



External and Internal Networks on the Pennsylvania Railroad: The Philadelphia Improvements

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For much of its history, the Pennsylvania Railroad (PRR) worked with the city of Philadelphia to develop the optimal location for a passenger terminal. In the process, the PRR struggled to balance its operating requirements against the convenience of its passengers, yet also conformed to growing civic demands for urban planning. This paper traces a series of railway terminal schemes; some sponsored by the Railroad, others by the City, beginning in 1888. The primary focus is on the Philadelphia Improvements agreement that the two parties negotiated in 1925. This agreement, in which the PRR acquiesced almost completely to the City's demands, led to the creation of a new long-distance passenger facility (30th Street Station) and a new commuter rail terminal (Suburban Station), along with numerous additional structures. More significantly, the Philadelphia Improvements involved the PRR in two types of networks. The first was a broad-based urban network that severely constrained the Railroad's options in Philadelphia, elevating the "City Beautiful" vision of urban planning above the Railroad's operating requirements. The second was a network internal to the PRR, one that allowed executives to transcend departmental fiefdoms and to establish interpersonal connections that would prove extraordinarily valuable in the operation of the Railroad as a whole.

The railroad station: a symbol of modernity and technological prowess; the focal point of a community; a public space for the new middle class; and, in the case of Philadelphia, a highly contested zone of interaction for both corporate and urban networks. For most of its history, the PRR struggled to determine the proper location for a railroad station in its headquarters city. As the culmination of that process, the Philadelphia Improvements represent one of the longest and most complex construction projects in the history of the nation's largest railroad. That effort created 30th Street Station, one of the most spectacular examples of railroad architecture in the United States. The project was not limited to one building, however, and included a second passenger station, half a

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dozen new office buildings, subways, bridges, tunnels, rail yards, a powerhouse, a Post Office, and numerous other ancillary buildings.

In addition to the physical structures, the Philadelphia Improvements allowed the Railroad to develop internal managerial networks that both facilitated day-to-day operations and prepared executives for the upper echelons of corporate power. These executives found themselves embedded in a second (and far more complex) urban network that narrowed their options and dictated the solutions to what they initially believed to be purely “operational” problems.

The Search for a Perfect Station Site

During the mid-nineteenth century, the PRR operated several stations in central Philadelphia, each time moving away from the commercial district between Broad Street and the Delaware River. This seemingly counterintuitive policy reflected City ordinances that banned steam locomotives from surface streets in the rectangular area bordered by Vine and South Streets and the Delaware and Schuylkill Rivers.¹

By the time of the U.S. Centennial in 1876, however, Philadelphia’s commercial center and its railway stations moved closer to each other, as the two embodiments of middle-class public space, railway stations and department stores, assumed grandiose proportions.² When John

I acknowledge the generous financial support of the Hagley Museum and Library and, in particular, the generous assistance that I received from the extraordinarily knowledgeable Chris Baer.

¹ Both the Pennsylvania and its competitor, the Philadelphia & Reading Railway, required their passengers to travel by horsecar from the city center to the railway station. City ordinances actually facilitated efficient railroad operation, allowing both companies to avoid congested city streets and shifting the burden of entering and exiting the city from the railroads to travelers. A station site west of the Schuylkill River was doubly beneficial for the Pennsylvania, once that railroad expanded beyond its initial east-west orientation. A connecting line, completed in 1867, allowed Pennsylvania Railroad trains access to the Philadelphia and Trenton route to Jersey City. This line intersected the east-west mainline at Mantua Junction (later referred to as Zoo Tower, based on its proximity to the Philadelphia Zoological Gardens), bypassing central Philadelphia. Because Mantua Junction funneled trains south toward the nation’s capital along the Philadelphia, Wilmington, and Baltimore Railroad, the 1867 connection effectively established the Railroad’s key north-south mainline on the west side of the Schuylkill River, more than a mile from Philadelphia’s commercial core. John Henry Hepp, IV, *The Middle-Class City: Transforming Space and Time in Philadelphia, 1876-1926* (Philadelphia, Pa., 2003), 49-52; David W. Messer and Charles S. Roberts, *Triumph V: Philadelphia to New York, 1830-2002* (Baltimore, Md., 2002), 18.

² For information on the representation of middle-class space in department stores and railway stations (with particular links to women’s history), see Hepp, *The Middle-Class City*; Jack Simmons, *The Victorian Railway* (New York, 1991); Susan Porter Benson, *Counter Cultures: Saleswomen, Managers, and*

Wanamaker opened his “Grand Depot” department store in 1876 (located, fittingly enough, in a former PRR freight station), he shifted Philadelphia’s commercial hub farther to the west. The construction of a new City Hall at the intersection of Broad and Market Streets had the same effect. The Pennsylvania reacted to this commercial migration by moving its principal passenger station from West Philadelphia to the corner of 15th and Market Streets, opposite City Hall. The new Broad Street Station opened in 1881.³ From the west, passenger trains crossed the Schuylkill River and avoided city streets by entering Broad Street Station on a massive steel and stone viaduct more than two thousand feet in length. Properly known as the Filbert Street Extension, but typically referred to as the “Chinese Wall,” this viaduct prevented commercial development along the north side of Market Street, occupied valuable real estate, and restricted access to northwestern Philadelphia.⁴

In 1888, only 7 years after Broad Street Station opened, the Reading announced plans to move its terminal closer to the city center.⁵ Samuel Rea, assistant to the second vice president of the PRR, appreciated the threat, yet favored cooperation over opposition to the Reading’s plans.⁶ Based on his observations of British railway practice, Rea believed that the Pennsylvania and the Reading should jointly operate a network of long-

Customers in American Department Stores, 1890-1940 (Urbana, Ill., 1986); and Amy Richter, “Tracking Public Culture: Women, the Railroad, and the End of the Victorian Public,” (Ph.D. diss. New York University, 2000).

³ David W. Messer, *Triumph III: Philadelphia Terminal, 1838-2000* (Baltimore, Md., 2000), 25-27, 29, 35-37, 40. The PRR records contain many surviving references to the construction of Broad Street Station in 1881, and to its expansion in 1893-4. For some examples, see A. J. Latta to William H. Brown, 7 Sept. 1884, the Pennsylvania Railroad Collection at the Hagley Museum and Library, Wilmington, Delaware (hereafter referred to as “PRR-Hagley”), Box 1471, folder 4; General Superintendent to Brown, 8 July 1892, PRR-Hagley, Box 1471, folder 6; Brown to S. M. Prevost, 9 Aug. 1893, PRR-Hagley, Box 1470, folder 36; General Manager to Brown, 18 Sept. 1894, PRR-Hagley, Box 1470, folder 38.

⁴ Messer, *Triumph III*, 44-45. Construction of the Filbert Street Extension required the demolition of some 200 buildings, indicating that the Railroad had somewhat greater influence over the city of Philadelphia in the 1880s than it did in the twentieth century.

⁵ The Reading moved its station site from 9th and Green Streets approximately one mile to the south and west, to be closer to the central business district. Begun in July 1891 and completed in January 1893, the new Reading Terminal at 12th and Market Streets, just east of City Hall; see Hepp, *The Middle-Class City*, 49-55.

⁶ Rea insisted “I do not mean by this to oppose their measure; on the other hand I would rather aid it, and at the same time go in for similar powers for a new line into the city for the Penna. R.R. Co. terminating at a point removed from Broad Street Station.” Samuel Rea to J. N. DuBarry (Second Vice-President, PRR), 29 Oct. 1888, PRR-Hagley, Box 1550, folder 21, second copy in Box 157, folder 3, p. 2.

distance, commuter, and rapid-transit trains that would provide seamless service throughout the city. In short, Rea envisioned London on the Delaware, and that British city served as the model for his proposals.⁷ Rea believed that the Pennsylvania should construct a new line northeasterly from Broad Street Station to connect with an existing line serving an industrial district in Kensington, and then on to New York. This line would be built through a poor neighborhood (or, as Rea elegantly described, “a populous but not an expensively built part of the city.”)⁸ Under this plan, “Broad Street Station would become the center of a rapid transit system radiating in all directions and a terminus only for some particular trains.”⁹

The high cost of Rea’s proposals, combined with the primitive state of electrification technology and the reluctance of City officials to participate in a major urban renewal project precluded such ambitious plans. Instead, the Pennsylvania responded more conventionally to the Reading’s plans by spending some \$25 million to periodically expand Broad Street between 1881 and 1910, barely keeping pace with rising traffic levels.¹⁰

⁷ Specifically, Rea suggested that “A passenger going to London by the L. & N-W. Ry. can alight at Willesden Junction and get train connections to any part of the city. Likewise at Finsbury Park on the Great Northern, or Clapham Junction on the South Western. These stations are all located on the edge of the city, are connected with the Underground System, and are very convenient institutions, serving well in this instance for illustration.... If the system adopted in London, with modifications, is applicable to Philadelphia, and seems better than any other, why not pave the way for its adoption here?” Rea to DuBarry, *Ibid.*, 6. Even 40 years later, Rea recalled that “note what we were thinking of 40 years ago, and following the lead of London go in for the development of local passenger traffic.” Rea to J. L. Eysmans, 1 June 1926, PRR-Hagley, Box 1550, folder 21. In 1893, 5 years after Rea’s report, the electrification of urban street railway and interurban lines caused the PRR to reduce its suburban services, contrary to the recommendations in the Rea report. “Report of Board of Engineers for the Improvement of Passenger Terminal Facilities in Philadelphia,” 17 May 1911, PRR-Hagley, Box 1550, folder 22, p. 2.

⁸ *Ibid.*, 3.

⁹ *Ibid.*, 5.

¹⁰ In 1881, 160 trains a day used Broad Street Station; by 1910 that number had risen to 574. Much of this growth was attributable to suburban commuter service, which tended to clog Broad Street during the morning and evening rush hours. In 1881, the year that Broad Street opened 50 out of 160 daily trains were “Local” (31%); by 1910, 250 of 574 daily trains were “Local” (43.6%). In 1885, each train carried an average of 77 passengers per day (passenger load figures are not available prior to that year); by 1910, each train carried an average of 94 passengers, indicating a more densely packed commuter service (the statistics do not differentiate between passengers traveling in “Local” and “All Other” service. The maximum number of rush-hour trains using Broad Street increased from 18 per day in 1881 to 53 in 1910. “Report of Board of Engineers for the

Round Two: The Progressive Era and the “City Beautiful”

During the early years of the twentieth century, as Broad Street Station reached saturation, the Progressive Era and the “City Beautiful” Movement had taken root in Philadelphia.¹¹ In the fall of 1909, Philadelphia mayor John Reyburn created a Committee on Railway Terminals and Transportation. By the winter of 1910, the Committee’s proposal had grown into an ambitious 25-year, \$150 million “plan for a greater city.”¹²

When Rea (then the Railroad’s Second Vice-President) received the Committee’s “Suggestive Plan,” he must have found it quite familiar. One proposal called for “a great loop terminal system to encircle the hotel, railway and business centre of the City.” Another involved a “six track subway,” four tracks of which would run through the city along a proposed “northeast boulevard.” There was a further proposal, however, that reflected advances in railway technology during the 21 years following the Rea analysis. The proposal encouraged “the present Railroad Companies

Improvement of Passenger Terminal Facilities in Philadelphia,” 17 May 1911, PRR-Hagley, Box 1550, folder 22, p. 3.

¹¹ The City Beautiful movement began in Chicago, and is typically associated with Daniel Burnham, but it appeared in cities around the world. See Hepp, *The Middle-Class City*, 201-203; Peter Hall, *Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century*, updated edition (Oxford, U.K., 1996), 174-202.

¹² By the winter of 1910, the Committee’s proposal had grown into an ambitious 25-year, \$150 million “plan for a greater city.” The plan allotted \$15 million for Fairmount Parkway, a broad boulevard running in a northwesterly direction past the future sites of the Franklin Institute, the Free Library, and the Museum of Art. The Parkway project was contingent on the removal of the Chinese Wall, since planners assumed that property tax revenues gained by developing land gained from the Railroad would offset those lost to the Parkway demolitions. Reflecting the civic desire to eliminate the Chinese Wall, the plan allocated more than half of the proposed funds, \$80 million, for a “Subway under Broad Street, with six tracks and with radial subways in three directions.” As with the City’s recommendations from the previous year, four of the six tracks would be reserved for Pennsylvania and Reading passenger trains. Replacing the Chinese Wall with underground trackage would bring about the “redemption of not only Market and Filbert sts., but the union once more of Philadelphia north and south of the Pennsylvania Elevated Railroad, which this gloomy and dangerous structure now divides and condemns.” The comments are from W. B. Levis, “a vice-president of the Market Street Merchants’ Association.” In addition to the \$15 million for Fairmount Parkway, the plan included \$5 million for “other parkways,” \$1 million for a Convention Hall, \$1.5 million for an art gallery, \$5 million for a “Temple of Justice,” \$25 million for a sewage disposal plant, and \$8 million for new docks along the Delaware and Schuylkill Rivers. Philadelphia *Evening Bulletin*, 11 Feb. 1910; F. C. Sweeton memorandum, 30 Dec. 1931, PRR-Hagley, Box 758, folder 17.

equip part of their present service with electric equipment that would enable them to serve the public in Philadelphia.”¹³

On December 30, 1911, Vice-President Rea created a Board of Engineers on Philadelphia Terminal Improvements, instructing them to respond to the City’s recommendations.¹⁴ The Board resurrected many of the same plans that Rea had proposed in 1888, including a subway and elevated line from Broad Street northeast to Kensington—in many ways similar to the City’s recommendations of the previous year.¹⁵ In a less cooperative vein, the Board developed a plan to add eight tracks to the Chinese Wall, quietly purchasing most of the necessary property.¹⁶ The Board also considered a massive elevated railroad from Broad Street almost due north to the Railroad’s North Philadelphia station. The Board

¹³ Committee on Railway Terminals and Transportation to Samuel Rea, 26 Nov. 1909, PRR-Hagley, Box 150, folder “Philadelphia—Committee on Railway Terminals + Transportation (1909-1912).”

¹⁴ Just as Rea’s 1888 Philadelphia report influenced the Manhattan Gateway project, that project in turn conditioned the Railroad’s 1911 response to the Greater City plan. By 1911, the Pennsylvania had abandoned the notion of cooperation with the Reading in Philadelphia, just as it had declined involvement in Gustav Lindenthal’s 1884 plan for a jointly owned Hudson River Bridge. As was the case in New York, the Railroad understood that a massive capital improvements program to increase operating efficiency and customer convenience would never pay for itself. The Board of Engineers acknowledged “that none of the larger plans of improvements under consideration . . . will directly result in sufficient operating savings or increased receipts to pay interest on the cost of the improvements.”¹⁴ In Philadelphia, as in New York, the convenience of the traveling public, and the reputation of the Pennsylvania Railroad, would take precedence over financial considerations. PRR president Alexander J. Cassatt took charge of the better known above-ground portions of Penn Station, commissioning noted architectural firm McKim, Mead & White to design a grand monument to order and tradition, based on the grandeur of ancient Rome. Rea, however, coordinated the more important—and still largely intact—underground network of tunnels, platforms, ventilation systems, and automatic signaling. “Minutes of the Board of Engineers on Philadelphia Terminal Improvements,” 3 Jan. 1911, PRR-Hagley, Box 1550, folder 20; “Report of Board of Engineers for the Improvement of Passenger Terminal Facilities in Philadelphia,” 17 May 1911, 7, PRR-Hagley, Box 1550, folder 22, p. 22.

¹⁵ J. L. Eysmans, the vice-president-traffic, rather sycophantically wrote to President Rea: “Cannot help but admiring the thorough grasp you had on this whole situation and how remarkably well you foresaw the future.” Eysmans to Rea, 4 June 1926, PRR-Hagley, Box 1550, folder 21.

¹⁶ The Railroad had already purchased “nearly all of the property between Filbert and Cuthbert Streets from 15th Street to the Schuylkill River” to accommodate the widening of the Filbert Street Elevated. F. C. Sweeton memorandum, 30 Dec. 1931, PRR-Hagley, Box 758, folder 17; “Minutes of the Board of Engineers on Philadelphia Terminal Improvements,” 3 Jan. 1911, PRR-Hagley, Box 1550, folder 20.

did acknowledge, with considerable understatement, “the undesirability of this suggestion from the City’s standpoint on account of the bridge requirements over the Parkway and Broad Street and the destruction of several million dollars worth of dwellings and business and manufacturing establishments.”¹⁷

While the Railroad’s 1911 plan was often at variance with the City’s 1909 plan, the two sides could nonetheless agree on the desirability of suburban electrification.¹⁸ For the City, electrification offered faster, cleaner commuter service, and was furthermore a necessary prerequisite for its plan to bring PRR trains into Broad Street via a subway. For the Railroad, the suburban electrification program begun in 1915 promised to reduce congestion at Broad Street.¹⁹

The 1920s: One Fire, Many Phoenixes

In 1923, the balance between business and community interests tipped decidedly in favor of the City. Broad Street’s elevated approach trackage, in addition to annoying civic planners, nearly proved to be that station’s undoing. Early on the morning of June 11, 1923, a fire broke out in the storage rooms underneath the station platforms. Although the Philadelphia Fire Department brought the blaze under control by noon, it continued to smolder for 2 days.²⁰

¹⁷ “Minutes of the Board of Engineers on Philadelphia Terminal Improvements,” 9 Jan. 1911, PRR-Hagley, Box 1550, folder 20.

¹⁸ The Reading followed the report’s recommendations, but waited longer than the PRR to electrify its suburban lines; electric service began in 1931. The Baltimore & Ohio, a marginal presence in the Philadelphia area, did not electrify.

¹⁹ In 1915, the Railroad electrified its Main Line commuter route between Broad Street and Paoli and electrified the Chestnut Hill Branch in 1918. While the Railroad was prepared to electrify suburban service, mainline electrification was another matter. In 1916 and 1917, the City’s Transit Department developed plans for a north-south subway underneath Broad Street. Two tracks of this four-track subway would have carried Pennsylvania Railroad trains from Broad Street Station north to a connection with the main line near North Philadelphia station. While the First World War prevented this project, a larger obstacle was the Railroad’s unwillingness to either change motive power on all passenger trains operating through Philadelphia, or else to electrify the entire mainline between that city and New York. “Minutes of the Board of Engineers on Philadelphia Terminal Improvements,” 3 Jan. 1911; 9 Jan. 1911; PRR-Hagley, Box 1550, folder 20; F. C. Sweeton memorandum, 30 Dec. 1931, PRR-Hagley, Box 758, folder 17; Messner, 40, 116

²⁰ While the station itself escaped essentially unharmed, the massive 300-foot wide arched trainshed was so badly damaged that it eventually had to be removed. In the interim, the railroad managed to rebuild all sixteen tracks, platforms, and overhead catenary within a week of the fire. Messer, *Triumph III*, 41-41

The 1923 fire served as the catalyst for the Philadelphia Improvements, facilitating the development of both urban and business networks. The Railroad viewed the fire as the ideal opportunity to widen the elevated trackage serving the station, yet acknowledged they were now part of a larger network that included City officials, business and community leaders, newspaper editors, and the general public. Railroad officials glumly conceded that, "Judging from comments in the newspapers, which were very frank, it appeared that a considerable section of the public was not favorably impressed by the further widening of the elevated railroad, and direct statements were made that the existing elevated structure was extremely hurtful to the business and real estate values of the city."²¹

Opposing the Railroad's desires to expand the Chinese Wall, the Philadelphia Comprehensive Planning Commission joined with the Board of Trade, the Market Street Business Men's Association, and the Committee on Regional Planning for the Philadelphia Metropolitan District to consider alternatives. Representatives from the mayor's office, the City Council, the Philadelphia Rapid Transit Company (PRT), the Director of Public Works, the City Solicitor, and members of the Park Commission soon became involved in these discussions.²²

Gradually, the Railroad and the City negotiated a solution, one that included a new station in West Philadelphia for all long-distance trains, along with the retention of Broad Street Station for commuter service. The Chinese Wall would have remained but, with the withdrawal of long-distance trains from Broad Street, it could have been reduced considerably in width. City planners would then be able to develop a façade of buildings along the north side of Market Street, abutting the slimmed-down Chinese Wall.²³

The City soon upped the ante, however. In January 1924, Mayor W. Freeland Kendrick called for a "comprehensive plan...for new...passenger terminal improvements," that would replace the Chinese Wall with electrified underground trackage serving Broad Street Station. A month later, the mayor demanded further concessions from the Railroad,

²¹ "Philadelphia Improvements," 15 Jan. 1932, PRR-Hagley, Box 1572, folder 6.

²² Philadelphia *Evening Bulletin*, 25 June 1923; "Philadelphia Improvements," 15 Jan. 1932, PRR-Hagley, Box 1572, folder 6. The Railroad's assistant chief engineer understood that "There is a strong desire, apparently, on the part of the newspapers and citizens of Philadelphia to have the Elevated Railroad to our station removed and the tracks placed underground. This feeling of the public may make it difficult to effect the vacation of Filbert Street and extension of the Elevated Railroad to Cuthbert Street, with long bridges or tunnels over the important cross-streets, and unless something very radical and extensive is promised and arranged for with the city, it will be necessary for the Company to confine the re-construction at this time to the present limits between Market and Filbert Streets." 13 June 1923, PRR-Hagley, Box 1547, folder 8.

²³ *Ibid.*

insisting that “the central point around which the entire situation revolves is the removal of Broad Street station.”²⁴

In 1925, the Railroad met the City’s demands by agreeing to construct two new passenger terminals to replace Broad Street Station. Despite assertions that the final design for the Philadelphia Improvements resembled Rea’s 1888 suggestions, the 1911 Board of Engineers report, or the Railroad’s proposals to rebuild Broad Street after the 1923 fire, the Railroad in fact acquiesced almost completely to the City’s urban planning agenda.²⁵

In West Philadelphia, the Railroad would build a grand edifice for long-distance trains. Initially referred to as “Pennsylvania Station” (and occasionally as the “West Philadelphia Station,” even though there was already a station, soon to be demolished, by that name), it was commonly referred to by its current official title, 30th Street Station. The upper level of 30th Street Station would accommodate commuter trains, which would then cross the Schuylkill River on a new bridge before ducking under central Philadelphia to reach the second, more centrally-located, station.²⁶

²⁴ With the elimination of Broad Street Station, the City could build a new street (Pennsylvania Boulevard, now known as JFK Boulevard) linking City Hall to the west side of the Schuylkill. Kendrick to Rea, 6 May 1924, quoted in “Philadelphia Improvements,” 15 Jan. 1932; “Philadelphia Improvements,” 15 Jan. 1932, both in PRR-Hagley, Box 1572, folder 6.

²⁵ Mayor Kendrick submitted the proposed ordinance to the Philadelphia City Council on 30 April 1925. The city council approved the final agreement on 13 July. “Philadelphia Improvements,” 4-5; “Agreement Between the City of Philadelphia and the Pennsylvania Railroad Company,” 13 July 1925, PRR-Hagley, Box 1550, folder 19.

²⁶ In the 1925 agreement, the City agreed to relocate the Philadelphia Rapid Transit’s elevated lines off Market Street and on to Railroad-owned land west of the Schuylkill River. PRT rapid-transit trains would have used an upper-level wing on the south side of 30th Street Station, matching the upper (commuter) level on the north side of the station. The Railroad objected to this arrangement, citing aesthetic considerations and emphasizing the difficulty of bringing passengers off Market Street and into the station underneath the elevated track. The City’s planned extension of East River Drive past the site of 30th Street Station created a more serious problem, since that street would have intersected the elevated railway at grade. The only alternative was to replace the Market Street Elevated with a subway. Another round of negotiations ensued, with the City further demanding that the railroad replace its proposed bridge over the Schuylkill with a tunnel under the river. The Railroad, objecting to the added expanse and citing similar problems at Penn Station in New York, opposed any plan that would increase the number of steps confronting commuters at 30th Street Station. In retaliation, the City threatened to deny the Railroad permission to build underground tail tracks at Suburban Station, citing possible interference with a proposed north-south Broad Street subway. On 28 Dec. 1927, a compromise settlement provided for the relocation of the PRT in a subway past the site of 30th Street, thus preserving the station’s elegant façade from the

This largely unadorned and exquisitely functional commuter terminal was variously named City Hall Station, Suburban Station, and, more recently, Penn Center Station.²⁷ The Philadelphia Improvements extended the segregation of long-distance and commuter patrons to a far greater degree than in Penn Station in New York, accommodating them in two stations more than twelve blocks apart.

The Philadelphia Improvements

In 1927, the PRR created an internal network to manage this complex project.²⁸ The “Improvements” structure possessed several important advantages. First, it helped groom promising senior executives for their intended role as president of the company.²⁹ Samuel Rea had managed the operationally critical underground portions of the New York Improvements, preparing him to assume the presidency on January 1, 1913.³⁰ Vice President Elisha Lee assumed control of the Philadelphia Improvements, assisted by an Advisory Board.³¹ He almost certainly would have risen to the presidency, had he not died unexpectedly in 1933.

unsightly effects of elevated railway trackage. In the end, while the Railroad did make some modifications to the Suburban Station approach trackage, only the PRT went under the river. F. C. Sweeton memorandum, 30 Dec. 1931, PRR-Hagley, Box 758, folder 17; “Philadelphia Improvements,” 20 Aug. 1936, PRR-Hagley, Box 758, folder 18; “Report on Comparison Between Pennsylvania Railroad Tunnels Under the Schuylkill River, Phila., and Bridge Over the River as per Original Agreement of July 13th, 1925,” 10 June 1927; Minutes of meeting of the Advisory Board—Philadelphia Improvements, 15 June 1927; both in PRR-Hagley, Box 758, folder 15; “Philadelphia Improvements,” 10 Nov. 1937, PRR-Hagley, Box 1572, folder 6.

²⁷ Messer, *Triumph III*, 52, 56-58, 64-65.

²⁸ Office of the Chief Engineer, Philadelphia Improvements, “Philadelphia Passenger Terminal Improvements,” 4 Feb. 1928, PRR-Hagley, Box 1572, folder 2. The Railroad typically established similar networks whenever the board of directors authorized a major construction project: terminal improvements, line relocations, grade crossing elimination, etc. Of these, only the New York Improvements rivaled the Philadelphia Improvements in size, scope, and complexity.

²⁹ Reflecting his status as the head of the Philadelphia Improvements, and of his intended future role as PRR president, Lee had the authority to negotiate with the other railroads (the Reading and the Baltimore & Ohio) that owned needed real estate. “Memorandum of Meeting held at Room 670, Broad Street Station—March 3, 1927,” PRR-Hagley, Box 1572, folder 2.

³⁰ Messer and Roberts, *Triumph V*, 344.

³¹ The Advisory Board included the Vice President of Operations, the Vice President of Real Estate, the PRR Chief Engineer, and the Chief Engineer, Eastern Region. Robert Farnham, the Chief Engineer for the Philadelphia Improvements, reported directly to Lee, and in turn consulted with both the Advisory Board and an Operating Committee that included the General Manager of the Eastern Region, the General Superintendent of the Philadelphia Terminal

Second, these organizations constituted an internal network, helping in the coordination of managerial decisions within a large and complex company. Many business historians, including Alfred D. Chandler, Jr., have noted the rigidly hierarchical, almost militaristic managerial structure of the PRR.³² In a company notorious for clearly demarcated lines of authority, the “Improvements” system allowed the Railroad to selectively tap expertise from many departments that did not typically associate with one another. To an even greater degree than the Railroad’s Association of Transportation Officers, the Philadelphia Improvements organization performed a function roughly comparable to the executive committee of a diversified, decentralized corporation, by coordinating decision-making activities across departmental boundaries.³³

One member of the Advisory Board played a particularly important role in the Philadelphia Improvements. The Railroad typically referred to George Gibbs as a “Consulting Engineer.” However, Gibbs, like his firm, Gibbs & Hill, was essentially on permanent retainer to the PRR, their offices located in Penn Station in New York. George Gibbs had served as Chief Engineer of Electric Traction and Station Construction for the New York Improvements, oversaw suburban electrification in Philadelphia during the 1910s, and, during the 1930s would help to coordinate the PRR’s New York-Washington electrification project.³⁴ Based on his Penn Station experience, Gibbs stressed “the importance of getting operating men up against the problem in detail at the earliest possible date, in collaboration of course with the architects.” Accordingly, Gibbs recommended the creation of an operating committee within the Advisory

Division, the Superintendents of the Philadelphia, New York, and Maryland Divisions, and the General Passenger Agent. “Chart Showing the Organization for Design and Construction, Philadelphia Improvements,” 15 Feb. 1927, PRR-Hagley, Box 1550, folder 18.

³² Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass., 1977). Chandler’s generalizations are not applicable for all eras of the railroad’s history, however. For example, during the 1920s and again during the 1950s, the railroad exhibited something more akin to a decentralized managerial structure, not the centralized, functionally-departmentalized form that Chandler describes.

³³ For an insightful analysis of the Association of Transportation Officers, see Steven W. Usselman, *Regulating Railroad Innovation: Business, Technology, and Politics in America, 1840-1920* (New York, 2002).

³⁴ Born in 1861, Gibbs graduated from the Stevens Institute of Technology, served as Chief of the Department of Tests for the Chicago, Milwaukee & St. Paul Railroad, and later worked closely with both George Westinghouse and Samuel Vaucain (of the Baldwin Locomotive Works). Ernest Rowland Hill became his chief assistant in 1906, while work on the New York Improvements was underway. The two men became partners in 1911 and incorporated the firm of Gibbs & Hill in 1923. Gibbs died in 1940. David B. Sloan, *Pioneers in Railroad Electrification* (New York, 1957).

Board, consisting of “Mr. Farnham, the Chief Engineer, a representative of the architects and one operating man who has had experience in terminal station working.”³⁵

As a “Consulting Engineer” Gibbs was insulated from the rigidly hierarchical lines of authority on the Railroad, yet could work with engineers and managers from different parts of the system. Like the Philadelphia Improvements organization itself, Gibbs could bypass the PRR’s strict functional compartmentalization, linking together normally disassociated individuals at many levels of the corporate organization.³⁶ Just as the Philadelphia Improvements structure helped to coordinate decision-making across departmental boundaries, George Gibbs acted as a liaison between the financial, architectural, engineering, and operational groups associated with the project. Gibbs advised the Advisory Board, working to alter at least two major elements of the Philadelphia project.

The first concerned the size of 30th Street Station. As originally designed, 30th Street was more than 38,000 square feet bigger than Penn Station.³⁷ According to the Railroad, “Basically Roman is the theme of its architecture, blending into its beauty the dignity, grace and strength that is representative of the Railroad serving a city hallowed in the History of the United States.”³⁸ Gibbs, the more practical consulting engineer, had been exposed to similarly grandiose plans while involved in the Penn Station project. He saw no reason for such a large facility, and raised these objections to the Advisory Board.³⁹ The Railroad’s senior management

³⁵ Gibbs further emphasized “I do think that if the broad questions of building design are left to drift along to an indefinite date in the future we may find when it is too late that limitations will be imposed here and there which we may regret. I am led to say this because of my 24 years’ connection with the New York Station design, construction and operation; in that case the railroad operating officials when they were called in found that there were a number of features of the architectural design which they wished were different.” Gibbs to Elisha Lee, 6 June 1928, PRR-Hagley, Box 1550, folder 17.

³⁶ Robert Farnham to Elisha Lee, 7 Feb. 1928, PRR-Hagley, Box 1572, folder 2.

³⁷ Penn Station in New York occupied 337,000 feet of ground (430 x 785 feet), while 30th Street was designed to cover 375,300 square feet (544 x 690 feet). Gibbs and Hill to the Advisory Board, Philadelphia Improvements, 5 Jan. 1928, 2-3, PRR Hagley, Box 1487, folder 26. 30th Street was designed with 22,000 linear feet of platforms, compared to 16,000 feet at Penn Station in New York. In part, this was because 30th Street was a through station, while most trains terminated at Penn Station. George Gibbs to the M.s of the Advisory Board, 10 Aug. 1928, PRR-Hagley, Box 758, folder 15.

³⁸ Office of the Chief Engineer of the Philadelphia Improvements, “The Pennsylvania Station,” 5 June 1931, PRR-Hagley, Box 1573, folder 14.

³⁹ Gibbs wrote: “I assume that we desire to have the station adequate in all respects, now and in the future, but not too large, and yet the plans heretofore discussed have contemplated a building as large, or larger, than that of any existing station. I am not satisfied that the necessity for this has been demonstrated; it has been frequently stated at our meetings that the Philadelphia

also began to balk at the size and cost of the proposed facility, and the station was ultimately reduced considerably in size.⁴⁰

Gibbs brought another, and more serious issue to the Advisory Board's attention. In a January 1928 letter to Elisha Lee, Gibbs indicated that plans for 30th Street raised "a number of rather startling conclusions, especially regarding the great size of the proposed West Philadelphia Station building and the difficulty, if not impracticability, of operating steam locomotives under it."⁴¹ Gibbs emphasized that the station and the adjacent Post Office would cover more than 1,000 feet of station trackage and platforms. To avoid asphyxiating its patrons, the Railroad would either have to install large ventilation fans, switch trains between steam and electric power at each end of the station, or park all trains so that their steam locomotives lay just beyond the edge of the station platforms.⁴² The first option was not technologically feasible; the other two would be operational nightmares.

The only remaining alternative was to electrify all mainline trackage between New York and Wilmington, Delaware (south of Philadelphia), and eventually to Washington, D.C.⁴³ Of course, the Railroad based its

requirements are and will be light compared with New York; if so why should we provide areas equal to the latter station?" Gibbs, to the m.s of the Advisory Board, Philadelphia Improvements, 10 Aug. 1928, PRR-Hagley, Box 1550, folder 17.

⁴⁰ The architects Graham, Anderson, Probst & White initially planned a massive 115,000 square foot main waiting room and concourse, which by itself carried an estimated cost of \$3,450,000. PRR President Rea "was rather upset about" cost overruns at the Chicago Union Station and wondered whether "it might be possible to reduce this area [of 30th Street Station] by reducing the width of the concourse from 200-ft. to perhaps 40 or 50-ft. less, and reducing the wings; also by reducing the length of the concourse from East to West." E. B. Temple to E. R. Graham, 16 June 1925 (quotes); Graham to Temple, 23 June 1925; both in PRR-Hagley, B-1571, folder 4. The final width of the concourse was 135 feet (Messer, *Triumph III*, 65).

⁴¹ Gibbs to Lee, 6 Jan. 1928, PRR-Hagley, Box 1550, folder 17.

⁴² Gibbs & Hill, as the consulting engineers to the Philadelphia Improvements, issued a report that was blunt and to the point: "Allow me to point out that the conditions imposed are unprecedented.... The disturbing conclusion is reached that if we must use steam locomotives the station building itself should be moved to the side of the tracks and a train-shed be provided, as at Chicago, Washington and elsewhere. I assume this can hardly be even considered at West Philadelphia; therefore, electric traction under the station is indicated, either by cutting off road engines outside, or by electrification of the New York Division and electric operation to and from Wilmington and west to Paoli or Thorndale." Gibbs and Hill to the Advisory Board, Philadelphia Improvements, 3 Jan. 1928, 4-5, PRR-Hagley, Box 1487, folder 26.

⁴³ The PRR began electrification of the mainline between Philadelphia and Wilmington (27 miles) in 1926 and completed that section in 1928. The Railroad also completed the electrification of the suburban line between Philadelphia and

decision to electrify its lines between New York and Washington and between Philadelphia and Harrisburg on many factors, including traffic congestion and the availability of federal government financing. Nevertheless, the 30th Street Station played a key role in that process. At the very least, the problems at 30th Street led to “the later determination of the Railroad Company, in conjunction with the Philadelphia Improvements, to electrify the Main Line from New York through Philadelphia to Washington.”⁴⁴ It is certainly significant that Gibbs emphasized the necessity of electrifying 30th Street Station on January 6, 1928, while PRR President William Wallace Atterbury announced the railroad’s 1,300-mile electrification program on October 13, 1928.⁴⁵

Construction Begins, Construction Delayed

The Railroad’s first significant construction project, aside from a new office building in West Philadelphia, was the construction of the new commuter terminal, Suburban Station.⁴⁶ The facility opened on September 28, 1930, at a cost of \$10 million.⁴⁷

The Great Depression first slowed, then halted, work on the Philadelphia Improvements. In January 1932, the Railroad drastically curtailed its construction program, restricting activities to the completion of projects already underway.⁴⁸ In December 1933, the Railroad opened 30th Street Station to long-distance traffic. At first, only trains between New York and Washington used the station’s two tracks and one platform.

West Chester in 1928. The Railroad extended electrification from Philadelphia north to Trenton in 1930 and electrified the suburban route to Norristown in the same year. Electric trains began operating between New York and Wilmington, via 30th Street Station, in January 1933. William D. Middleton, *When the Steam Railroads Electrified*, 2d ed. rev. (Bloomington, Ind., 2001), 315, 320.

⁴⁴ F. C. Sweeton memorandum, 30 Dec. 1931, PRR-Hagley, Box 758, folder 17.

⁴⁵ The latter date is from Middleton, 316. The figure refers to track miles, representing 325 route miles of mostly multiple-track railroad.

⁴⁶ Messer, *Triumph III*, 52, 55. The Pennsylvania Railroad sold the Suburban Station Office Building for \$7 million in the 1950s. It became One Penn Center. Six Penn Center, completed in 1957, became the first in a series of buildings that (finally) utilized the air rights provided for in the 1925 agreement. Upon completion, Six Penn Center became the Railroad’s new corporate headquarters, replacing an office building (dating to 1925, and the first part of the Philadelphia Improvements to be completed) adjacent to 30th Street Station.

⁴⁷ Office of the Chief Engineer, “Memorandum in connection with Philadelphia Improvements,” 3 Feb. 1936, PRR-Hagley, Box 1572, folder 6; Messer, *Triumph III*, 52. The 22-story Suburban Station office building was completed in 1929, and was included in the \$10 million cost.

⁴⁸ Office of the Chief Engineer, “Philadelphia Passenger Terminal Improvements,” 26 Feb. 1932, PRR-Hagley, Box 1572, folder 5.

The Railroad did not add additional long-distance platforms until 1937.⁴⁹ With 30th Street Station incomplete, the Railroad continued to operate most long-distance trains in and out of Broad Street Station, much to the dismay of local politicians and urban residents.⁵⁰ Philadelphians began to voice their opposition to the Philadelphia Improvements—hardly surprising, given the City’s desperate financial condition, and the Railroad’s unwillingness to remove the Chinese Wall.⁵¹

Construction on the Philadelphia Improvements did not resume until 1948. On April 27, 1952, as Eugene Ormandy led the Philadelphia

⁴⁹ The only other significant work to be accomplished after 1933 was the completion of the new U. S. Post Office and related mail-handling facilities south of the 30th Street Station site. By the time the Railroad suspended work in 1933, it had expended \$68.5 million on the Philadelphia Improvements; the City had spent \$18 million. By 1936, the Railroad had spent approximately \$8.5 million on the 30th Street station building. The Post Office Department paid the \$10 million cost of the new postal facility. Chief Engineer, Philadelphia Improvements, to W. D. Wiggins, 31 Dec. 1935; Office of the Chief Engineer, “Memorandum in connection with Philadelphia Improvements,” 3 Feb. 1936, PRR-Hagley, Box 1572, folder 6; Messer, *Triumph III*, 66-67; C. J. Henry, “The Philadelphia Improvement Completion Program,” statement at Public Utilities Commission hearing, 28 Feb. 1952, PRR-Hagley, Box 1486, folder 23.

⁵⁰ The City felt the financial strain of the depression even more acutely than did the Railroad. In 1930, the City requested an extension on the originally specified 5-year limit for the completion of the Improvements. The City excavated the Market Street subway tunnel under the Schuylkill as far west as 32nd Street, yet lacked the funds to complete the project by relocating the Market Street elevated underground, thus rendering the tunnel useless. The City had not completed either West River Drive or Pennsylvania Boulevard, nor, uppermost in the minds of Railroad executives, had it paid its indebtedness to the Railroad: \$8.8 million. Until that happened, the Railroad had no intention of abandoning Broad Street Station or the Chinese Wall. C.F.T., memorandum, 21 Dec. 1935, PRR-Hagley, Box 758, folder 17; James W. Phillips to Robert Farnham, 26 May 1930, PRR-Hagley, Box 1573; Philadelphia *Bulletin*, 20 Oct. 1932; F. C. Sweeton to Hulme, 30 Dec. 1935, PRR-Hagley, Box 758, folder 17; “Philadelphia Improvements,” 20 Aug. 1936, PRR-Hagley, Box 758, folder 18. This figure included the \$2.9 million still owed the Railroad as part of the 1914 Grade Crossing Agreement.

⁵¹ The 1931 mayor’s race brought these frustrations into the open, as the City’s former Deputy Controller S. Davis Wilson denounced the “Hall-Atterbury” candidacy, linking mayoral candidate and former City Council President Charles B. Hall to the current president of the Pennsylvania Railroad. Wilson and mayoral candidate J. Hampton Moore asserted that Hall, along with Public Works Director George H. Biles, had circumvented competitive-bidding requirements by funneling Philadelphia Improvements contracts to the Keystone State Corporation, a long-time affiliate of the Pennsylvania Railroad. Philadelphia *Record*, 21 July 1931; 15 Dec. 1931. Moore won the election.

Orchestra in a rendition of *Auld Lang Syne*, the last train left Broad Street Station. Demolition began two days later.⁵²

The 30th Street Station survives today; its location in a commercial dead zone between Center City and the University of Pennsylvania campus saved it from the fate of Penn Station in New York City.⁵³ Suburban Station likewise remains virtually unchanged. As an office building with a station in the basement, its functionality proved its salvation. Opened in 1984, the 1.7-mile-long Center City Commuter Connection links the former Pennsylvania tracks at Suburban Station with Reading Terminal. Now operated by the Southeastern Pennsylvania Transportation Authority, the connected lines fulfill part of Samuel Rea's 1888 vision for a "rapid transit system radiating in all directions."⁵⁴

Conclusions

Several conclusions emerge from this study. First, the Philadelphia Improvements illustrate the relationship between electrification technology, corporate policy, and urban planning. Suburban electrification during the 1910s promised to satisfy the Railroad's operating requirements by alleviating congestion at Broad Street Station, and to placate public opinion by reducing smoke and avoiding an expansion of the Chinese Wall. This, in turn, encouraged urban planners to dream of replacing the Chinese Wall with underground trackage, first at Broad Street and, in later plans, at a new Suburban Station. At the same time, the Railroad's showplace 30th Street Station was so massive as to mandate the electrification of station trackage, thus providing a compelling rationale for full mainline electrification between New York and Washington.

Second, the Philadelphia Improvements provide a richer understanding of the PRR's operation, its coordination of large projects, and the ways in which those projects affected managerial decisions. In some respects, the Philadelphia Improvements reflected, in miniature, the management of the PRR as a whole. The Philadelphia Improvements cut across departmental fiefdoms, bringing together executives from widely

⁵² PRR press release, 17 April 1952, PRR-Hagley; Box 259, folder 18; J. P. Newell to E. W. S., 26 Feb. 1952, PRR-Hagley, Box 1486, folder 23 (quote); Philadelphia *Inquirer*, 28 April 1952; Philadelphia *Bulletin*, 6 July 1952; *Modern Railroads*, (Aug. 1952), 61-65.

⁵³ A \$75 million overhaul, begun in 1988 and completed in 1991, restored the station to its former glory; see Messer, *Triumph III*, 354.

⁵⁴ As early as 1958, the Philadelphia City Planning Commission discussed "the ramification of the propose linkage of the Pennsylvania Railroad and the Reading Railroad upon the development of the Penn Center Concourse" and offered a remarkably accurate assessment of how this connection might be accomplished. Minutes of meeting of the Philadelphia City Planning Commission, Penn Center Area Development Committee, 15 July 1959, PRR-Hagley, Box 1550, folder 12.

varied departments. Such coordination satisfied the Railroad's engineering, operational, and financial requirements and allowed mid-level executives to establish contacts that would serve them well in the more mundane world of day-to-day operations and, in a few cases, prepare them for the presidency. The Great Depression, World War II, and the PRR's declining fortunes put an end to projects on the scale of the Manhattan Gateway and the Philadelphia Improvements. Absent such network and training opportunities, railroad executives became more insular, their presidents less competent. While many factors contributed to the diminished capacity of later PRR executives, and of the company as a whole, the loss of the "improvements" model certainly played a role.

Finally, the Philadelphia Improvements demonstrate that the PRR, the largest and arguably most powerful transportation enterprise in American history, rarely acted with decisive impunity. The Railroad made decisions without fully appreciating the consequences of those decisions, without understanding that their choices would create a series of contingencies that would significantly constrain their subsequent activities. The Railroad, far from being an East Coast octopus, was often on the defensive as it responded to public opinion and pressure from officials and community leaders in its headquarters city. This pressure, as much as decisions made in its corporate boardroom, conditioned the Railroad's response to operating constraints in Philadelphia. In the final analysis, the Philadelphia Improvements alter our perception of the PRR. Despite its self-anointed role as the "Standard Railroad of the World," the Pennsylvania was more reactionary than proactive; more often controlled by networks than a controller of networks.