroad. (Library of Congress)*

PRRC's local passenger trains paused at five passenger stations within the city limits, while through trains stopped only at the Market Street depot, if they stopped at all. Upwards of 80 trains were chugging through Newark on the PRRC's United New Jersey Railroad every day in 1874 when Newark's downtown was depicted on a panoramic map (*above*).

Adding to the clamor were passenger trains periodically plying the competing Newark and New York Railroad on an east-west alignment on the south side of Market Street, crossing over the United New Jersey Railroad tracks immediately south of the Market Street depot. Operated since its opening in 1869 by the Central Railroad Company of New Jersey (CRRCNJ), the Newark and New York Railroad extended from a terminal at Newark's Broad Street eastward 7.5 miles via bridges spanning the Passaic and Hackensack Rivers to the CRRCNJ's Communipaw Terminal in Jersey City.

The 1874 bird's-eye-view of Newark (*Pages 16-17*) documented an unpleasant situation: citizens living and working along the PRRC's United New Jersey Railroad were frequently subjected to noisy, dusty, and foul-smelling emissions from passing trains, which also interrupted pedestrian, carriage, and cart travel. Those conditions grew more onerous in the coming years as the PRRC stepped up both freight and passenger traffic on its Philadelphia-New York route. The United New Jersey Railroad was contributing heavily to Newark's emergence as a major "workshop of the [New York] metropolis," as William Sipes observed in 1875. "Its manufactories embrace almost every industry, but particularly jewelry, iron fabrics, India rubber goods, leather and leather goods, drugs, clothing, and malt liquors."

While broadly acclaimed, the robust railroad-facilitated industrial and residential development posed stiff challenges to Newark's municipal planners. For the PRRC, the United New Jersey Railroad's passage through downtown Newark and across the Passaic River was proving increasingly troublesome. There were other man-made and natural bottlenecks along the railroad's 57-mile route between Philadelphia and Jersey City, but none was as constricting as the short section of tracks cleaving Newark's core.

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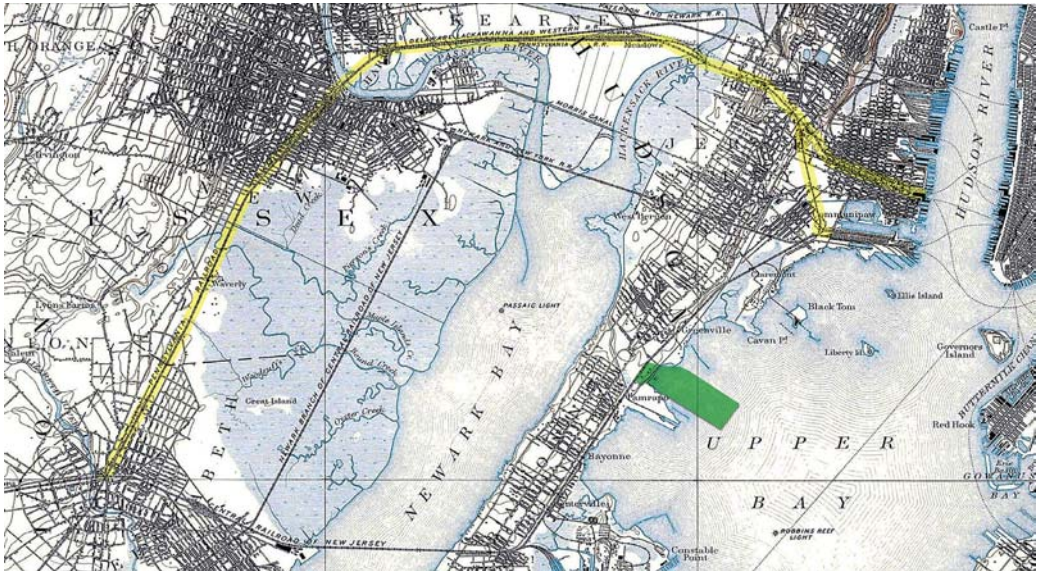
# Bypassing Bottlenecks, Boosting Freight
## *1886-1899*

By 1886, the PRRC's freight-handling facilities east of Newark included the Meadows Yard, the complex at Harsimus Cove, a cargo station beside the passenger station in Jersey City, oil yards at Communipaw, coal docks at South Amboy, and five stations on the opposite side of the Hudson River in New York City. Capacious as they were, those facilities were sorely taxed by increasing freight traffic on the PRRC's United New Jersey Railroad, and the PRRC was determined to dramatically expand its cargo handling capacity in the region. The most inviting expansion sites beckoned on Bergen Neck, the mile-wide peninsula jutting six miles southwestward from Jersey City, bounded by Upper New York Bay on the east and Newark Bay on the west. From Jersey City southward, a string of villages emerged along the Neck prior to the Civil War: Greenville, Saltersville, Pamrapo, Bayonne, Centerville, Bergen Point, and Constable Hook. The City of Bayonne incorporated the communities south of Greenville in 1869, and Jersey City absorbed Greenville, after a decade as an incorporated township, in 1873.

Early in 1889 the PRRC outmaneuvered its rival New York Central Railroad Company in acquiring a large tract of undeveloped land near Bergen Neck's midsection, between the Greenville section of Jersey City and the Pamrapo section of the City of Bayonne. The tract fronted 1,250 feet on New York Bay and spanned the width of the Neck, its western frontage looking across Newark Bay toward Newark. PRRC engineers began developing plans for an expansive water terminal and freight yard on that Greenville tract, not only to accommodate surging freight traffic, but also to divert traffic away from increasingly congested tracks and yards in and around Jersey City, which were inefficiently shared with passenger trains. The ultimate goal was to create one or more corridors for the movement of Pennsylvania Railroad freight entirely separate from passenger corridors.

While the site of the PRRC's proposed Greenville Yard was accessible via a set of tracks extending southward from central Jersey City, that narrow access was clearly incapable of accommodating the scale of freight traffic anticipated for the coming years. An entirely different approach to the Greenville Yard was needed—one that diverted freight trains away from Jersey City and the railroad bottleneck to its immediate west, known as the "Bergen Hill Cut." The PRRC was equally determined to create a "freight cut-off" bypassing the bottleneck in downtown Newark. And so, within days of securing land for a terminal in Greenville, the PRRC chartered a pair of subsidiary railroad companies tasked with rerouting freight traffic around Newark via two new routes, both branching eastward off the United New Jersey Railroad main line south of the city. The longer of the two railroads would extend southeastward through the meadowlands to a crossing of Newark Bay, while the shorter line would extend northeastward to a crossing of the Passaic River between the Newark Neck and Kearny Township.

The two subsidiaries were organized and incorporated "under the general laws of the State of New Jersey" several days apart in the




*The site proposed for the PRRC's Greenville Yard is highlighted in green on a detail of the 1891 USGS* Staten Island *quadrangle. The route of the United New Jersey Railroad is highlighted in yellow. (USGS)*

PRRC's Philadelphia headquarters. First to open its books—on February 8, 1889—was "The Waverly & New York Bay Railroad Company." It was responsible for creating a 4.6-mile-long freight line that diverged from the United New Jersey Railroad at Waverly (roughly two miles southwest of downtown Newark), extended southeastward across the meadowlands, spanned 1.5-mile-wide Newark Bay, and terminated in Greenville. The second corporation, organized on February 11, was titled "The Waverly & Passaic Railroad Company." It was charged with constructing a 4.12-mile-


*On a detail of a map published by Jules Bien & Co. in 1891, the proposed route of the Waverly & New York Bay Railroad is highlighted in yellow, while the proposed route of the Waverly & Passaic Railroad is highlighted in purple. (New York Public Library Digital Collections)*

long freight line that extended northeastward from Waverly, then turned northward in the Newark Neck to approach a section of the Passaic River known as "Point-No-Point," opposite the Meadows Yard. That route would steer clear of central Newark, and have the added benefit of tapping into the rapidly developing industrial district east of downtown.

Construction of the Waverly & New York Bay Railroad began in July 1889. The road was completed in sections, the initial segment extending 2.2 miles from a point north of the United New Jersey Railroad's Waverly Station southeastward to a connection with the CRRCNJ's Newark Branch, which knifed northeastward through the meadowlands, paralleling Newark Bay's western shoreline. The point of connection was known as "Oak Island Junction," as any area in the meadowlands at least one foot above water was regarded as an island. Three hundred yards west of that junction, contractors built a single-span timber box culvert to carry the Waverly & New York Bay Railroad across Pierson's Creek. The surviving structure is described in a 2005 cultural resources assessment (Richard Grubb & Associates, Inc. 2005:6) as an "approximately 14-foot by 73-foot culvert carr[ying] three tracks of the PRR New York Bay Branch Greenville Line over Pierson's Creek; the structure includes timber pile abutments and a double layer of timber stringers forming the roadbed decking; stone ballast covers the whole and holds wooden ties and rails; . . . The structure features no identifying plaques or markings."

The corridor selected for the meadowlands portion of the Waverly & New York Bay Railroad was so obvious a choice that a freshly minted competitor—the Jersey City, Newark and Western Railway Company, organized just as construction of the Waverly & New York Bay Railroad began—adopted a similar alignment for a freight line named "the Jersey City, Newark and Western Railway," proposed to extend from the south side of Newark across the meadowlands and Newark Bay to a connection with the National Docks Railway in Communipaw. The fall of 1889 thus found workers preparing right-of-way for two separate-but-parallel railroads through the meadowlands southeast of Waverly, while their respective managers discussed possible collaboration on a bridge to carry both railroads across Newark Bay to Bergen Neck.

A strikingly similar situation developed to the north, where work on the Waverly & Passaic Railroad was also proceeding in the fall of 1889.

On November 22, the Lehigh Valley Railroad Company (LVRRC) chartered "The Newark and Passaic Railway Company" and tasked it with building a rail line from a point on the south side of the Passaic River opposite the PRRC's Meadows Yard to a connection with the northern terminus of the LVRRC's equally-new Newark and Roselle Railway, north of Waverly. As a serviceable corridor between those points had just been surveyed for the Waverly & Passaic Railroad, the Newark and Passaic Railway Company arranged to lay its tracks alongside the tracks of the former, which were already in the course of construction. The prospects for both short-line railroads were promising enough late in 1889 that

*The first completed sections of the Waverly & New York Bay Railroad (yellow) and the Waverly & Passaic Railroad (purple) are highlighted on a detail of* Map of the City of Newark in the State of New Jersey, *prepared by Ernest Adam and published in 1901. The Waverly & New York Bay Railroad spanned Pierson's Creek 300 yards west of Oak Island Junction by means of a timber box culvert. (New York Public Library Digital Collections)*

cartographers for an *Indexed Commercial Map of Newark, Harrison and Kearny, New Jersey*, scheduled for publication in 1890, drew and labeled both railroads as if they already existed.

A second scenario of parallel railroad construction thus played out in the meadowlands east of Newark during the latter months of 1889, as work proceeded on both the PRRC's Waverly & Passaic Railroad and the LVRRC's neighboring Newark and Passaic Railway. The southernmost 2.12-mile section of the single-track, at-grade Waverly & Passaic Railroad was ready for use on January 15, 1890. That segment extended northeastward from Waverly as far as Hamburg Place (now Wilson Avenue), where the LVRRC had just established a freight yard and coal pockets. The corresponding section of the LVRRC's Newark and Passaic Railway was completed soon afterward. Later in 1890, however, construction northward from Hamburg Place to the Passaic River was suspended by both companies, as each faced financial and logistical obstacles. Work on the northern section of the Waverly & Passaic Railroad resumed within a year or two, but the corresponding section of the LVRRC's Newark and Passaic Railway was never built.

Two weeks after trains began plying the southwestern half of the Waverly & Passaic Railroad, officers of that railroad and those of the Waverly & New York Bay Railroad Company filed an Agreement of Consolidation and Merger with the New Jersey Secretary of State. Dated January 30, 1890, the compact was drawn up by PRRC lawyers with an eye toward reducing corporate redundancy among its subsidiaries and affiliates. The consolidation was finalized six weeks later, on March 15, 1890, as a new corporation was formed under the title "New York Bay Railroad Company." In addition to the Waverly & Passaic Railroad and the Waverly & New York Bay Railroad, the fledgling New York Bay Railroad Company assumed ownership of the PRRC's "West Newark Branch" railroad, which was then under construction from the United New Jersey Railroad main line north of Waverly westward along Peddie Street. Upon the chartering of the New York Bay Railroad Company, the PRRC began operating the New York Bay Railroad "on a rental basis" that remained in effect for two decades.

The section of the former Waverly & New York Bay Railroad extending 2.2 miles from Waverly to a connection with the CRRCNJ's

Newark Branch at Oak Island Junction was nearing completion when it became part of the New York Bay Railroad in mid-March 1890. It thus fell to the New York Bay Railroad Company to apply finishing touches to the original segment of what Company officers designated as their railroad's "main line" (that terminology was employed in the PRRC's *Annual Report for 1890*, while the partially-completed Waverly & Passaic Railroad was referenced as the New York Bay Railroad's "Passaic Branch"). When the portion of the New York Bay Railroad's main line between Waverly and Oak Island Junction was placed into service on March 20, 1890, the controlling PRRC moved its interchange with the CRRCNJ from Elizabeth northeastward to Oak Island Junction.

The latter point would mark the eastern extent of the New York Bay Railroad's main line—as well as the Jersey City, Newark and Western Railway's parallel line—while plans were developed for extending both lines southeastward across Newark Bay to Greenville. Early in 1891, the New York Bay Railroad Company agreed to collaborate with the Jersey City, Newark and Western Railway Company on the installation of "joint bridges over Newark Bay between Oak Island and Greenville." This amounted to an agreement between the PRRC (renter of the New York Bay Railroad) and the LVRRC, which had acquired controlling interest in the Jersey City, Newark and Western Railway. The alignment chosen for the 1.5-mile-long crossing of Newark Bay was approved by the U.S. Secretary of War on March 28, 1891. Within the next few days, contractors under LVRRC supervision began installing trestlework for the Jersey City, Newark and Western Railway portion of the "joint bridges."

By mid-August 1891, workmen had "thrown a gigantic trestlework across Newark Bay," a Jersey City newspaper reported. The line of timber bridge supports extended "from the shores of Jersey City on the boundary line between that city and Bayonne [northwestward to] Newark's shores at the foot of Waverly street." Near the mid-point of that alignment—spanning the confluent channels of the Passaic and Hackensack Rivers—an opening was left for installation of a "draw" (the moveable section of a drawbridge). That installation was still a couple of months in the future on August 28, 1891 when the LVRRC oversaw the merging of seven short railroads under its control in northeastern New Jersey, including the Jersey City, Newark and Western Railway. The new corporation was titled "Lehigh Valley Terminal Railway Company," and its

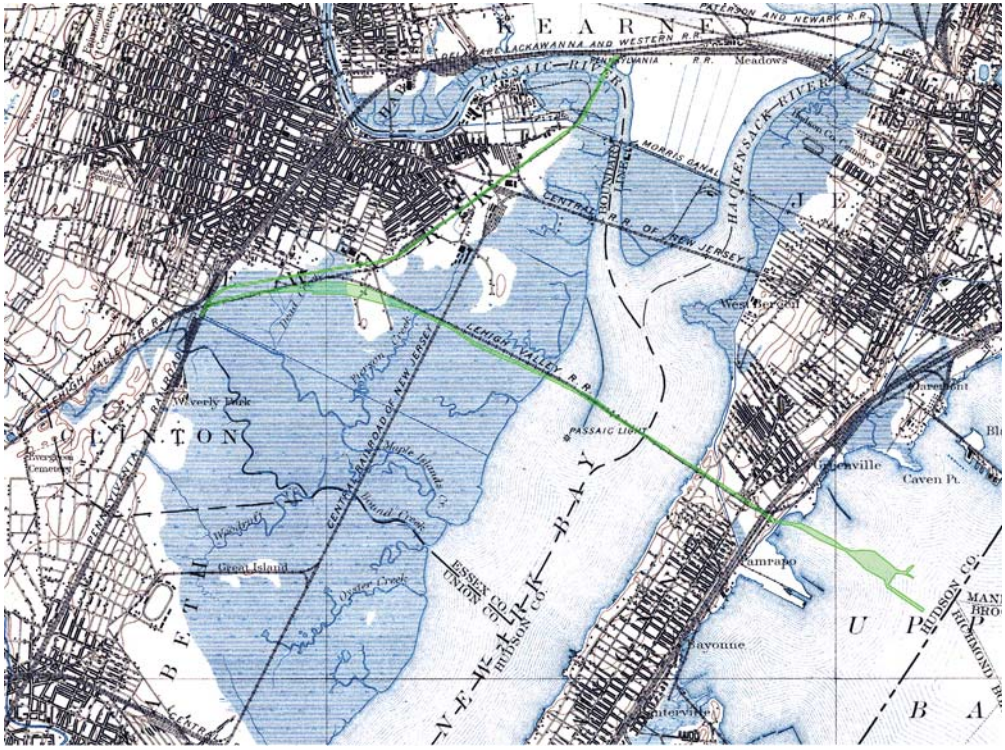
various lines became jointly known as the "Lehigh Valley Terminal Railway." It was for the use of the latter that the LVRRC hastened to complete its portion of the Newark Bay "joint bridges." The Company was eager to escape reliance on bridges owned by competing railroad companies (including the PRRC's spans over the Passaic and Hackensack Rivers) for passage between the Newark vicinity and the LVRRC freight terminal in Communipaw. That eagerness was reflected in the rapid pace of the Newark Bay Bridge's completion. In mid-October 1891—barely half-a-year since the start of construction—the LVRRC began sending freight trains across its "big Newark Bay trestle."

On a map of the Newark Bay vicinity published in 1891 (*Page 21*), the "big Newark Bay trestle" was denoted in a "joint bridges" configuration, with the northern set of tracks attributed to the "Lehigh Valley R.R.," and the southern set attributed to the "Pennsylvania R.R." In fact, only the LVRRC portion had been built. The PRRC was in no hurry to make its complementary contribution, as it was a long way from establishing a yard in Greenville for the handling of freight trains sent eastward from Oak Island Junction. At the current pace of development, years might pass before such a facility came to fruition. So the PRRC placed its Newark Bay bridge-building plan on hold. As an alternative, the Company obtained trackage rights to cover occasional use of the LVRRC's Lehigh Valley Terminal Railway between Oak Island Junction and Greenville, a stretch made passable by the LVRRC's Newark Bay Bridge. That arrangement continued through the remainder of the 1890s, as the New York Bay Railroad component of the "joint bridges" remained unbuilt. On a USGS topographical quadrangle surveyed in 1897 and published the following year (*Page 27*), the Newark Bay Bridge was thus attributed to the "Lehigh Valley R.R." alone, and only one set of double tracks was denoted traversing the span.

After opening the 2.2-mile section of its main line between Waverly and Oak Island Junction in March 1890, the PRRC-controlled New York Bay Railroad Company devoted more attention to the other divisions of its three-prong railway. The initial section of the West Newark Branch—inherited from the PRRC in mid-construction—was completed by the end of 1890. From a connection with the PRRC main line north of Waverly, the railroad coursed three-quarters of a mile westward along Newark's Peddie Street, then turned northward and proceeded about a

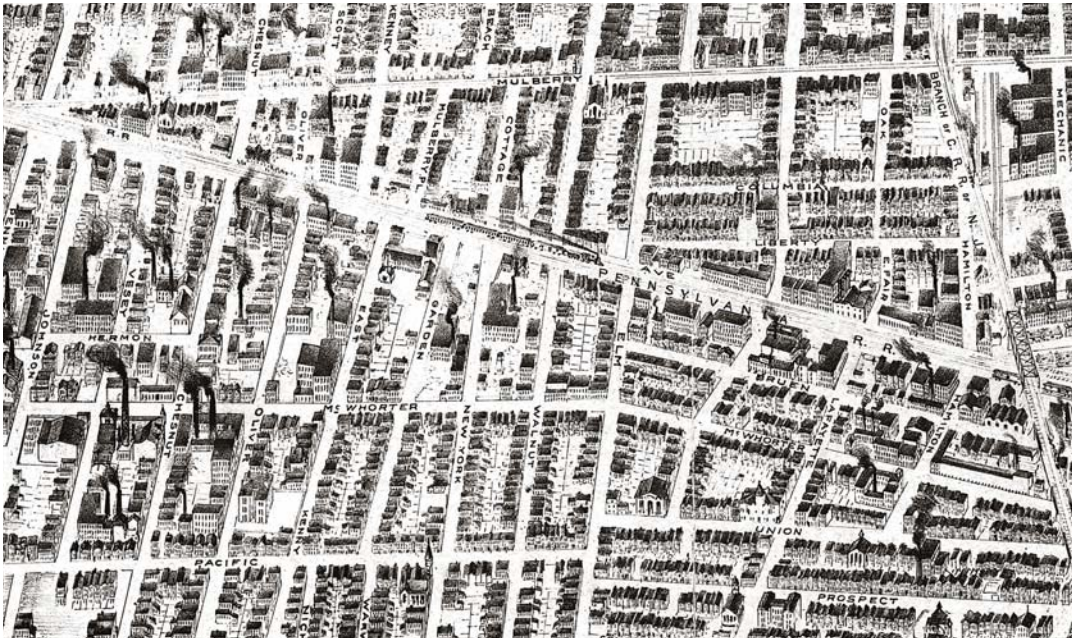
half-mile to Clinton Avenue, where a freight yard was under construction. That yard was completed the following year (1891), and the final segment of the New York Bay Railroad's West Newark Branch—extending another two-thirds of a mile to the north—became operational in February 1892. By that time, the PRRC had created a new interchange with the Lehigh Valley Terminal Railway where the PRRC's main line dipped under Lehigh Valley Terminal Railway tracks north of Waverly. The eastern end of the West Newark Branch was incorporated into that interchange, which then became known as "West Newark Junction."

After more than a year's delay, construction of the New York Bay Railroad's Waverly & Passaic Branch northward from Hamburg Place two



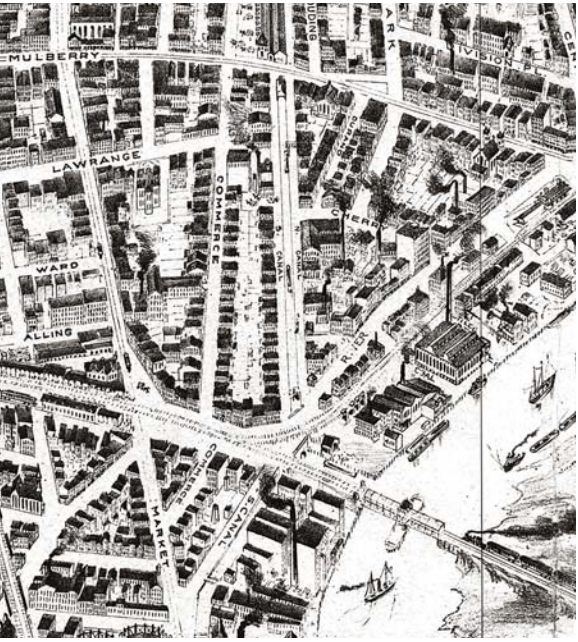

*On a USGS map published in 1898, only one set of double-tracks is denoted traversing the new Newark Bay trestle bridge between the Newark meadowlands and Greenville, and the tracks were attributed to the "Lehigh Valley R.R." alone. The future Pennsylvania Railroad (PRR) New York Bay Branch Historic District is highlighted in green. (USGS)*

miles to Point-No-Point on the Passaic River resumed in late 1891 or early 1892. As reported in a *New York Times* article in July 1891, that work proceeded with the expectation that "a new bridge will be in readiness to carry the new line across [the Passaic]. On the other side of the river the line will connect with the main line of the Pennsylvania Railroad, about one-eighth of a mile west of the new Hackensack bridge. The road will be completed as soon as possible." The northern section of the Waverly & Passaic Branch (or simply "Passaic Branch") was indeed pushed to completion within a matter of months. According to a PRRC corporate history, finishing touches to the single-track, at-grade line were applied "about September 1892." A new bridge to carry the line across the Passaic River was not yet "in readiness," however. The New York Bay Railroad Company was still trying to secure the real estate and riparian rights necessary for bridging the river at Point-No-Point. Company officials were finally able to line those up early in 1893, as reported in a Passaic, New Jersey newspaper: "The New York Bay Railroad has received permission to build a bridge across the Passaic river at a point on the Newark meadows, below Lister's factory, to the [Kearny Township] shore, thus joining the Waverly and Passaic branch of the New York Bay Railroad to the Pennsylvania tracks [near the Meadows Yard], on which it will enter Jer-

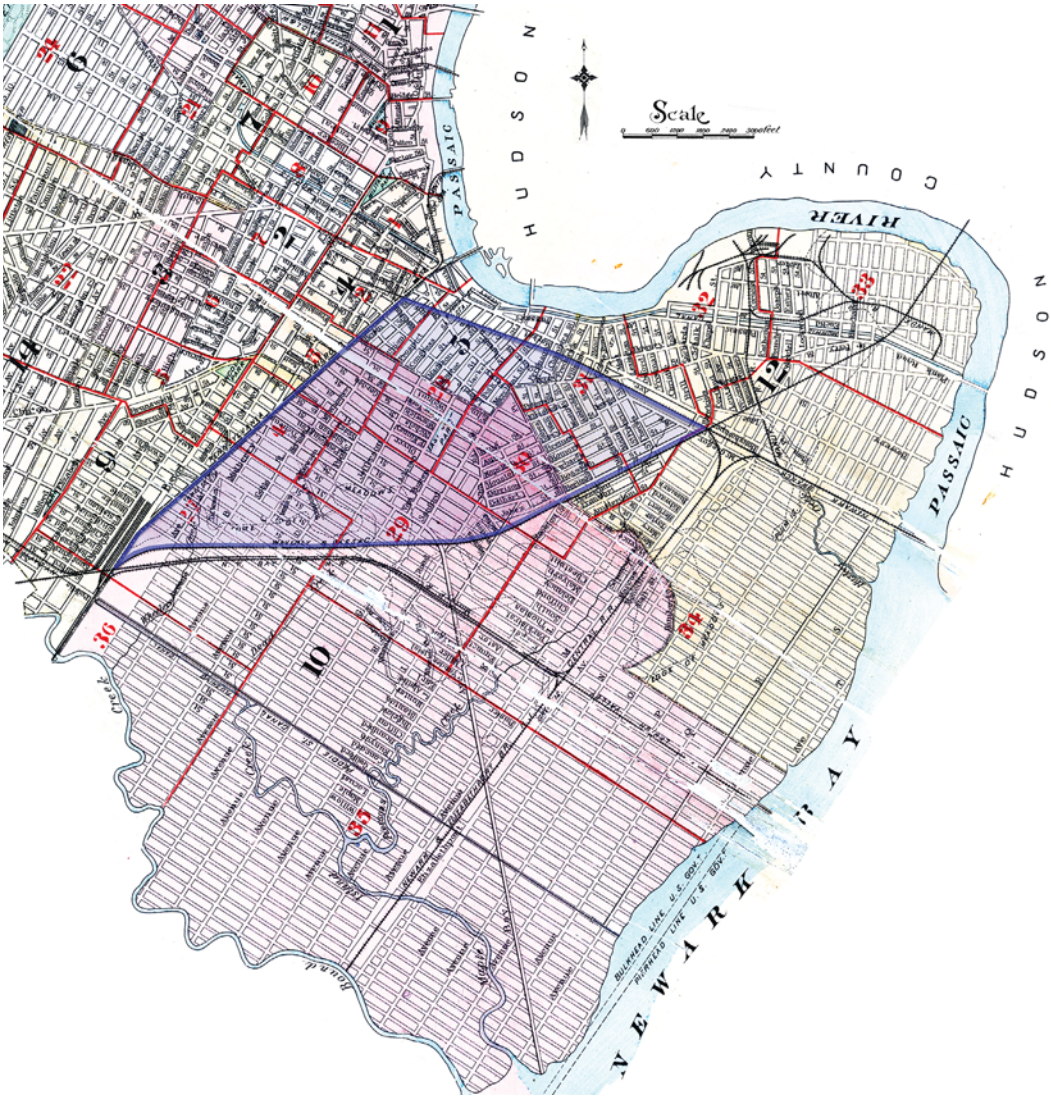


sey City. The State Riparian Commissioners granted the land for a consideration of $5,400. Contracts for the building of the bridge have been signed, and by summer the road is expected to be in operation."

Those expectations soon collapsed, however, as a financial panic gripped the nation. Under PRRC control, the New York Bay Railroad Company found other uses for its restricted funds during the spasm of economic hysteria that became known as "The Panic of 1893." The company's finances remained extremely tight through the following four-year recession, and, even as the national economy recovered in the late 1890s, the Passaic bridge project languished. As of 1898, the northern end of the Passaic Branch still terminated on the south side of the unbridged Passaic River, as reflected on the previously cited USGS topographical quadrangle published in that year. For want of such a bridge, the Passaic Branch's primary purpose—to divert PRRC freight traffic around central Newark as it moved between Jersey City and Elizabeth—remained unfulfilled through the end of the nineteenth century. The Branch's potential would only be realized in the coming century, as widespread improvements and expansions transformed all facets of the New York Bay Railroad system.




*Absent a bridge to carry the New York Bay Railroad's Passaic Branch over the Passaic River at Point-No-Point, Pennsylvania Railroad freight trains continued to share tracks with passenger trains on United New Jersey Railroad tracks passing through downtown Newark during the 1890s, as depicted in this detail of* Newark, N.J., Harrison-Kearney 1895, *published by T.J.S. Landis. (Library of Congress)*




*When the New York Bay Railroad's elevated Passaic Branch was completed in July 1901, the southeastern section of Newark became a roughly triangular-shaped district bordered on the northwest by the United New Jersey Railroad's main line, on the southeast by the Passaic Branch, and on the northeast by the CRRCNJ's Newark and New York Railroad. Bounded by railroad tracks, the four-square-mile area (here highlighted in blue on a detail of* Outline & Index Map of the City of Newark, New Jersey, 1901*) became known as Newark's "Ironbound District." (New York Public Library Digital Collections)*

# ·3·

# Twentieth-Century Transformation

## *1900-1910*

The long pause in corporate efforts to extend and improve the New York Bay Railroad broke like a fever during the first months of the twentieth century. The controlling PRRC announced in February 1900 that it had awarded a contract for converting the at-grade, single track Passaic Branch into an elevated double track railroad. As explained in a February 27, 1900, *New York Times* article, the PRRC was acting on a "policy to get rid of grade crossings wherever possible." Such a monumental task within the Passaic Branch corridor required elevating 4.12 miles of double track on newly laid berm and "13 overhead bridges, the majority being street bridges."

Work on the second-generation Passaic Branch began at the Waverly end in February 1900, and was "rapidly pushed" northeastward, according to an April 6, 1900 report in Jersey City's *Evening Journal*. Frank L. Sheppard, General Superintendent of the United Railroads of New Jersey Grand Division (comprising the PRRC-controlled lines of the United New Jersey & Canal Company between Philadelphia and New York), was described in the article as being "anxious to complete the line as rapidly as possible, that it may be used to relieve the main [United New Jersey Railroad] line through Newark, which is now frequently congested by heavy freight traffic, which hinders passenger traffic and causes delays and confusion at Newark street crossings. When the Waverly and Passaic line is completed, all [Pennsylvania Railroad] freight [out of Jersey City] for points west of Newark will be sent over it. That will leave the tracks through Newark for passenger traffic and Newark freight traffic exclusively." Newark freight traffic (as opposed to all other freight traffic) would still have to use the main line in order to serve points within the City.

Of course, transforming the Passaic Branch into an elevated, two-track railroad was only one step toward "completing the new Waverly

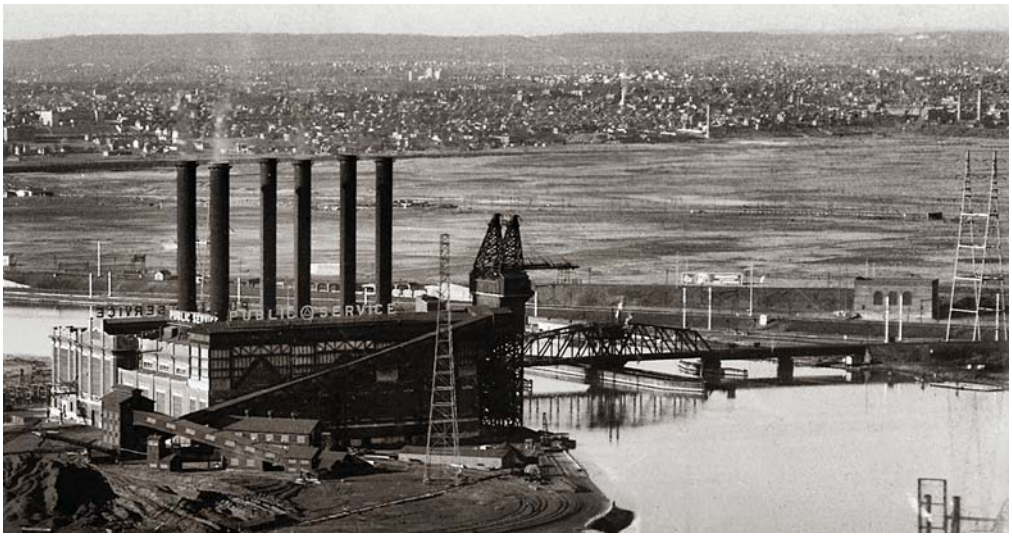
and Passaic line." A bridge was still needed to carry the reconfigured railroad over the Passaic River at Point-No-Point, and tracks would have to be laid on the Kearny Township side of the river to connect the Passaic Branch to the United New Jersey Railroad's main line. As reported in the April 6, 1900, *Evening Journal* article, those facets of the project were already being addressed:

> The new line will cross the Passaic River by a bridge of considerable height. The structure will be continued to the river bank over[top] the main line tracks, which at present lie close to the [Meadows Yard] shops. In order that the Waverly and Passaic tracks may descend the grade at the meadows yard it will be necessary to begin with a gradual descent at a point slightly south of the present line of the [United New Jersey Railroad] main tracks. This will necessitate a change in the alignment of the main line tracks. Four tracks will have to be moved 50 feet nearer the river bank. The change will be made all the way from Harrison to the Hackensack River. A large force of men was at work this morning digging away the embankment and filling in where necessary to establish the required grade for the change.

While a "bridge of considerable height" was initially projected to carry the northward extension of the Passaic Branch over the Passaic River at Point-No-Point, the bridge that was ultimately approved for construction in the spring of 1900 was not particularly high. In fact, it was rather low-slung, with only 20 feet of clearance above the river's surface. River traffic was accommodated, however, through the incorporation of a 276-foot-long swing span in the bridge's midsection, configured as a camelback through truss structure. Swinging that span open (through horizontal rotation) allowed vessels up to 100 feet in width to pass either on the north side or the south side of the central pivot pier. The final design for the Point-No-Point Bridge called for seven steel plate girder spans resting on six stone-and-concrete piers, capable of carrying two sets of railroad tracks 762 feet between masonry abutments on either side of the Passaic River.

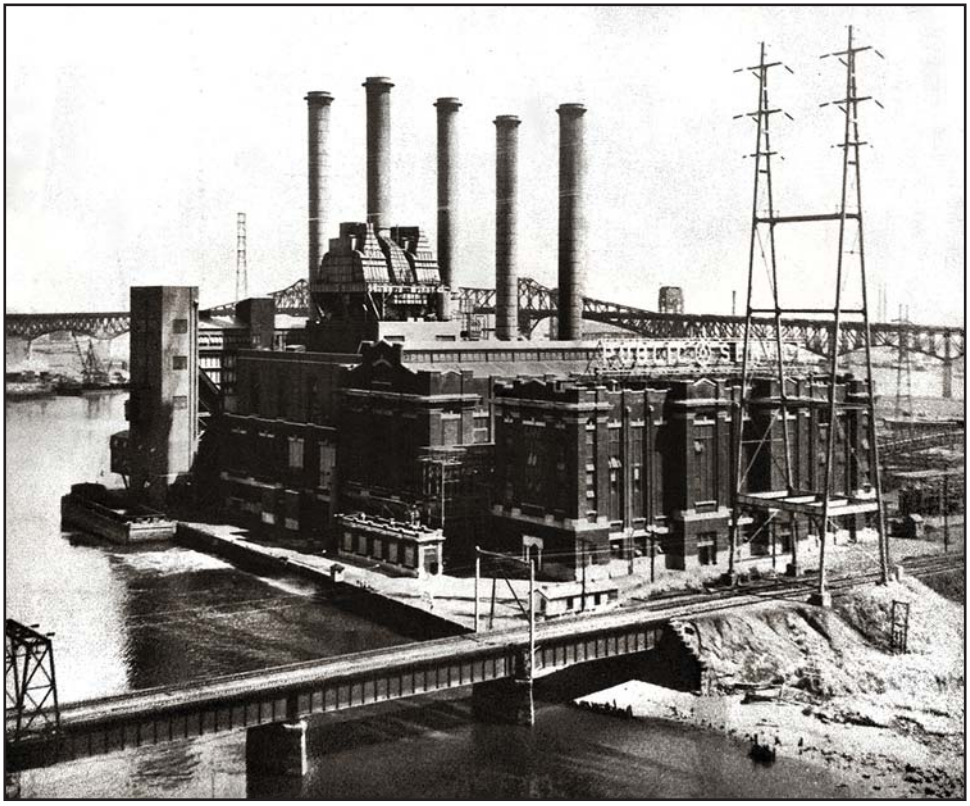
The PRRC announced in May 1900 that it had awarded a contract to construct the masonry and concrete substructure of the Point-No-Point Bridge to the New York-based firm Weand & McDermott. Two months

later, the contract for the bridge's steel superstructure was given to A. & P. Roberts Company, proprietors of the Pencoyd Iron Works along the Schuylkill River outside Philadelphia. While those companies collaborated on installing the Point-No-Point Bridge, the Newark-based B.M. & J.F. Shanley Company carried out "a large part of the work on the [other sections of the] new line," building berms out of "gravel brought from Metuchen, 15 miles west of Waverly." That detail was noted in a dispatch published in *The Railroad Gazette* in August 1901 under the title "Pennsylvania Freight Line Around Newark." The article was occasioned by the formal opening of the extended and elevated Passaic Branch—with its recently completed Point-No-Point Bridge—on July 22, 1901. The improvements were attributed entirely to the PRRC, rather than the subsidiary New York Bay Railroad Company, which did not even rate a mention in the article:




*The northern half of the swing-span Point-No-Point Bridge, completed in July 1901, is reflected in the waters of the Passaic River in this northwestward aerial view of the northern tip of Newark Neck recorded in mid-to-late 1930s. The bridge's southern half is hidden behind the Essex Generating Station of the Public Service Corporation of New Jersey, constructed in 1915. On the far right stands the 245-foot-tall "Passaic River [Transmission] Tower A" erected beside the bridge's northern approach in the early 1930s as part of the Pennsylvania Railroad main line electrification project. (University of Michigan Library Digital Collections).*

On Monday of last week, officers of the Pennsylvania Railroad, with invited guests, took a trip over the Waverly & Passaic Railroad [*sic*], the Pennsylvania's freight line around Newark, and on their return it was announced that the line had been formally opened. This railroad, double track, leaves the main line at Waverly, about two miles [south]west of Newark, and, running around the south side of the city, rejoins the main line near the Meadows freight yards about three miles [north] east of Newark. These yards are on the north side of the main [United New Jersey Railroad] passenger tracks and the new tracks reach them by an overhead bridge. The new railroad is on a high embankment most of the way, the drawbridge



*A birds-eye view of the Essex Generation Station recorded in the mid-to-late 1930s included the southern half of the Point-No-Point Bridge, as well as the 227-foot-tall "Passaic River [Transmission] Tower B." (PSE&G)*

> over the Passaic River being about 20 feet above the water; and a large part of the yard itself, at the Meadows, has been raised so as to make uniform descending grades in the tracks leading from the new approach. . . . It is said that the work of elevating the main (passenger) tracks of the Pennsylvania through Newark [in order to remove at-grade crossings] will now be actively prosecuted. It will be possible, while this work is going on, to run through passenger trains around by the new [Passaic Branch] freight line; and it is said that the Centre street bridge, north of the Market street bridge, on the loop, will be used for through trains while the latter is being rebuilt at the new level.

Upon the completion of the elevated Passaic Branch in July 1901, the southeastern section of Newark became a roughly triangular-shaped district bordered on the northwest by the United New Jersey Railroad's main line, on the southeast by the Passaic Branch, and on the northeast by the CRRCNJ's Newark and New York Railroad. Bounded by railroad tracks, this four-square-mile area—rapidly developing industrially and residentially as it received an influx of working-class German, Lithuanian, Italian, and Polish immigrants—became known as Newark's "Ironbound District."

The costs and engineering challenges entailed in building 4.12 miles of "high railroad embankment" punctuated by 13 bridges were formidable, but reconfiguring the Passaic Branch proved to be a relatively simple project compared with the PRRC's other major New York Bay Railroad improvement-and-expansion effort launched in the early months of 1900. That effort involved constructing—at long last—a freight yard and marine terminal in Greenville, while concurrently extending the New York Bay Railroad's main line eastward from Oak Island Junction to the new Greenville facility, crossing Newark Bay via a new bridge beside the Lehigh Valley Terminal Railway's timber trestle. That multifaceted project, with an estimated $15 million price tag, was moved to the front burner when the PRRC set about acquiring controlling interest in the Long Island Rail Road Company (LIRRC) early in 1900. The LIRRC operated a freight terminal on the east shore of New York Bay, in the Brooklyn community of Bay Ridge. If the PRRC obtained usage rights to that terminal, Pennsylvania Railroad freight could be ferried three

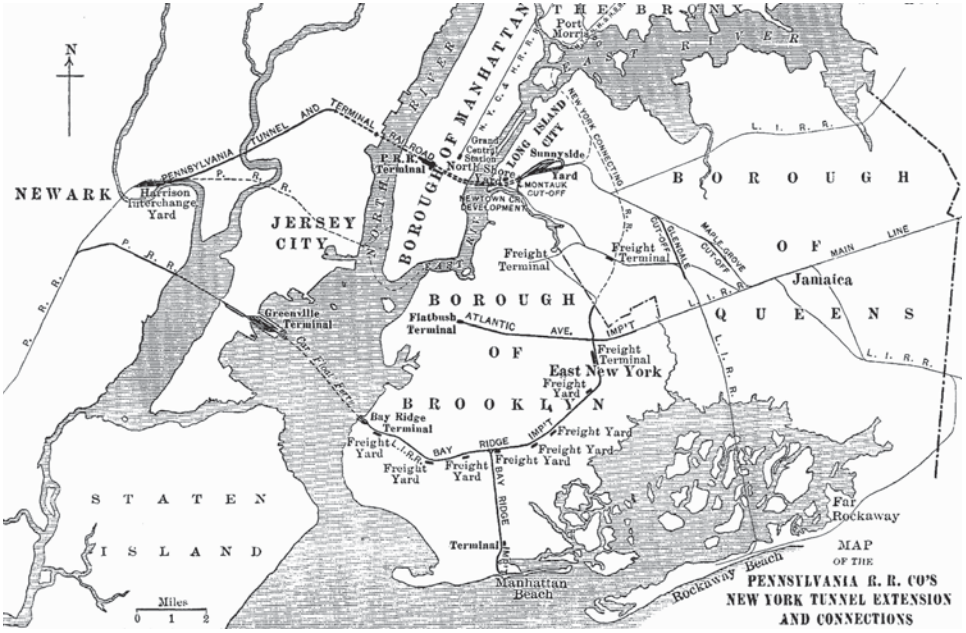
miles across the Bay between the Greenville and Bay Ridge terminals in about an hour. Moreover, the LIRR's branches and connections in and around New York City—together with opportunities arising through the PRRC's "cordial relations" with the New York, New Haven, and Hartford Railroad Company—would afford access to valuable markets throughout New England.

The rationale for the PRRC's acquisition of the LIRRC was more fully outlined by a PRRC officer in a *New York Times* article published in May 1900 as follows:

> [The railroad] traffic of Brooklyn, with its more than 1,000,000 inhabitants, has been almost entirely confined to the East River front. All of the freight brought by the railways to that city as well as that taken from there for distribution throughout the country has been carried on floats or lighters between terminal points of the different railways and the piers and freight yards along the East River. Not only are these facilities limited and crowded, but business and manufacturing industries have necessarily been confined to the very restricted district along the water.
>
> On the other hand, the tracks of the Long Island Railroad form a belt line extending around the outskirts of the built-up part of Brooklyn from the Thirty-fourth Street Ferry to Bay Ridge, with lines into the various centres of the city. These lines afford the means of establishing freight depots, yards for carload deliveries, and coal and lumber yards conveniently situated and of unlimited capacity. They also afford opportunities, which will no doubt be extensively availed of, for the erection of manufactories of all kinds requiring direct rail connections.
>
> When the new freight terminus of the Pennsylvania Railroad at Greenville, a section of Jersey City, opposite Bay Ridge, is completed, connection with the Long Island system will be made at Bay Ridge by a comparatively short car float ferry . . . . The Pennsylvania Railroad management believes that, with the improved communication between New York and Long Island, which will be provided by the proposed tunnel

from the Battery to Flatbush Avenue Station, as well as by the bridge under construction, and by other rapid transit tunnels that are sure to follow, the business of the [PRRC-controlled] Long Island Railroad will be largely increased.

By the time the PRRC Board of Directors approved their company's purchase of controlling stock in the LIRRC on May 5, 1900, construction of the New York Bay Railroad's Greenville freight yard and marine terminal was already six weeks underway. Jersey City contractor P. Sanford Ross was awarded a $500,000 contract on March 24 "for the preliminary work on this improvement," as reported in an *Evening Journal* article on April 6. The contract called "for the building of bulkheads [in Upper New



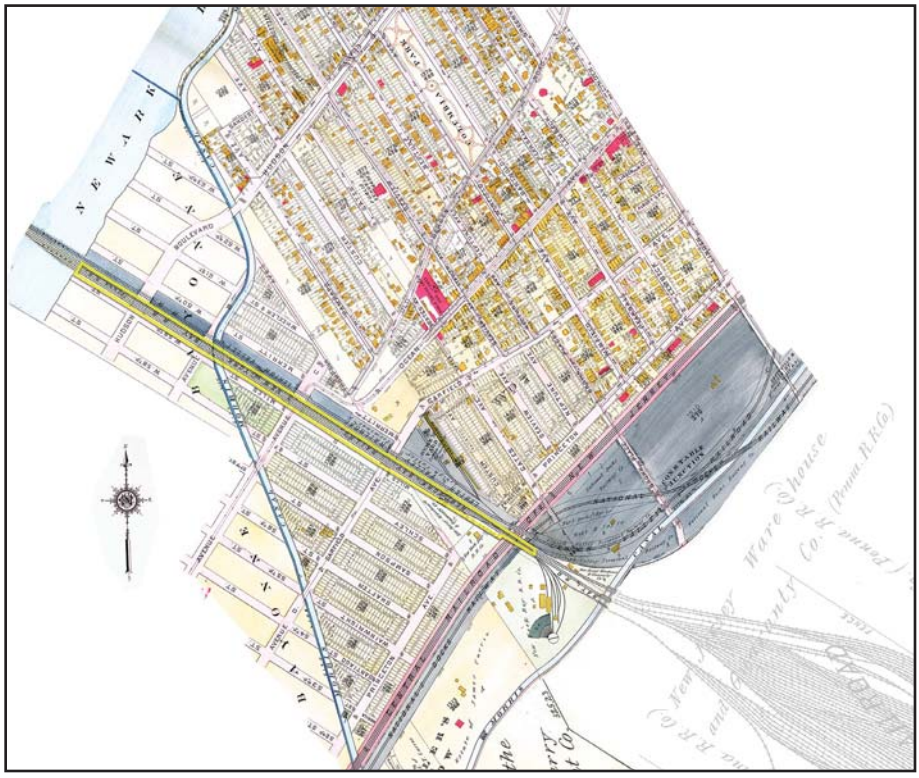

*The Greenville terminal's crucial role in the PRRC's plan to expand and transform its freight and passenger traffic through and around greater New York in the early twentieth century is represented in this map of proposed "New York Tunnel Extensions and Connections," created to illustrate "the component elements of the general plan outlined by [PRRC President] A.J. Cassatt, in his open letter to the Board of Rapid Transit Railroad Commissioners of the City of New York, dated January 18, 1906" (Raymond 1910).*

York Bay] 3,000 feet from the [Greenville] shore, to which point solid filling will be made." United Railroads of New Jersey Grand Division General Superintendent Sheppard was quoted in this article explaining that "it will be a long time before the docks and terminus can be built [upon that fill]. When the entire improvement is completed, the New York Bay Railroad, which intersects with the Lehigh Valley Railroad at Oak Island Junction, and which is used to that point at present for all our business with the Central Railroad of New Jersey, will be [extended eastward] to the new [Greenville] terminus. We will have right of way through Greenville sufficient to permit the building of a four-track line. There will be no haste, however, in laying the tracks to the [New York Bay] shore front, as for some years it would be more advantageous for us to use the Lehigh Valley Railroad from Oak Island Junction for such traffic as we may have. There will be no haste in completing the New York Bay [Railroad's main] line."

There was, however, plenty of haste in the PRRC's colossal effort to build and equip its Greenville Yard. A July 16, 1900 report noted that "work on the new Pennsylvania railroad ship basin at the Greenville shore of New York Bay—an undertaking of a gigantic nature—is progressing rapidly," with a "large force of men operating two pile drivers at work daily. The New York Bay at that point is shallow and it will be necessary to do considerable dredging to make the channels of sufficient depth to accommodate large vessels and ships. . . . While no special time has been set for the completion of this project, the [PRRC] is anxious to have it completed as soon as possible. This section is a considerable distance from the Pennsylvania railroad tracks [at Newark], which fact necessitates the making of an agreement with the Lehigh Valley railroad to run its trains over the Lehigh Valley tracks from Waverly, where the Lehigh and Pennsylvania main lines connect. This agreement will facilitate the carrying of material to fill in the water front, and will be a vast saving to the [PRRC]. The Lehigh tracks pass within a short distance of the Pennsylvania property, and when it becomes necessary it will be an easy matter to construct a short line from the Lehigh Valley tracks to the property of the [PRRC fronting on New York Bay]. The entire shore front from Black Tom to Bayonne is now controlled by railroads and other corporations, and in another decade the once beautiful water front, with its many historic associations, will become a busy railroad center. The farm lands of Greenville are fast becoming railroad property.

And it will only be a matter of short time when the Greenville gardener will be known in memory only."

As P. Sanford Ross employees drove the final sections of bulkhead into place—enclosing a 340-acre area that required 20 million cubic yards of fill—the PRRC decided to increase its capacity for importing and handling fill materials beyond what could be carried on the LVRR line. It would do so by creating a mile-long, four-track section of railroad along the south side of the LVRR tracks between the Greenville Yard site and the eastern end of the LVRR timber trestle bridge over Newark Bay. On February 27, 1901, "a large force of men" employed by Lafayette, New Jersey contractor P.H. Rehill began preparing the road-




*The mile-long, four-track section of New York Bay Railroad constructed in 1901-02 between the Greenville Yard site (on the east) and the eastern end of the LVRR timber trestle bridge over Newark Bay is highlighted in yellow on composited sheets from G.M. Hopkins'* Atlas of Hudson County, New Jersey, Volume One, *1908. (New York Public Library Digital Collections)*

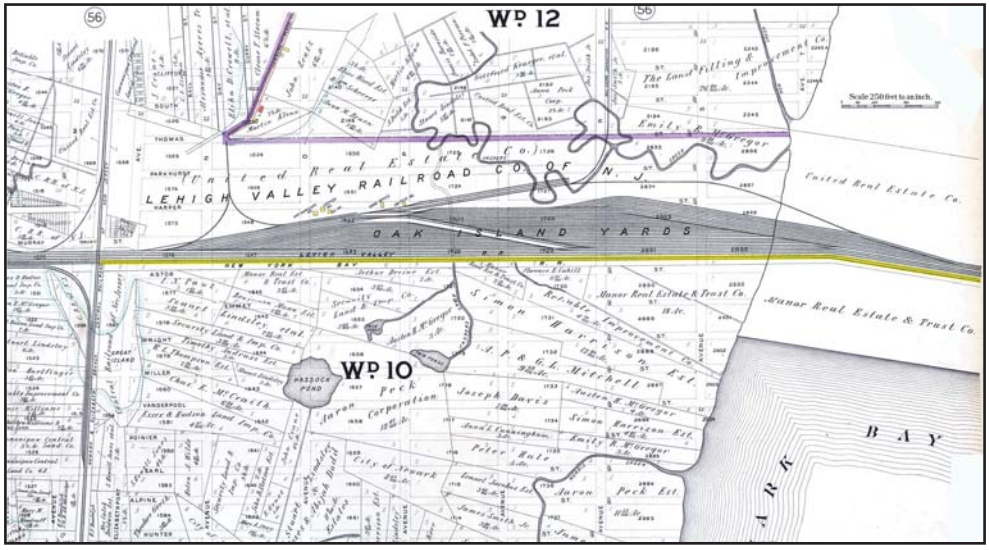
bed for this railroad, a "big undertaking" that required great quantities of fill. It was further reported in a newspaper article the following day that Rehill "has been instructed to rush the work," suggesting that "the PRR company is short of material with which to fill in the shore front, and that the line in course of construction would be used to convey filling material from the various New Jersey cities and towns to the scene of its operations at New York Bay shore. The PRR company will construct a bridge across the Newark Bay later, and build a line to connect with its main line at Waverly which will make it entirely independent of the Lehigh company."

Work on the mile-long, four-track railroad spanning Bergen Neck at Greenville continued for more than a year. In the meantime the PRRC initiated construction of the other critical pieces of its Newark-and-Jersey City freight bypass scheme, timing those projects to conclude just prior to the anticipated opening of the first section of the Greenville Yard. The least complicated of those projects involved extending the New York Bay Railroad's two-track main line eastward one mile from Oak Island Junction to Newark Bay. Completed midway through 1904, that extension ran parallel with, and immediately south of, the LVRR line that had traversed the meadowlands between Oak Island Junction and Newark Bay since 1891. The LVRRC had, however, recently transformed that segment of the Lehigh Valley Terminal Railway into a sprawling freight classification and storage area known as "Oak Island Yard." The facility began receiving trains midway through 1903, around the time that the LVRRC consolidated its Lehigh Valley Terminal Railway with five other subsidiary lines in New Jersey to form the Lehigh Valley Railroad Company of New Jersey (LVRRCNJ) on July 29, 1903. Running along the southern edge of Oak Island Yard, the mile-long segment of the New York Bay Railroad completed in 1904 was vastly overshadowed by its neighbor to the north.

The PRRC also completed a timber trestle bridge (destroyed by fire in 1913) spanning Newark Bay between the eastern end of the Oak Island segment of the New York Bay Railroad and the western end of the four-track railroad spanning Bergen Neck in 1904. As a *Railway Age* reporter observed shortly after the bridge's inauguration, the structure "involves a trestle about 5,600 feet long and a large [264-foot-long] drawbridge across Newark Bay. There is nothing especially remarkable about this

trestle except for its length and the stability of its construction, but it is worth remarking that the piles and caps are heavily creosoted. Following the Lehigh Valley line exactly and in contact with its southern side, the Pennsylvania Railroad now has built its own double track approach from Waverly to the east side of Newark Bay. But the drawbridge is used in common [with the LVRRCNJ], each of the railways giving up one of its tracks for that purpose and thus establishing a gauntlet." Thus, the "joint bridges" plan envisioned in 1891 finally came to fruition 13 years later.

The completion midway through 1904 of the Newark Bay Bridge and the mile-long section of double track railroad connecting the bridge's western end to the eastern end of the New York Bay Railroad's main line at Oak Island finally equipped the PRRC with at least two tracks dedicated to freight transport along the 4.6-mile route between Waverly and the west side of Greenville. The additional mile of four-track railroad recently laid by the PRRC across Bergen Neck to the Greenville



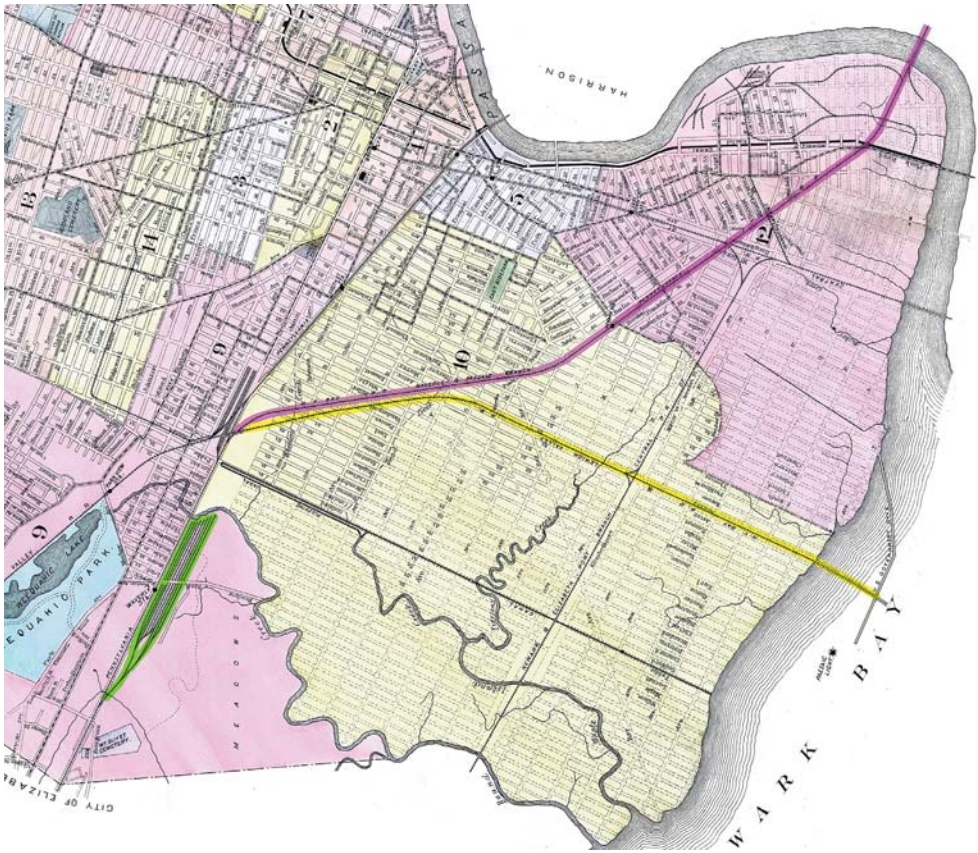

*The mile-long section of the New York Bay Railroad extending from Oak Island Junction eastward to Newark Bay, completed in 1904, is highlighted in yellow on a plate from the 1912* Atlas of City of Newark New Jersey, Volume Two *(Lathrop and Ogden 1912). The section is vastly overshadowed by its neighbor to the north: the Lehigh Valley Railroad of New Jersey's new Oak Island Yard. (New York Public Library Digital Collections)*

Yard construction site extended that line to 5.6 miles. The two principal prongs of the New York Bay Railroad—increasingly referenced respectively as "the Greenville Branch" and "the Passaic Branch"—were at last fully built out and ready for traffic.

In order to manage traffic at the western end of the New York Bay Railroad system, in 1903 the PRRC began building a freight yard immediately west of the United New Jersey Railroad's main line beside the Waverly station. The facility was "nearing completion" on February 20, 1904, when it was described in a *Jersey City News* article as an "immense freight yard which the Pennsylvania Railroad company is constructing for the purpose of handling incoming freight and relieving the congestion of cars at the Jersey City yards, which has caused serious delay and much damage and loss of property this winter, and which grows worse from month to month. The offices will be ready for occupancy March 1, and the [Waverly] yard will be ready on the same date for the reception of hundreds of freight cars, which will be sorted there instead of at Jersey City, or the Hackensack meadow yard, and shipped right through to points in New England or New York without stopping at Jersey City."

If the PRRC's new 72-acre Waverly Yard could be described as "immense," the last and largest piece of the Newark-and-Jersey City freight bypass plan—the 340-acre Greenville freight yard and marine terminal—surely warranted characterization as "mammoth" (the adjective applied by *New York Times* writers to the Greenville Yard construction project in multiple articles published during the early 1900s). Employees of several contracting firms had begun creating "made land" on the tidal flats along New York Bay's western shore in March 1901, even before all of the surrounding bulkhead was in place (the contracting firms are identified in the article excerpted on Pages 46-47). Once the bulkhead was complete, filling proceeded at a more rapid pace. Fill material was initially obtained through dredging a boat channel 18 feet deep and 800 feet wide, extending 6,400 feet out from the bulkhead into New York Bay. Fill imported later via railcars and scows (wide-beamed sailing dinghies) generally comprised stones and soil excavated from construction sites across New York City (principally subway and tunnel excavations), as well as material unearthed from the two-block site in Manhattan where the PRRC was building a colossal passenger station (Pennsylvania Station, opened in 1910).

By the spring of 1904, enough of the Greenville Yard site had been filled to permit the construction of transshipment facilities at the eastern end of a 220-acre man-made peninsula. Those facilities took three forms: a coal pier jutting 275 feet into New York Bay, a 1,000-foot-long lighterage pier, and a trio of carfloat transfer bridges. Wide enough to accommodate four sets of railroad tracks, the lighterage pier was designed to facilitate the transfer of less-than-carload freight between



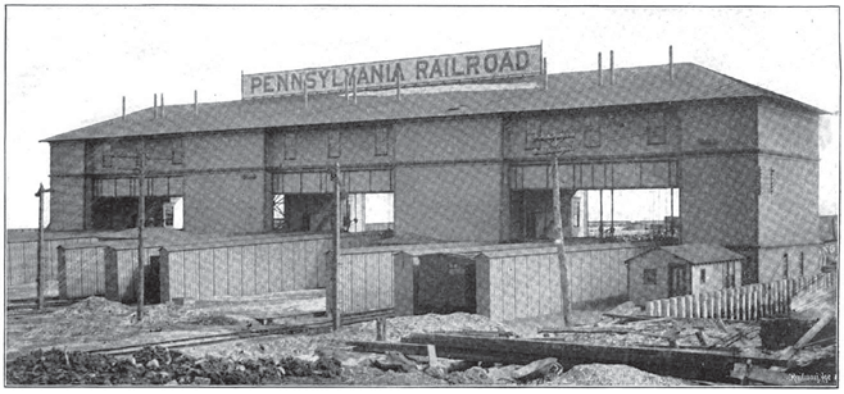

*With the PRRC's completion midway through 1904 of a timber trestle bridge across Newark Bay, and the mile-long sections of railroad at either end of the bridge, the New York Bay Railroad's Greenville and Passaic Branches (highlighted in yellow and pink, respectively) were finally built out and ready for traffic. The PRRC's new 72-acre Waverly Yard is highlighted in green on this detail of the "Street and Ward Map" in* Atlas of Essex County, New Jersey, Vol. 3 *(Kiser 1906). (New York Public Library Digital Collections)*

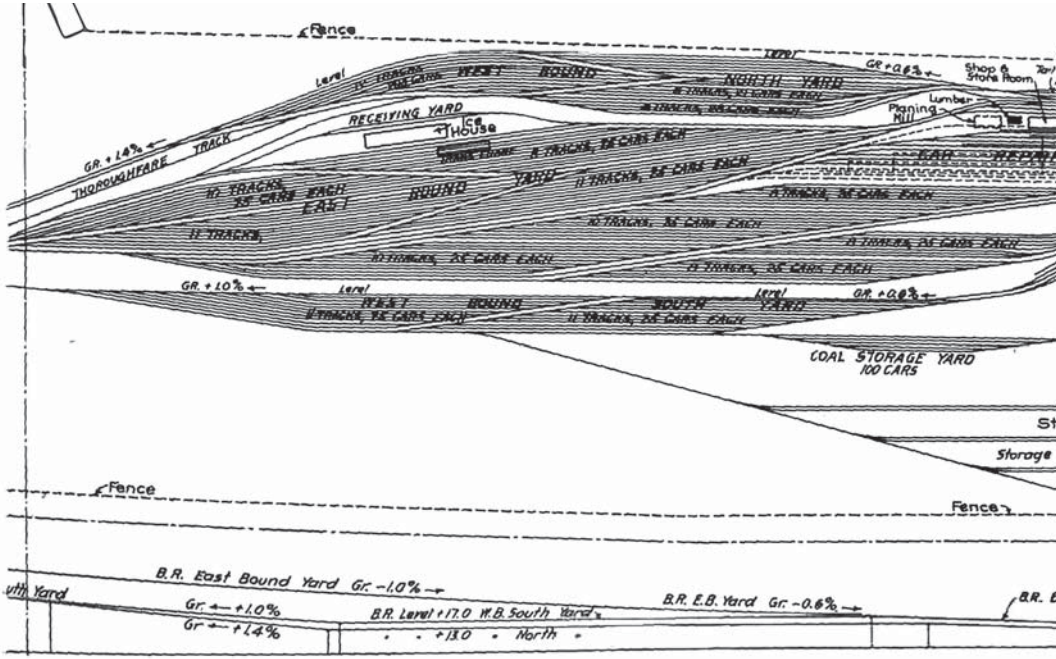
rail cars and the large flat-bottomed boats and barges known as "lighters" that had been used for decades to ferry freight across New York Bay or to and from ocean-going vessels. Carfloat transfer bridges, on the other hand, handled strings of rail cars as they were transferred between the freight yard and carfloats (large scow-hulled vessels equipped with railroad tracks, but motorless and dependent on tugboats for propulsion). Transfer bridges consisted of "movable aprons supported by overhead [wooden Howe truss] frame work and capable of being adjusted to varying elevations as the tide rises or falls, or the carfloat sinks lower in the water" (as described in Historic American Engineering Record [HAER] documentation of the Greenville Yard, completed in 1983). The three-bridge, sheet-metal-clad "transfer house" built at the eastern end of the Greenville Yard in 1904—housing PRRC Transfer Bridges 11, 12, and 13—was "essentially an improved [and electrified] version of the PRRC's innovative carfloat transfer bridge facility built in 1888 at Harsimus Cove" (according to HAER documentation of the Greenville Yard Transfer Bridge System and Freight Operations, produced in 2011).

The mile-long, 1,600-foot-wide storage and classification yard lying between the Greenville transfer bridges and the "hump" at the yard's western "neck" was further equipped with a power house (connecting to the transfer bridges), a shop and warehouse, an ice house, a stone transshipment wharf, a planing mill, scales, and areas for steel storage, coal storage, car repair, and ash disposal. Weaving around them were 51 miles of track capable of accommodating 5,900 railcars. As summarized in the aforementioned 2011 HAER documentation:

> Westbound departure yards and eastbound receiving and storage yards could hold 1,700 and 4,200 cars, respectively, indicating the vast eastbound traffic destined for New England. Eastbound trains were broken up and classified on a hump into strings of cars and sorted for their respective destinations. Through cars were sent to the northern storage tracks, which fed directly into the Transfer Bridges. Cars destined for the piers were shifted over to the southern yards for delivery to the wharves for lighters. Westbound trains were assembled in the northernmost westbound yards, which led directly to the westbound tracks and the mainline. The entire track layout was designed to permit easy, efficient movement of both road


*Images illustrating an article titled "The Greenville Yards and Transfer Arrangements of the Pennsylvania Railroad," published in the March 24, 1905, edition of* The Railway Age*, were captioned: (ABOVE) "Greenville Terminal Transfer House, Water Side"; (BELOW) "Greenville Terminal Transfer House, Landward Side"; and (BOTTOM) "Greenville Terminal View from Neck of Yard Toward Harbor."*

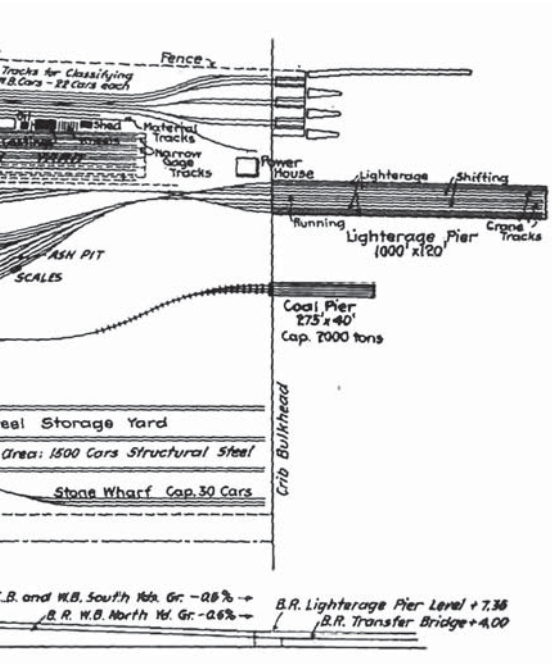



engines and yard engines, while the grades of the respective yard tracks were graded to provide the greatest possible assistance to the cars.

Those details and many others were presented in a pair of illustrated feature articles published in *The Railroad Gazette* and *The Railway Age* on March 17, 1905 and March 24, 1905, respectively (three halftone photographs illustrating the *Railway Age* article are reproduced on Page 45). The articles were occasioned by the "partial opening for business of the Pennsylvania Railroad Company's new freight terminal at Greenville, N.J. on October 17, 1904" (as noted in an earlier edition of *The Railroad Gazette*). According to the *Railway Age* article, no fewer than ten firms had contributed to the construction project, which was estimated about half complete:

The H.S. Kerbaugh Company, Inc., of Philadelphia, loaded dirt from a borrow pit at New Orange, whence it was hauled by train 12 miles and used in filling the central eastbound yard. This filling was unloaded by the B.M. & J.F. Shanley Company, Jersey City, who built the abutments for the bridges,



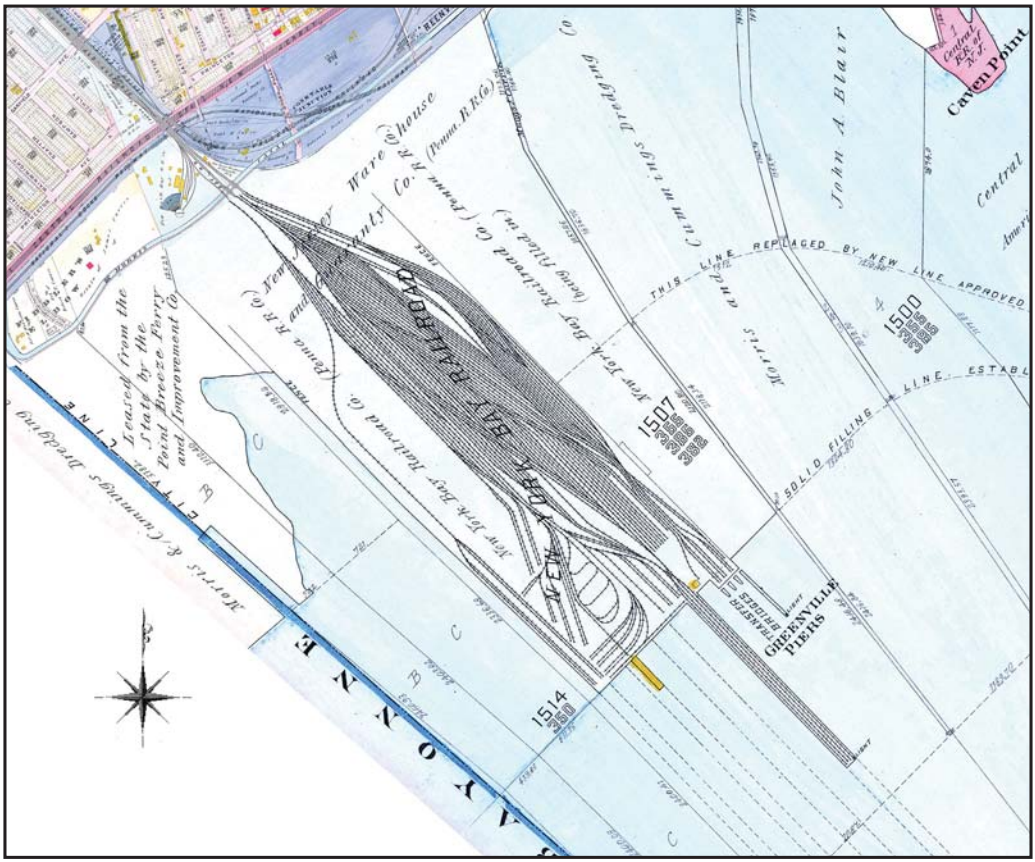

*Features within the mile-long, 1,600-foot-wide storage and classification yard constructed between the Greenville transfer bridges (on the right) and the "hump" at the yard's western "neck" were denoted in a diagram of the "Layout of Classification and Storage Yards and Piers at Greenville" that accompanied an article titled "The Pennsylvania Freight Terminals in New York," published in the March 17, 1905 edition of* The Railroad Gazette.

and also are to do the ballasting and tracklaying throughout the yard. The girders and other ironwork of the bridges were erected by the F.M. Stillman Company of Jersey City. Other firms engaged in filling this yard were Hughes Bros. & Bangs of New York City and Thomas Potter of Jersey City, while P. Sanford Ross, Inc., of Jersey City, performed all the dredging in the channel and built all of the pile enclosures around the property, as well as the 2,800-foot breakwater.

The foundations, steelwork and pile racks, bridges and aprons at the transfer slips, and the great lighterage pier, were built by Henry Steers, Inc., of New York City, who also did a large amount of filling. At the transfer slips, the steel gallows frame was built by the Cooper-Wigand-Cooke Company; the housing of the transfer machinery was erected by the R.P. & J.H. Staats Company of New York; and the transfer machinery itself was built by Steele & Condict of Jersey City.

The *Railway Age* article also reported that carfloats departing the Greenville Yard during its first months of operation followed a 12-mile

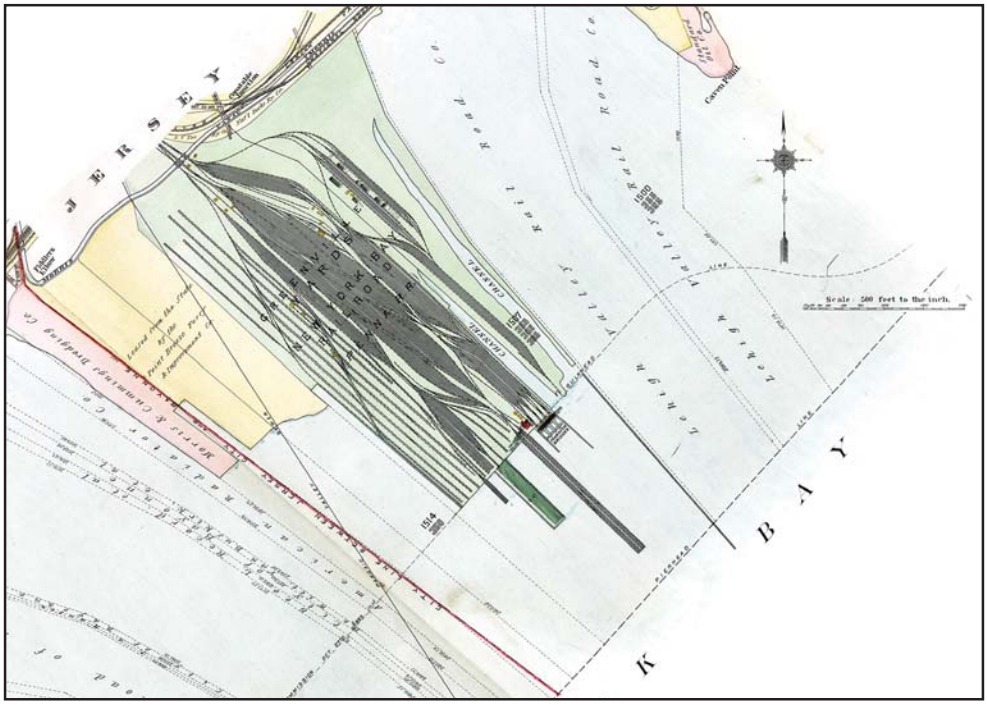
route similar to that traced by counterparts emanating from the PRRC's Harsimus Cove transfer bridges: proceeding across New York Bay, up the East River and Harlem River to the New York, New Haven, and Hartford Railroad terminal at Oak Point, Port Morris in the Bronx. That journey could take up to six hours to complete, and it required navigating congested waters and passing through a treacherous narrow tidal strait in the East River known as "Hell Gate." There was not yet a better alternative, nor would there be until transfer bridges were installed at the LIRRC freight terminal three miles across New York Bay in Bay Ridge.




*The New York Bay Railroad's completed Greenville Yard—extending on made land approximately 1.5 miles into New York Bay—is represented in a composite image from G.M. Hopkins Company's 1908* Atlas of Hudson County, New Jersey, Volume One. *(New York Public Library Digital Collections)*

Five more years were required to complete the Greenville Yard as originally conceived. During that period, an additional eight million cubic yards of fill were imported to increase the yard area to 340 acres, another 40 miles of tracks were laid, adding handling capacity for 1,660 more rail cars, the lighterage pier was lengthened to 2,000 feet, and in 1910 a fourth transfer bridge was installed (No. 14). In a paper discussing the PRRC's planned New York Tunnel Extension, published in the *American Society of Civil Engineers Transactions* issue of September 1910, civil engineer Charles W. Raymond remarked that the Greenville Yard was on track to becoming "the most important point for the receipt, transmission, and distribution of [Pennsylvania Railroad] freight. From this point freight [will] be transported, without breaking bulk, by a comparatively short car-ferry to the Long Island Railroad terminus at Bay Ridge, and thus a very large part of the [PRRC's] floatage in New York Harbor and the East River will be abolished, the floatage distance being reduced in the case of the New England freight from about 12 to 3 miles. This traffic will be routed from Bay Ridge via the Long Island Railroad to a connection with [the planned] New York Connecting Railroad, and thence over [the latter] to the New York, New Haven and Hartford Railroad at Port Morris, N.Y." Later in the paper, Raymond added:

> The freight capacity of the Pennsylvania System at New York has been greatly enlarged by the construction of the Greenville Yard and the facilities connected therewith, but it is impossible to estimate the amount of this increase. However, it is worthy of remark that, during the period from 1900 to 1906, the freight traffic density on the directly-operated lines of the [PRRC] increased from 3,268,330 to 4,742,081 ton-miles per mile of road, a growth of nearly 50 per cent. Doubtless the improved freight facilities of the New York District had a large influence in the development of this increase.




*The PRRC expanded and improved the New York Bay Railroad's Greenville Yard in 1915 and 1916, adding storage areas for heavy materials, installing additional cranes, and constructing a covered lighterage pier measuring 200 feet wide by 1,000 feet long. Those and other changes were reflected on this map from G.M. Hopkins Co.'s 1919* Plat Book of Jersey City and Bayonne, Hudson Co., N.J. Vol. 1. *(New York Public Library Digital Collections)*

# ·4·

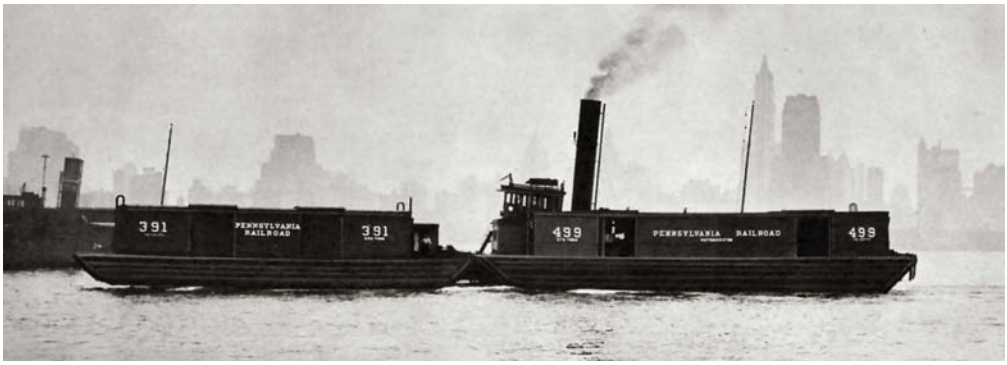
# Fruition of the Grand Scheme

## *1911-1945*

The greenville yard operated at full capacity for only a few years until its western lifeline was abruptly severed. Early in the morning of Sunday, June 15, 1913, sparks thrown by a passing locomotive ignited the midsection of the double track timber trestle drawbridge carrying the Lehigh Valley Railroad of New Jersey across Newark Bay. With its floor of freshly creosoted ties rendered even more combustible by oil drippings, the structure was a tinderbox, as was the abutting double track bridge of the New York Bay Railroad's Greenville Branch. "Fanned by a land breeze," the resulting blaze "worked its way rapidly to the Greenville shore, [as] about 3,500 feet of both bridges were burnt," a *Railway and Locomotive Engineering Journal* article explained. "When the fire started, a Pennsylvania Railroad freight train from the South with thirty-five cars of potatoes bound for New England was on the bridge. The engine and the first five cars got across into Greenville safely; the flagman of the train, seeing the danger ahead, cut off the cabin car at the end of the train, and pushed it to safety himself. The remaining thirty cars of potatoes were totally destroyed, and the debris sunk with what was left of the bridge."

The bridge's fiery destruction "was looked upon as a calamity that threatened a suspension of traffic for a considerable time on both the Pennsylvania and Lehigh Valley railroads," the *Railway and Locomotive Engineering Journal* article continued. The bridge's "nearness to New York, and the enormous car loads of freight passing over them every day gave the disaster a more than usual gloomy interest." (1,600 Pennsylvania Railroad freight cars had been passing over the bridge daily just prior to the fire, and only slightly fewer cars were making the westbound trip.) The bridge's importance in the PRRC's regional freight scheme was reflected in the speed with which the vital link was replaced. The PRRC and the LVRRCNJ quickly determined "that each should build one track

[across Newark Bay], thereby giving a two-track bridge when both had finished. The Lehigh Valley bridge builders started at the west end of the bridge, while the Pennsylvania men worked in the opposite direction. . . . Every minute counted with the engineers in charge of the work. They had 1,000 men working in the day, and 500 at night; they built an average of ten feet of bridge every hour. . . . Twelve and a half days later a new [wooden] trestle bridge, temporarily replacing the former structure, was in service."




*Two illustrations from the 1949 pamphlet* Pennsylvania Railroad Harbor Facilities: Port of New York *(Pennsylvania Railroad Company 1949) were captioned as follows:*
*(TOP) "Three units of Pennsylvania's fleet of floating equipment—a covered and a refrigerated lighter being handled in tandem by a tug up Hudson River." (BOTTOM) "One of Pennsylvania's fleet of 70 modern steel carfloats with loaded cars aboard, being transported across the Hudson River."*

Despite carrying only one set of eastbound and westbound tracks shared by two railroad companies, the new Newark Bay Bridge ended up "temporarily replacing" its predecessor through a period that stretched into 14 years. The shared-track arrangement proved serviceable enough that the PRRC proceeded to expand and improve its Greenville Yard in 1915 and 1916, adding storage areas for heavy materials, installing additional cranes, and constructing a covered lighterage pier measuring 200 feet wide by 1,000 feet long. Those enhancements anticipated the imminent completion of the LIRR terminal across New York Bay at Bay Ridge—where four carfloat transfer bridges were being erected—as well as the opening of the New York Connecting Railroad with its Hell Gate Bridge, over which railcars could pass between the Long Island Rail Road and the New York, New Haven and Hartford Railroad. The Bay Ridge terminal and the Hell Gate Bridge both debuted in March 1917, a few weeks before the United States entered "the Great War" that had been roiling Europe for three years. The nation was fully absorbed in that global conflict on January 17, 1918 when the PRRC inaugurated through freight service between Greenville, Bay Ridge, and Port Norris (in the Bronx), sending a surge of goods—particularly perishable products—into New York and New England. After decades of planning and infrastructure preparation, the PRRC's grand scheme for freight haulage and handling in the New York port district finally came to full fruition.

The scope of the PRRC's "sprawling freight operations in the port district" in 1920 (two years after the end of World War I) was itemized as follows in the 2011 HAER documentation of the Greenville Yard Transfer Bridge System and Freight Operations (edited for concision):

> [Pennsylvania Railroad freight operations] extended through two states (New Jersey and New York), seven counties (Essex, Hudson, Middlesex, New York, Kings, Queens, and Bronx), and seven municipalities (Newark, Harrison, Kearny, Jersey City, Bayonne, South Amboy, and New York City). [The PRRC] maintained break-up, classification and transfer facilities at Waverly Yard; break-up and classification operations at Meadows Yard; waterfront yards at South Jersey City Yard and Harsimus Cove Yard, and the main waterfront yard at Greenville for New England interchange and import/export traffic. The PRRC operated Manhattan pier stations along the Hud-

son River, the East River, the Harlem River, and the Brooklyn waterfront. In addition to the four transfer bridges then in operation at Greenville for the car ferry service to Bay Ridge and interchange with the [New York, New Haven, and Hartford Railroad], the [PRRC] maintained three float bridges at South Jersey City Yard, five at Harsimus Cove, one at West 37th Street in Manhattan serving [two] piers, and one at Williamsburg serving the two piers there. Lighterage piers included three covered and one open air pier at South Jersey City Yard, four open and two covered piers at Harsimus Cove, and one open air and one covered pier at Greenville. The [PRRC] also maintained express stations at Exchange Place in Jersey City and Pennsylvania Station in Manhattan. Coal terminal facilities were located at Greenville, Harsimus Cove, and South Amboy. The [PRRC] also maintained stock yards and poultry yards at Harsimus Cove and a huge steel staging yard at Greenville, where the structural steel used in New York's ceaseless skyscraper and bridge building was received, sorted, and stored before final delivery to the construction site. To keep things moving around the harbor, the PRRC maintained a small navy consisting of 23 ferry boats, 27 passenger and freight steamboats, 55 tugs, 124 car floats, 9 steam lighters, 226 barges, 20 steel canal barges, 50 flat dumps and scows, and various smaller vessels and construction boats.

As this itemization makes clear, the Greenville and Passaic Branches of the New York Bay Railroad were essential components of the PRRC's expansive freight system in the northeastern U.S. during World War I and the business boom that followed. The PRRC's control of the New York Bay Railroad was by that time no longer based on the original rental terms (established in 1890), nor did it rely on a trackage right agreement that had superseded the rental arrangement in July 1908. Through a wartime nationalization effort, the property of the New York Bay Railroad was "taken over for operation" by the new U.S. Railroad Administration on January 1, 1918, "as a part of the operating system of the Pennsylvania Railroad" (according to a 1929 report of the U.S. Interstate Commerce Commission). After the U.S. Railroad Administration was discontinued in 1920, the PRRC and the New York Bay Railroad Company were compelled to adopt new terms for usage rights to the latter's "railroad prop-

erties and franchises." With an eye toward "effecting greater economy in operating and accounting," the terms were hammered out and approved by PRRC stockholders in March 1921. The result was the PRRC's lease of the New York Bay Railroad "for 949 years, 6 months," signed on April 4, 1921, but backdated to begin on January 1, 1921.

The "temporary" wooden trestle bridge that had carried the New York Bay Railroad's Greenville Branch and the LVRRCNJ's main line over Newark Bay since the fiery destruction of its predecessor in 1913 was still serving both railroads in 1922 when the United States War Department issued a special order requiring bridges spanning Newark Bay and the Hackensack and Passaic Rivers to have a minimum clearance of 35 feet above mean high tide. That clearance allowed most vessels used on those waterways to pass beneath the bridges without the bridges' draw or lift sections needing activation. The PRRC and LVRRCNJ put off responding to the War Department's directive as long as possible, then began collaborating on a regulation-satisfying replacement for their Newark Bay joint bridge in July 1927. The new bridge was erected 65 feet downstream from its predecessor, and took more than two years to complete. Upon its opening on January 23, 1930, the structure measured 4,005 feet from end to end, and comprised 31 spans of plate girders fixed on masonry piers, plus a single vertical-lift span

*Northwestward view of the 4,005-foot, 31-span Newark Bay Bridge completed by the PRRC and LVRRCNJ in January 1930. CHRS, Inc. photograph, January 31, 2020.*

330 feet in length, providing a clear channel with a horizontal opening of 300 feet and a maximum vertical clearance above the water (when the lift span was fully raised) of 135 feet. Because of the bridge's increased height, the LVRRCNJ had to elevate its entire Oak Island Yard to the west, and the PRRC made corresponding adjustments to the grade and alignment of its neighboring New York Bay Railroad corridor.

Traffic in and out of the Greenville Yard had grown so heavy by 1924 that the PRRC decided a fifth transfer bridge was warranted at that facility. Built to match the four wooden truss bridges already in place (Nos. 11-14), Transfer Bridge No. 10 was completed in 1925. The added capacity meant that as many as 4,000 freight cars could be transferred daily between vessels on New York Bay and the Greenville Yard. That peak rate was short-lived, however, as all five transfer bridges were

*Westward view of the lift section of the PRRC and LVRRCNJ's Newark Bay Bridge, affording 135 feet of vertical clearance above the waters of Newark Bay. CHRS, Inc. photograph, January 31, 2020.*

destroyed in a sensational fire that occurred in the afternoon of New Year's Day 1931. Apparently sparked by "a short circuit in an electric motor," the blaze "broke out on the wooden superstructure over Transfer Bridge No. 10 during the loading of a car float with 25 cars belonging to the NYNH&H." As further recounted in HAER documentation of the Greenville Yard Transfer Bridge System compiled by Louis Berger & Associates, Inc. in 1996:

> High winds fanned the flames, and within 15 minutes the wood-frame transfer house enclosing the two bridge suspension structures was completely engulfed in flames. The fire spread rapidly to the bridges and four car floats below. . . .
>
> The fire department responded with nine pieces of equipment, but as there were no roads out to the transfer bridges, hoses and firemen were loaded onto engines and tenders and taken by rail the one mile out to the fire. Twenty tugs and fire boats rushed to the scene from around the harbor and began pouring a deluge of water on the fire while more than 50 firemen fought the blaze from the shore side. As the fire continued to spread, a second alarm was sounded, bringing more Jersey City firemen and equipment to the scene. Three blazing car floats were pulled out into the bay and extinguished, sustaining various amounts of damage. The just-loaded NYNH&H car float and its load of cars was also pulled free and extinguished, but was considered a total loss.
>
> The spectacular blaze, visible from other shore points around the bay, raged out of control for two hours and threatened to spread to other shorefront structures along the heavily built-up Jersey shore. The fire was extinguished after two more hours of heavy firefighting. The total loss was estimated by the PRRC at between $500,000 and $1,000,000. Three hundred men were initially out of work, but within two days were put to work on the repair work or at the other Pennsylvania Railroad yards in Jersey City.
>
> The fire destroyed the entire superstructure of the transfer bridge facility as well as most of the machinery. Several of the

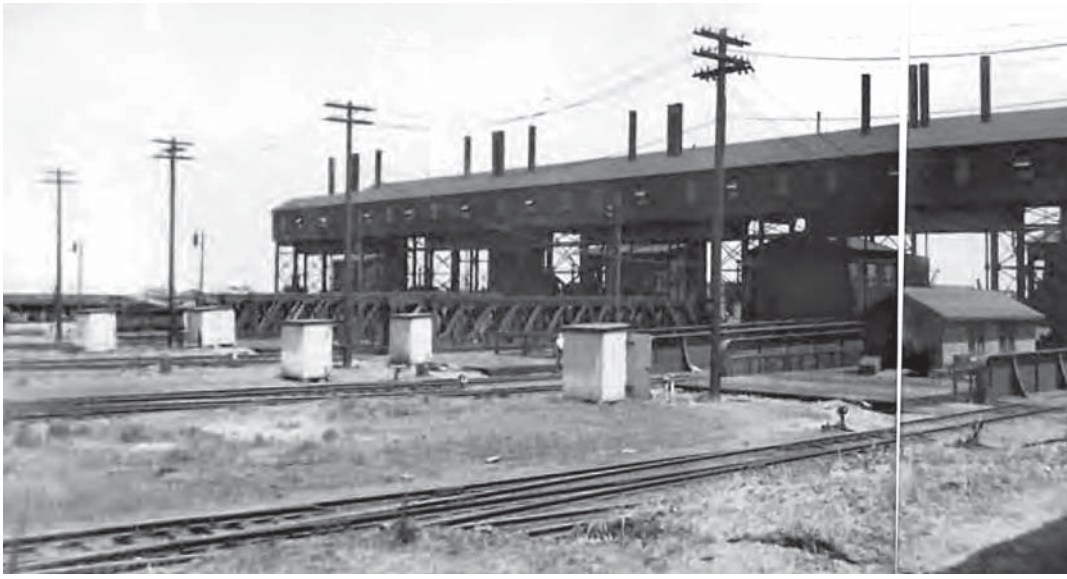
wooden Howe truss bridges and the aprons were completely destroyed. The railroad salvaged and reused many of the components in order to get one of the bridges operating as quickly as possible. With the Greenville bridges completely out of service, the PRRC immediately began rerouting freight cars through its Jersey City and Harsimus Cove transfer bridge facilities and through the Lehigh Valley Railroad's car float terminal, also in Jersey City.

As soon as the smoke cleared, the PRRC engaged the American Bridge Company of Trenton, New Jersey, to rebuild the transfer bridge complex along the same lines as the destroyed facilities, although Transfer Bridges 10, 13, and 14 were equipped with steel (rather than wood)

*The recently completed Newark Bay Bridge is denoted by a white arrow in this northeastward aerial view of the Newark meadowlands and eastern Newark recorded on February 9, 1931. The expanse of reclaimed marshland south of the New York Bay Railroad's Greenville Branch—dominating the center of this image—is occupied by the Newark Metropolitan Airport, which had opened on October 1, 1928. (Library of Congress)*

through plate girder bridges. The reconstructed complex was deemed sufficient for the Greenville Yard through the remainder of the 1930s, until the PRRC authorized a complete reconstruction of Transfer Bridge 12 in October 1939, "including the replacement of the last remaining original wooden Howe truss bridge dating from 1905" (according to the 1996 HAER documentation).

That upgrade was put on hold, however, as the century's second global war engulfed Europe, then drew the United States into the conflict in December 1941. Facing increased demand for moving war materiel to the Brooklyn Navy Yard and other bases in the Northeast, the PRRC elected to further postpone its reconstruction of Transfer Bridge 12 in favor of building an entirely new bridge at the northern



end of the existing trio of bridges. Transfer Bridge 9 (a.k.a. 9½) was placed into service on November 9, 1943, at which time the work of rebuilding Transfer Bridge 12 finally commenced, together with modifications to Transfer Bridge 11. Completed in 1945—the final year of World War II—those improvements gave the Greenville Yard six upgraded transfer bridges to handle traffic during the post-war boom. By one account, the Pennsylvania Railroad accounted for nearly 10% of the nation's freight traffic in 1945, and its annual average of freight hauls (measured in tons per trainload) had increased 147% since 1910 (*Centennial History of the Pennsylvania Railroad Company, 1846-1946*; Burgess and Kennedy 1949:704).

Much of that increase was attributable to the most extensive improvement project undertaken by the PRRC amid the Great Depression of the 1930s: full electrification of its freight and passenger lines between New York City and Washington, D.C. Locomotives powered by electric motors held many advantages over their steam-powered counterparts, including greater pulling power, better rail adhesion, increased power at low speeds, no requirements for fueling or watering, lower maintenance costs, faster acceleration, better braking, the ability to change direction without turning, and suitability for operation in tunnels. Those advantages promised greater efficiency in the movement and scheduling of both freight and passenger traffic. The

*A PRRC composited panoramic photograph documents the condition of the Greenville Yard transfer bridges circa 1940, several years prior to the addition of Bridge 9. This northeastward view was reproduced in 2011 HAER documentation of the Greenville Yard Transfer Bridge System and Freight Operations (Hayden 2011).*

PRRC witnessed those benefits in 1905 when a portion of the PRRC-controlled Long Island Rail Road was electrified, and again in 1910 when the Company opened its New York Tunnel Extension. The latter was an electricity-powered passenger rail line that diverged from the United New Jersey Railroad's main line at a new station and transfer yard known as "Manhattan Transfer," one mile west of the Point-No-Point Bridge, and extended eastward across the Hackensack Meadows and through tunnels under Bergen Hill and the North River to the new Pennsylvania Station in Manhattan. Those electrified lines employed direct current (DC) delivered via a third rail.

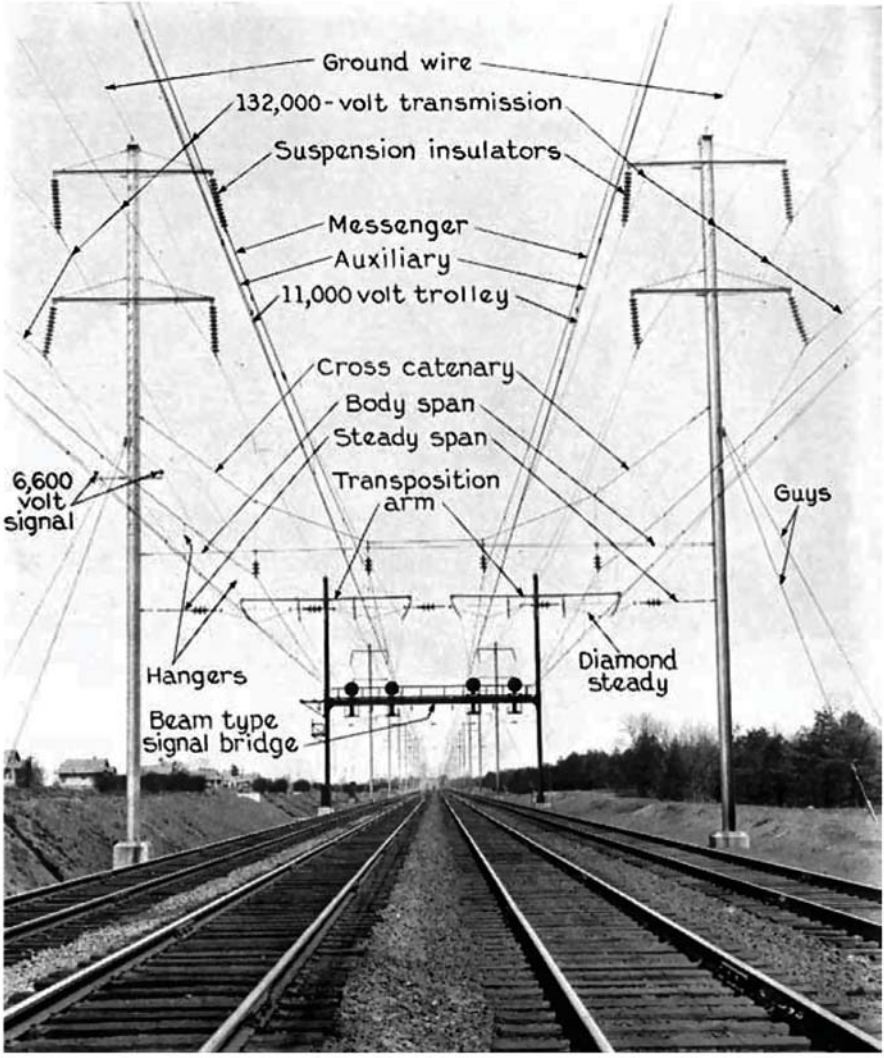
In 1914-15, the PRRC electrified the section of its railroad between Philadelphia and Paoli, Pennsylvania, by installing a system of overhead wires—known as a "catenary"—carrying alternating current (AC). AC power was better suited to long-distance transmission than lower-voltage DC power emanating from large and expensive generating plants placed near the tracks in order to minimize the length of costly copper wiring. Moreover, a new generation of lower-cost transformers, capable of sending high voltage over longer distances, could produce AC electricity while permitting the voltage to be increased or reduced depending on consumer needs. A major breakthrough in electric motor engineering in 1927 led to the perfection of a 600-volt, 625-horsepower AC motor small enough to fit within a standard locomotive frame and be geared

directly to the wheels. That innovation helped tip the PRRC into developing plans for the electrification of the portion of its system between New York City and Wilmington, Delaware. When those plans were announced in the fall of 1928, they were hailed as outlining "the most extensive electrification project in transportation history" (according to an account in *The Pennsylvania Railroad Electrification*, Westinghouse Electric & Manufacturing Co., 1936). In 1930 the PRRC announced it would extend electrification of its lines southward to Washington, D.C., and westward to Harrisburg, Pennsylvania.

The PRRC electrification program entailed creating a network of AC power sources, substations, step-up and step-down transformers, transmission lines, and catenary to serve 1,405 miles of track within 364 miles of railroad corridor. The most conspicuous manifestation of railroad electrification was the catenary, a complex arrangement of support poles, braces, guy wires, and overhead wires designed to enable an electric locomotive to draw continuous power from a suspended contact wire via a roof-mounted apparatus known as a "pantograph." Catenary components were costly to acquire and labor-intensive to install, accounting for a significant proportion of the $100 million the PRRC expected to pay for electrifying its main line between New York and Washington, D.C.

The Pennsylvania Railroad main line electrification project rolled out in November 1931 with the PRRC awarding five construction contracts totaling $6,328,000. One of the contracts, in the amount of $636,000, was given to Gibbs & Hill, Inc., of New York, for the "erection of structures, catenary, transmission and substations in connection with electrification from Rahway to South Amboy; from Waverly to Greenville; in Waverly yard; in Greenville yard; at the Greenville substation, and on the Waverly & Passaic branch, all in the state of New Jersey" (as reported in a *Railway Age* article published on November 28, 1931). Gibbs & Hill's work on the New York Bay Railroad's "Waverly & Passaic branch" included the erection of a pair of steel towers to carry transmission lines high over the Passaic River immediately upstream from the Point-No-Point Bridge. Plans approved in late November 1931 depicted a 245-foot-tall "Passaic River Tower A" on the north side of the river, and a 227-foot-tall "Passaic River Tower B" positioned 1,045 feet to the southwest, on the south side of the river, straddling the double track Passaic Branch beside the Public

Service Corporation of New Jersey's Essex Generating Plant. The towers would carry four 132,000-volt transmission lines within the 6.13-mile section of the electrified system between transformer stations in Kearny and Waverly.




*Published in* The Pennsylvania Railroad Electrification, New York-Washington (*General Electric Company, Schenectady, New York, c. 1935), this diagram was captioned: "Four-track catenary construction on the New York-Washington line of the Pennsylvania Railroad."*

As described in a 2005 cultural resources report, "the PRR New York Bay [Railroad] employed two sizes of catenary poles set in poured concrete foundations. The Greenville [Branch] used H-shaped poles, between 28 and 44 feet high, with guy wires, cross catenary wires, and/or standard catenary beams stretched between for stability. L-shaped brackets mounted to the outside edges of many poles carried additional lines. The Passaic [Branch] featured H-shaped poles measuring approximately 95 feet high, supporting two cross arms each and carrying ground wires, transmission suspension insulators, and 132,000-volt transmission lines. Guy wires and standard catenary beams, stretching between each pole, provide rigidity" (Richard Grubb & Associates, Inc. 2005:5).

The $636,000 Gibbs & Hill contract apparently covered only an initial phase of electrical infrastructure installation. To complete that work and the rest of the electrification project as the Great Depression ground on, the PRRC acquired a $77 million grant from the recently created federal Public Works Administration (PWA). Referring to that grant in a January 30, 1934 announcement, PRRC President W.W. Atterbury declared that the funding would permit the Company to proceed with "the largest corporate construction job now envisioned in this country, and the most massive railroad equipment program ever undertaken by the industry, here or abroad." The project was "expected to employ, at a conservative estimate, 25,000 men now almost totally unemployed for a total of 45 million man-hours." Some of the latter would be expended in further "electrifying the Waverly, Greenville and Harsimus Cove Yards in the New York area, as well as the Waverly and Passaic freight line, [and] the New York Bay Railroad between Greenville and Waverly." The borrowed funds would also cover the cost of fabricating and erecting the Passaic River transmission towers.

With a massive PWA-financed push, electrification of the New York Bay Railroad proceeded rapidly in 1934. By November of that year, most of the Passaic Branch had been wired, and the transmission towers had been erected at either end of the Point-No-Point Bridge. The three main tracks of the Greenville Branch had been electrified between Waverly and the Newark Bay Bridge, as had the two tracks crossing the bridge to the east side of the Bay. Poles and wires were installed from that point westward through a series of classification and make-up yards leading to the Greenville terminal. That work required several more months to

complete, during which time additional storage tracks in the Meadows Yard were electrified.

The PRRC inaugurated passenger service on its newly electrified line between New York and Washington, D.C. on January 28, 1935. Freight service—involving many more tracks, yards, and terminals—took longer to implement. According to the PRRC annual report for 1935, electric freight service between New York and Washington, D.C. was initiated on May 20, 1935. The benefits were immediate, as "freight schedules were . . . quickened and otherwise improved between important cities, and further advances were made in the classifying and dispatching of freight trains." Electric locomotives were able to move maximum tonnage freight trains "at average road speeds between terminals in excess of 40 mph, corresponding to normal passenger schedules on many railroads and a speed which is greatly in excess of the average steam operating speed for freight throughout the U.S." Greater speed and efficiency enabled the PRRC to begin offering overnight door-to-door delivery between Pittsburgh and ports on the Atlantic seaboard, as well as third-day delivery of perishable freight between Chicago and Boston—"the fastest freight service ever rendered between these points on less than carload traffic, [reducing] the former schedules by a full day." By the end of 1935, gross ton miles per train-hour of freight (a principal measure of efficiency) had increased 66% since 1926.

Several more years were needed to complete electrification of the storage, classification, and make-up yards at opposite ends of the New York Bay Railroad's Greenville and Passaic Branches. Within months of applying finishing touches to those facilities in 1938, the PRRC oversaw construction of a small freight yard along the Greenville Branch between Oak Island Junction and the Newark Bay Bridge. Positioned to serve the Greenville Yard—where an uptick in war-related traffic was already testing capacity—this "Garden Yard" went online in March 1939. It provided minimal relief for a couple of years until the PRRC constructed a much larger marshalling yard to the west, along the Greenville Branch between Oak Island Junction and Waverly. Readied a few months before America's entry into World War II, that five-track "Bay Line Yard" could accommodate 625 freight cars. Even that expanded capacity proved insufficient for wartime operations, so the PRRC added nine tracks capable of handling another 451 cars. To the

east, Garden Yard became "Old Garden Yard" in 1943 when a five-track "New Garden Yard" was installed.

Through constructing additional freight yards, sending out spurs to serve emerging commercial properties in the Meadows District, and making final improvements to the Greenville terminal, the PRRC pushed the New York Bay Railroad to a peak of performance as World War II drew to a close in the summer of 1945.

*The Garden Yard inaugurated along the New York Bay Railroad's Greenville Branch in March 1939 appears in the upper right-hand corner of this eastward-looking photograph taken in April of that year. The LVRRCNJ's expansive Oak Island Yard fills most of the rest of the frame. When a five-track "New Garden Yard" was installed to the west (behind the photographer and out of frame) in 1943, the compact Garden Yard was renamed "Old Garden Yard." (Library of Congress)*

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# The Pennsylvania Railroad's Decline and Demise

The Pennsylvania Railroad Company's final quarter century of corporate existence, and the gradual descent of the New York Bay Railroad from its circa-1945 zenith, was summarized as follows (with light editing) in a cultural resources survey report completed for the Pennsylvania Railroad (PRR) New York Bay Branch Historic District in 2004:

> At mid-century, the Pennsylvania Railroad between New York and Trenton was described as the most "phenomenal piece of railroad in the world." In any 24-hour period, 475 passenger and 120 freight trains rolled along its length, carrying the wealth of the nation. But all of the eastern carriers faced growing competition from truckers, bus services, and publicly-subsidized roadways, including the Garden State Parkway, the New Jersey Turnpike, and the Interstate Highway system. Airports, built and expanded with public dollars and exempt from many taxes, placed the railroads at a competitive disadvantage. In 1954, the PRRC paid 25 million dollars in taxes on the Greenville Pier and its 600 acres of adjoining yards, far more than the facility earned. Higher costs, excise taxes, rate controls, and government-mandated passenger/commuter service prevented the railroads from competing, and bankruptcies followed in rapid succession. The PRRC merged with its great rival the New York Central [Railroad Company] on February 1, 1968 in an effort to stave off collapse, before filing for bankruptcy protection on June 21, 1970. At the time, it was the single largest American corporate bankruptcy ever. Congress passed the Regional Rail Reorganization Act in 1973 and established the United States Railway Association (USRA) with the job of reorganizing numerous Northeast railroads. After much study, the USRA found federal control of the eastern railroads the only viable option, and they created the

Consolidated Rail Corporation (Conrail) in 1974. The assets of the former PRR/Penn Central were transferred to Conrail on April 1, 1976. Conrail surrendered all passenger service by 1982 and reduced overall mileage some 40 percent by 1983. Conrail eventually became a publicly traded company in 1987. In 1998 the CSX Corporation and the Norfolk Southern Corporation received final approval to acquire Conrail's assets, and the final merger occurred on June 1, 1999. Each railroad took control of different parts of the Conrail system. Common property, including the tracks and yards of the former PRR New York Bay [Railroad] was placed in the hands of a jointly owned corporation called Conrail Shared Assets Corporation, which currently operates the tracks [and is sometimes referenced by its earlier "Conrail" name] (Hayden 2004).

*Eastward view of a loaded carfloat and tugboat approaching Transfer Bridge 11 of the Greenville Yard, winter 1996-97. This photograph and the photograph on the facing page were part of a 2011 Greenville Yard Transfer Bridge System HAER Recordation (Hayden 2011).*

A coda to the history of the New York Bay Railroad was offered in a 2011 HAER documentation of the Greenville Yard Transfer Bridge System and Freight Operations, as follows:

> The remaining assets of the former PRR/Penn Central—including the Greenville Yard facility—were transferred to Conrail on April 1, 1976. Conrail ended all water delivery and disbanded its entire rail navy including those once owned by the former Penn Central. The Brooklyn Eastern District Terminal, one of the big four contract terminals which maintained extensive car float and warehouse facilities along the Brooklyn waterfront, contracted with Conrail to take over the abandoned Greenville Yard operation and provide car float service for themselves and the neighboring New York Dock Company. In 1978, the New York Dock Company took over Brooklyn Eastern District along with the Greenville operation. With this development came Car Float #16, which was built for the New

*Westward view of the Greenville Yard Transfer Bridge Assembly, 1996 (Louis Berger & Associates, Inc. 1996).*

York Dock Company about 1957 by the Bethlehem Steel Company. It measured 290 feet long with a 41-foot beam and also carried three tracks.

With no more through-freight service on the former PRR main line, Conrail stopped using electric locomotives and reduced or closed many former Penn Central freight yards to eliminate excess capacity. This included Waverly Yard, Bay Line Yard, Meadows Yard, Harsimus Cove, and the Greenville terminal. Most of the yard track and related support facilities at Greenville Yard were gradually abandoned and removed. Between 1987 and 1995, the single-story warehouse on top of the yard's short pier was removed. Large portions of the former yard area were sold and paved over or developed with modern warehouse buildings. Conrail demolished Transfer Bridge #13 and #14 in 1996. Today, in addition to the remains of the two extensively altered piers, only Transfer Bridges #9, #10, #11, and #12 remain standing. Of these, only Transfer Bridge #11 is operational.

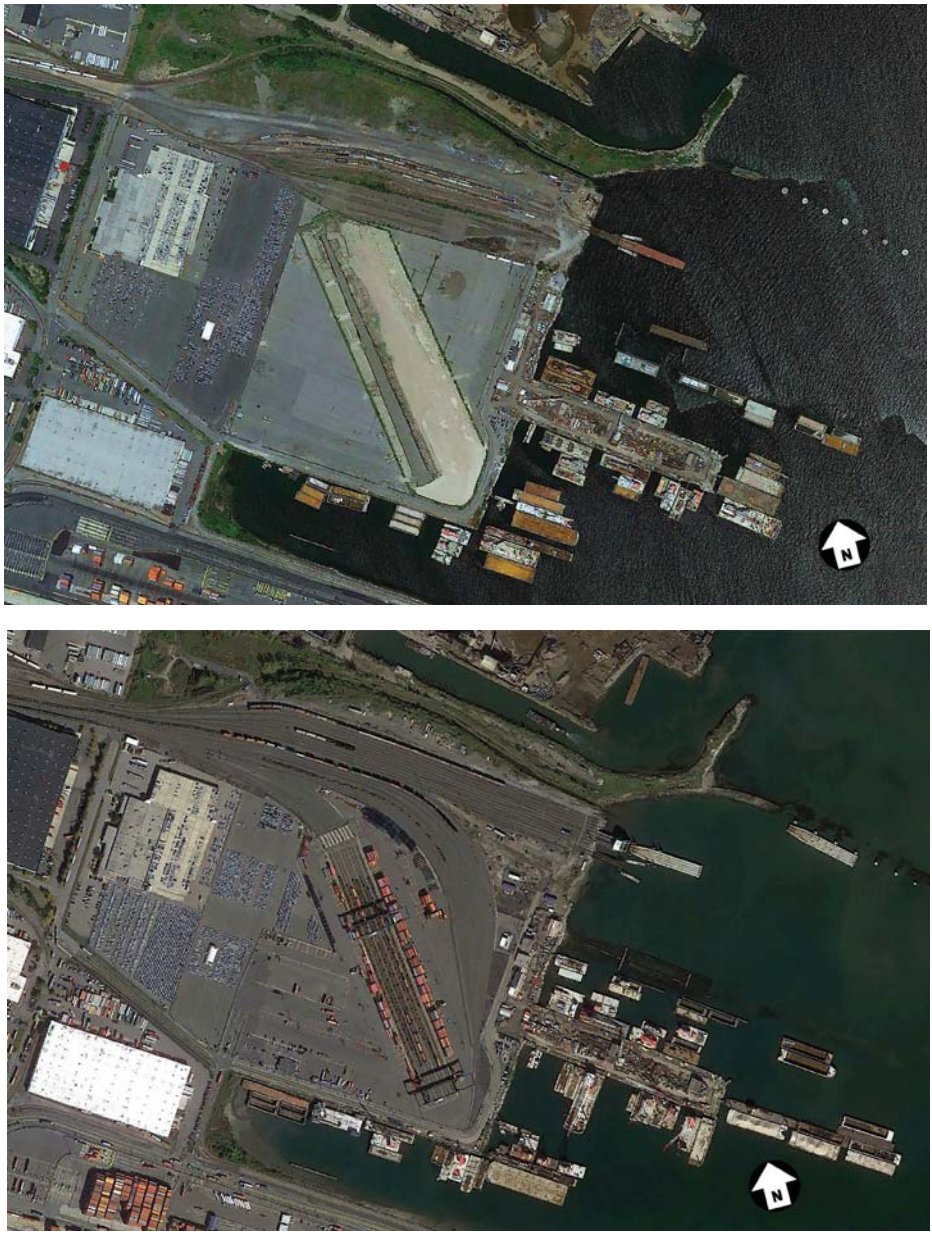
*Eastward view of (from left to right) Transfer Bridges 9, 10, 11, and 12, circa 2011. From the 2011 Greenville Yard Transfer Bridge System HAER Recordation (Hayden 2011).*

> [After] the CSX Corporation and the Norfolk Southern Corporation . . . took control of different parts of the Conrail system [in 1999], common property [i.e., shared assets], including the tracks and yards of the former PRR operating in the New York area, was placed in the hands of the jointly owned corporation called Conrail Shared Assets Corporation, which currently operates the former NYBRR [New York Bay Railroad] and provides interchange service at Greenville Yard.
>
> Meanwhile, the New York Dock Company all but ceased operations in 1982. A new entity called New York Cross Harbor Terminal Corporation successfully petitioned to take over the New York Dock Company franchise in August 1983. New York Cross Harbor continued to run car floats through Greenville Yard until 2006, when its operation was taken over by Mid-Atlantic New England Rail L.L.C. This company was renamed New York New Jersey Rail L.L.C. (NYNJR) and operated independently for two years until it was acquired by the Port Authority of New York and New Jersey in 2008 (Hayden 2011).

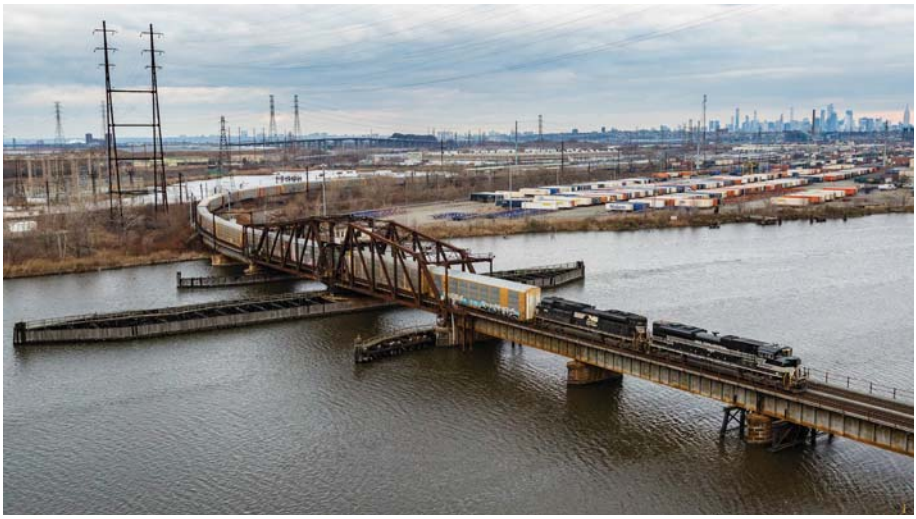
In 2010, the Port Authority of New York and New Jersey (PANYNJ) purchased the Greenville Yard from the Conrail Shared Assets Corporation and launched a three-year redevelopment project intended to include improvements to the existing rail car float system as well as construction of a new barge-to-rail facility featuring 10,000 additional feet of track. The improvements were expected to equip the terminal to handle upwards of 100,000 containers of solid waste per year sent from New York City. After major damage caused by Hurricane Sandy in 2012 forced the Port Authority to demolish several of the older structures it had hoped to rehabilitate, the Greenville Yard redevelopment project resumed. In the meantime, the Port Authority announced plans to build an ExpressRail container terminal in the largely vacated southern section of the yard to service the adjoining Global Marine Terminal. Begun in 2014, construction of the southern intermodal facility entailed the addition of 10,000 feet of working track, 32,000 feet of support track and switches, and infrastructure to support new rail-mounted gantry cranes. The last of the ExpressRail terminal's eight tracks were placed into operation in June 2019, giving the container transfer facility the capacity to handle 250,000 container lifts per year.

As of October 2021, Conrail is preparing to replace the Point-No-Point Bridge in the northern end of the PRR New York Bay Branch Historic District. The nearly century-old Passaic River Transmission Towers at either end of the bridge are scheduled to be replaced with monopoles under the State of Good Repair Program of Amtrak, the corporation created by Congress in 1970 under the name "National Railroad Passenger Corporation" to take over the majority of intercity passenger rail services previously operated by private railroad companies across the United States.

*Eastward view of the Old and New Garden Yards (right-center) and larger Oak Island Yard (left-center), beyond the New Jersey Turnpike (in the foreground), February 6, 2014. (Doc Searls)*

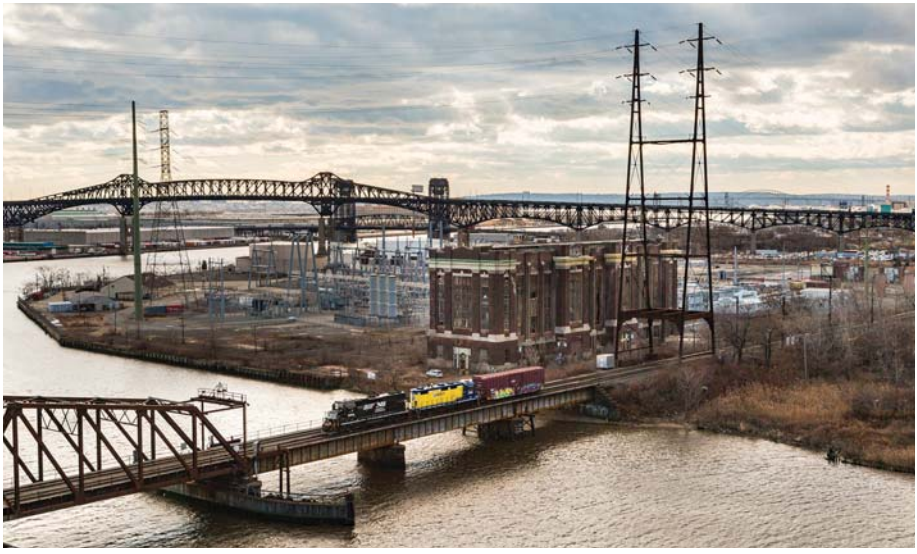


*Google Earth aerial photographs taken in June 2016 (top) and October 2020 (bottom) document the transformation of the Greenville Yard under its new owner as of 2010: the Port Authority of New York and New Jersey. In addition to improving the barge-to-trail facilities in the northern end of the yard, the Port Authority constructed a major ExpressRail container terminal in the southern portion of the site, completing the work in June 2019.*



*ABOVE: A westbound train plies the Point-No-Point Bridge on December 17, 2018, as Passaic River Transmission Tower A stands sentinel to the north. Photographer Russell Sullivan captioned his image: "33K makes a left turn at CP Karny, passing over the 117-year-old Point-No-Point Bridge with the New York Central heritage unit leading. Point-No-Point Bridge is a vital link in North Jersey railroading, as it is part of the very active Passaic and Harsimus Branch."*

*BELOW: Of this southeastward view of the Point-No-Point Bridge and Passaic River Transmission Tower B, recorded on January 16, 2020, photographer Russell Sullivan wrote: "Conrail SK-13 tows CLCX PL1500-4RS 2058 eastbound over Point-No-Point Bridge on the border of Newark and Kearny, NJ." (both Russell Sullivan)*



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*An eastbound train plies the former New York Bay Railroad Passaic Branch, March 17, 2020. Photographer Russell Sullivan recalls that "the catenary was removed by Conrail in the 1980s, but the catenary support poles remain." (Russell Sullivan)*


LONG ISLAND CITY
EAST
RIVER
TUNNEL
PENN. R.R.
TUNNELS
BOROUGH OF MANHATTAN
HUDSON
PENN. R.R.
TUNNELS
RIVER
HUDSON
TUNNEL
WEEHAWKEN
HOBOKEN
RIVER
S. B. & W. R.R.
O. L. & W. R.R. MAIN LINE
KEARNY
AND
ARLINGTON
RIVER
PASSAIC
RIVERSIDE
NEWARK