

**ATTACHMENT 6 – WASHINGTON UNION STATION HISTORIC SITE
DETERMINATION OF ELIGIBILITY FORM**



DC STATE HISTORIC PRESERVATION OFFICE DETERMINATION OF ELIGIBILITY FORM PROPERTY INFORMATION

Property Name(s): **Washington Union Station Historic Site (including Columbus Plaza, Terminal Rail Yard, and First Street Tunnel)**

Street Address(es): 50 Massachusetts Avenue NE, Washington, D.C. 20002 (Union Station) 900 Second Street NE, Washington, D.C. 20002 (REA Building); 102 H Street NE, Washington, D.C. 20002 (Union Station Bus Terminal)

Square(s) and Lot(s) and Property Owner(s):

1. National Park Service (Sq 0721 Lot 0000)
2. United States of America (Sq 0720 Lot 0171, Sq 0720 Lot 0827)
3. Washington Terminal Company (Sq 0717 Lot 0815, Sq 0712 Lots 0823, 0824, and 0109; Sq 0720 Lot 0828)
4. National Railroad Passenger Corporation (Amtrak) (Sq 0717 Lots 7000 and 0814)
5. Burnham South LLC - John Akridge Companies (Sq 0720 Lot 7000, Sq 70001 Lot 7001, and Sq 0717 Lots 7001 and 7002);

The property/properties is/are being evaluated for potential historical significance as/for:

Other: Amendment to the Union Station DC Inventory of Historic Sites/National Register of Historic Places Listing. *DC listing November 8, 1964, NR listing March 24, 1969 (Plaza and Columbus Fountain listed April 9, 1980, amended with additional documentation October 12, 2007)*



Figure 1. Red boundary line delineates the extent of property included in this DOE Form. The First Street Tunnel, indicated with the dashed red boundary line is located below-grade. Base Map: Google Maps, (accessed 2017).

INTRODUCTION AND SITE LOCATION

Washington Union Station (WUS) Historic Site (also referred to as the Site) consists of four individual components including Union Station (the station building), Columbus Plaza (also called Union Station Plaza), the Terminal Rail Yard, and the First Street Tunnel. The current DC Inventory of Historic Sites and National Register of Historic Places (NRHP) listing includes Union Station and Columbus Plaza. This Determination of Eligibility Form proposes to amend and expand the nomination to also include the Terminal Rail Yard and the First Street Tunnel. Together, the four components of the site were originally owned and operated by the Washington Terminal Company, share consistent classical design aesthetics—most of which were the design of D.H. Burnham & Co.—and are directly related to the holistic functionality of the rail terminal. The Site is one of the most significant examples of railroad infrastructure in the United States. It is historically and architecturally significant for its contribution to the urban development of Washington, D.C., representing advancements in transportation and engineering, and is an excellent example of Beaux-Arts design.

The Site is delineated by the extent of the First Street Tunnel and Columbus Circle NE to the south, First Street NE and the Metropolitan Branch Trail to the west, and the northern edge of Florida Avenue NE to the north. The eastern boundary follows Union Station Drive NE and the rail yard north to H Street, Second Street NE between H and L Streets NE, Delaware Avenue NE to M Street NE, and the rail yard to Florida Avenue NE (*Figure 1*). Physically, the Site is largely bordered on the east and west by masonry retaining walls, known as the Burnham Walls, which were constructed to hold the fill required to elevate the rail yard above the existing east-west running streets.¹

The construction of the Site was approved by Congress in 1903 after the two major railroads serving Washington, D.C.—the Baltimore & Ohio Railroad (known as the B&O) and the Philadelphia, Baltimore and Washington Railroad, controlled by the Pennsylvania Railroad (known as the PRR)—agreed to establish a joint terminal, combining their passenger operations and consolidating their freight operations. Owned and operated by the Washington Terminal Company, a corporation organized by the B&O and PRR companies, Union Station, the First Street Tunnel and the Terminal Rail Yard were constructed between 1903 and 1908. The First Street Tunnel, which extends over 4,000 feet, was completed in 1906 to serve the PRR rail lines running south of Washington, D.C. while the Terminal Rail Yard was finished in 1907 to serve Union Station and passenger service operations of both railroads. Construction on the station was not completed until 1908.² Renowned American architects D.H. Burnham and Company of Chicago designed Union Station and four buildings within the Terminal Rail Yard, as well as Columbus Plaza, which was not completed until 1912.

¹ WUS Historic Site does not include the coach and engine rail yard continuing to the northeast toward Ivy City due to documented differences in ownership, operation, and design. Therefore, the northern boundary for the WUS Historic Site is Florida Avenue, the historic extent of the Terminal Rail Yard. The rail yard to the north of the Terminal Rail Yard, including the Eckington Power Plant, served the operations of the B&O and PRR companies and was jointly owned and operated by the B&O and PRR. Today, this rail yard is known as the Ivy City Engine Terminal and Yard and serves as a maintenance facility for Amtrak, Maryland Area Regional Commuter Train Service (MARC), and VRE.

² While the station formally opened in 1908, portions of the exterior and interior statuary were not completed until 1912.

The Site is eligible for the National Register of Historic Places under the *National Register Criteria for Evaluation A* and *C* as a site that has made a significant contribution to the broad patterns of history, as well as a site that embodies the distinctive character of a type and period of construction, represents the work of a master, and possesses high artistic values.

The period of significance for the Site extends from the period of construction 1903-1912 through to the station's early use and the partial electrification of the Terminal Rail Yard by the PRR Company in 1935. The period is significant due to the importance of the station's original design and construction as it relates to early twentieth-century transportation and rail infrastructure and to the development of Washington, D.C. The period extends to 1935 to include the electrification of the rail yard, which was an important development in rail technology and engineering leading to the construction of several contributing structures within the rail yard. Union Station and Columbus Plaza are individually listed in the DC Inventory and NRHP and are significant properties contributing to the significance of the Site.

While the Site has been substantially altered over the past 110 years to accommodate changing operations and technologies, many historic elements remain, preserving the historic context and integrity of the historic property (*Figure 2* through *Figure 4*). The Site contains the following buildings, structures, and sites. These contributing buildings, structures, and character-defining features define the historic and architectural value of the Site:

WUS Historic Site Contributing Resources:

- **Union Station** (the station building; includes the historic headhouse and historic passenger concourse)

Contributing/Character-Defining Features:

- Monumental entrance; symbolic portal to the Nation's Capital: defined by spatial arrangement, alignment with Delaware Ave, landscape, and architectural design.
 - Headhouse: exterior façade and ornament; central pavilion with barrel vault roof flanked by two lower seven-bay pavilions anchored by two single arched end pavilions; General Waiting Room/Main Hall, west and east wings serving the original ticket lobby and baggage room, the original dining room, serving room, lunch room, ladies waiting room, and smoking room; and the State Reception Room/Presidential Suite.
 - Historic passenger concourse: arched roof featuring plaster coffer panels and skylights, plaster cornice, sections of original glazed brick and terra cotta wall.
 - All exterior and interior design and material elements dating to the Site's period of significance.
- **Columbus Plaza**
Contributing/Character-Defining Features and Objects:
 - Columbus Fountain
 - Circular Fountains
 - Rostral Columns
 - Iron Lampposts
 - Three Flagpoles between the Circular Fountains
 - Overall design including circulation paths, lawn panels, balustrades and roadways.

- **Terminal Rail Yard**

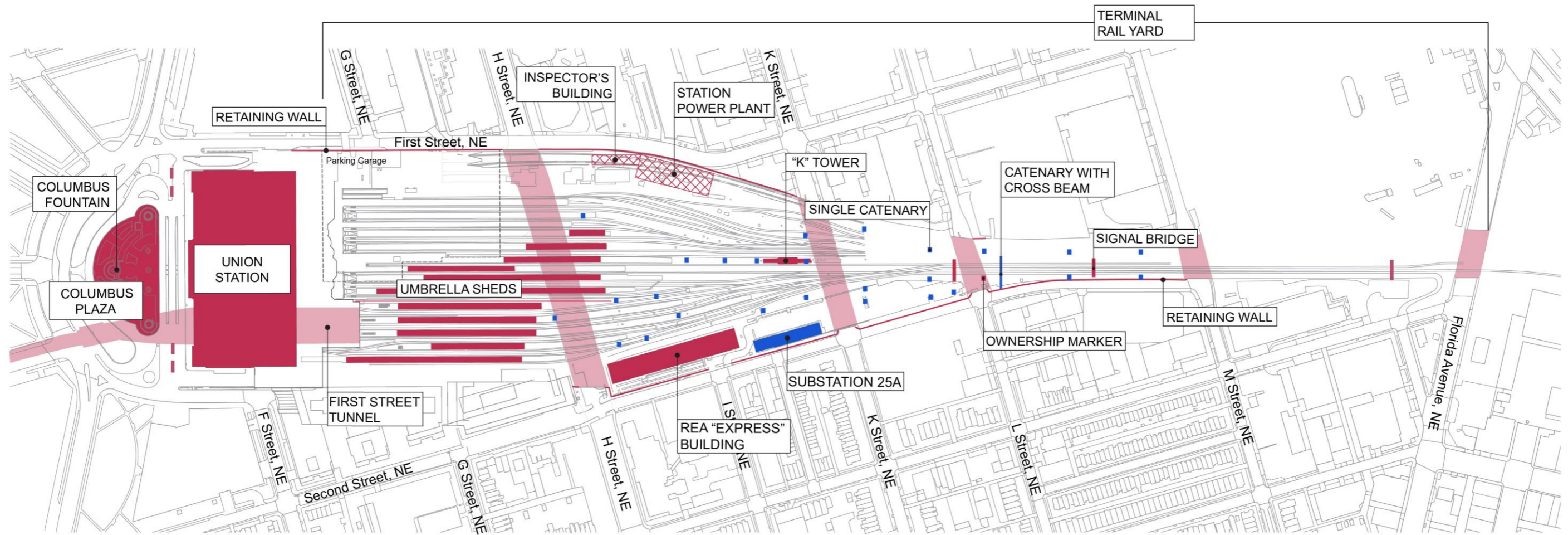
Contributing/Character-Defining Buildings, Structures, and Objects:

- Type of track (i.e. ballasted track)
- Layout and location of tracks (i.e. stub-end tracks that end at the Station; through tracks that connect to the First Street Tunnel; upper-level tracks that meet at the station concourse level; low-level tracks that meet at the low-level platforms and First Street Tunnel; the narrowing of the rail yard beginning at H Street NE; the throat of the rail yard at K Street NE and continued narrowing of the yard until the intersection with Florida Ave NE)
- K Tower
- REA Building
- Umbrella Sheds and Platforms, serving Tracks 11-30, that date to the Site's period of significance)
- Retaining Walls (where dating to the period of significance; see *Figure 19*)
- Bridge Underpasses at H, K, L, and M Streets and Florida Avenue
- Signal Bridges H, J, and K
- Substation 25A
- Single Catenaries (dating to period of significance)
- Catenary with Cross Beam
- P&W Ownership Marker
- Pneumatic Switch Valves (dating to period of significance)
- Overall design and spatial arrangement

- **First Street Tunnel**

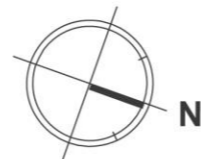
Contributing/Character-Defining Features:

- North and south tunnel portals
- Eight tunnel tracks below Union Station
- Bellmouth (i.e. the area that narrows to funnel traffic into tunnel)
- Two-tube tunnel with masonry dividing wall



WASHINGTON UNION STATION HISTORIC SITE

CONTRIBUTING RESOURCES








-  EXISTING ORIGINAL RESOURCES:
c.a. 1903-1908
-  Above-grade resources
-  Below-grade resources
-  ORIGINAL BUILDINGS NOW DEMOLISHED
-  ELECTRIFICATION INFRASTRUCTURE:
c.a. 1930s

Figure 2. Historic resources within Washington Union Station. Existing buildings and structures related to the original design are shown in solid pink, demolished original buildings are shown in pink hatch, and structures related to electrification are shown in blue. Base map source: National Railroad Passenger Corporation (2015).



1. K Tower, 2014



2. Umbrella shed and column capital, 2014



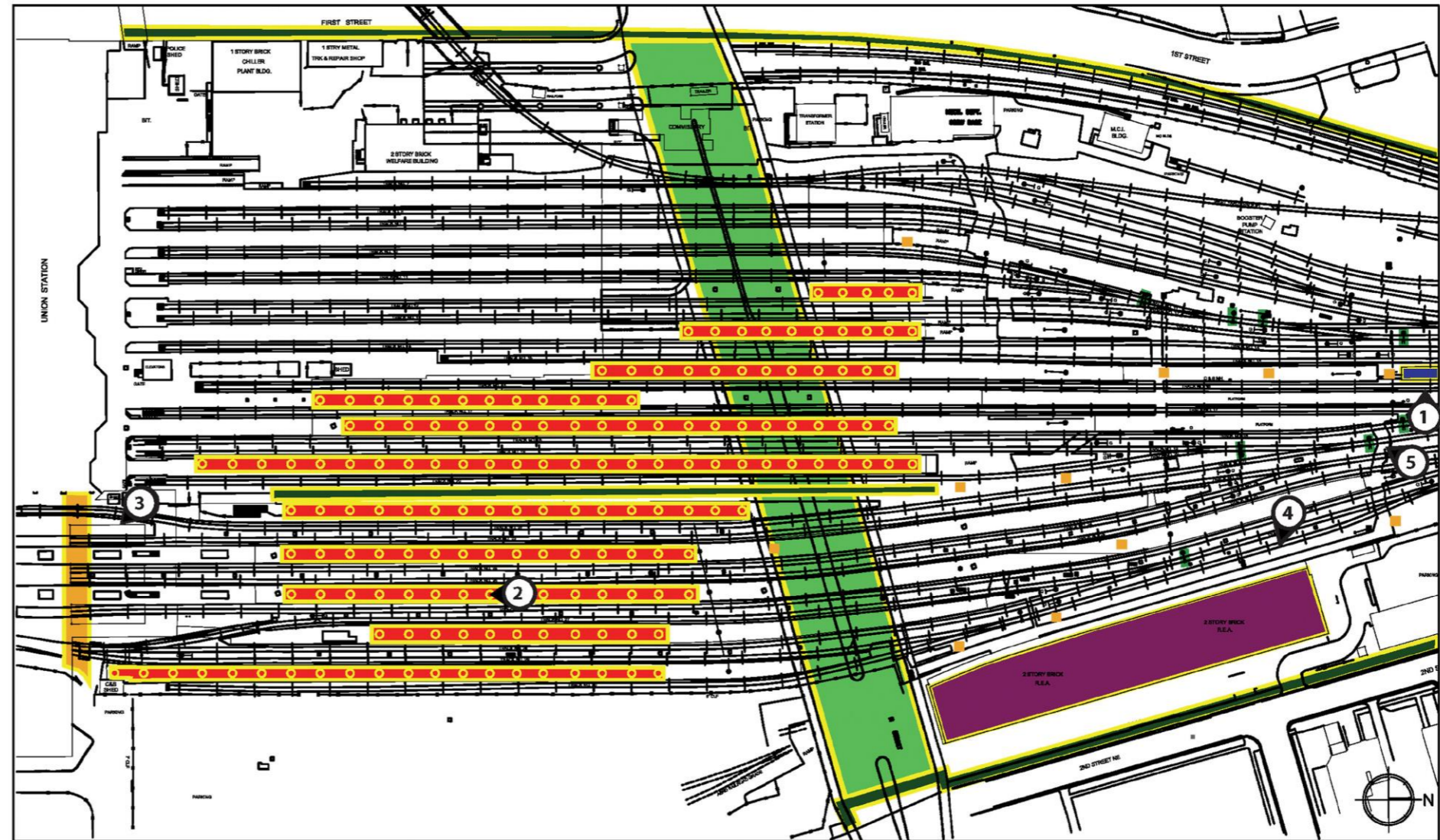
3. North portal of the First Street Tunnel, 2014



4. REA Building (former Express Building), 2014



5. Pneumatic switch valve, 2014



LEGEND		
pre-1908	circa 1908	circa 1930s
Ownership Marker	Umbrella Sheds	Single Catenary
Mile Marker	Shed Columns	Catenary with cross beam
Signal Bridges	K Tower	Switch Valves
Rail Bridges	First Street Tunnel portal	Substation 25A (transformer station)
	Retaining Wall	Photo location
	Express Building (now REA Building)	

TERMINAL RAIL YARD - SOUTH END EXISTING HISTORIC RESOURCES

Figure 3. Graphic documentation of existing historic resources within the south end of the Terminal Rail Yard. Source: From Building Conservation Associates, Inc. "WUS Historic Preservation Plan: Volume 1." Philadelphia, 2015.



1. Single catenary pole, 2014



2. Catenary pole with cross beam, 2014



3. Signal Bridge, 2014



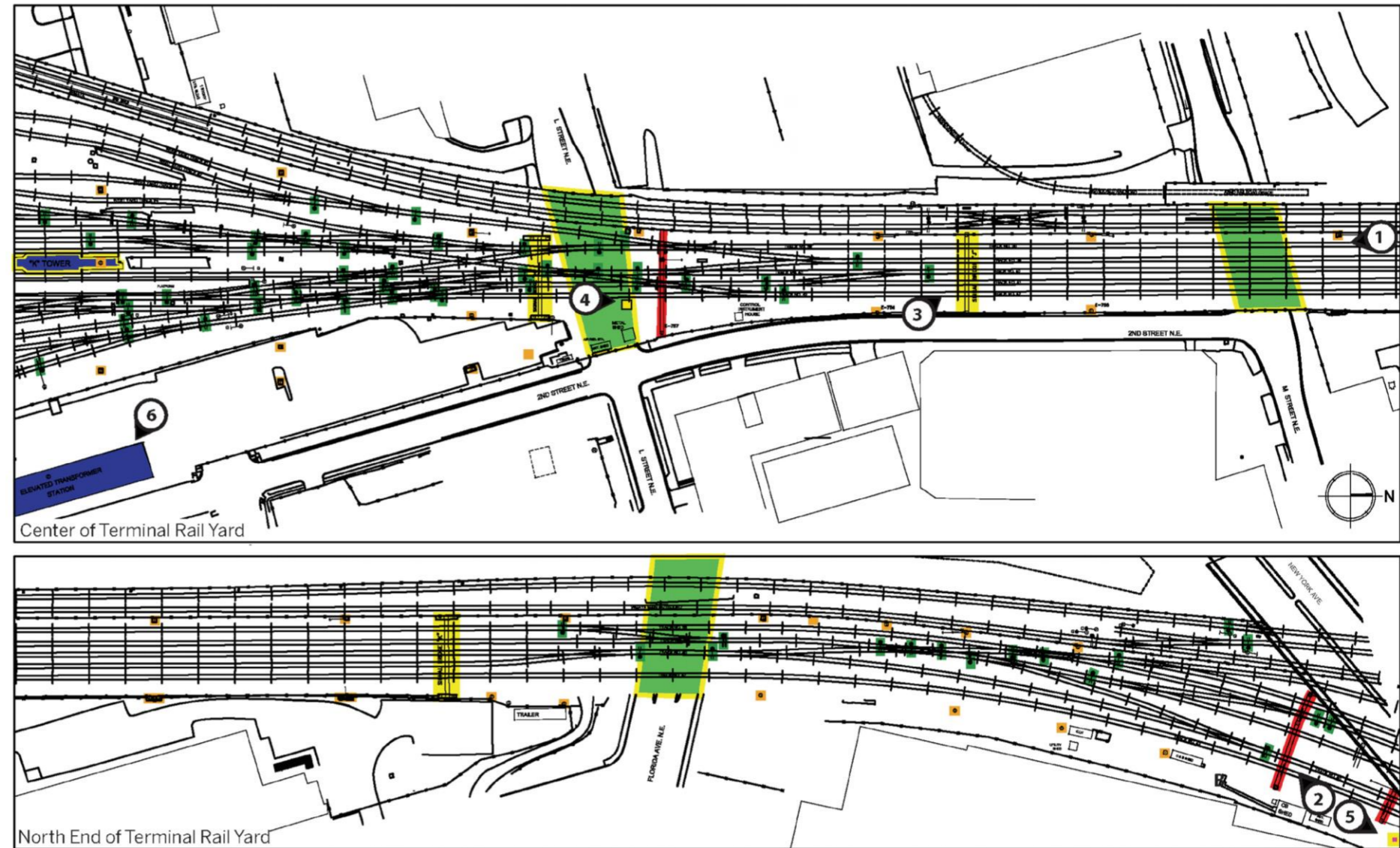
4. Ownership marker, 2014



5. Mile marker, 2014



6. Substation 25A, 2014



LEGEND		
pre-1908	circa 1908	circa 1930s
Ownership Marker	Umbrella Sheds	Single Catenary
circa 1908	Shed Columns	Catenary with cross beam
Mile Marker	K Tower	Switch Valves
Signal Bridges	First Street Tunnel	Substation 25A (transformer station)
Rail Bridges	Retaining Wall	Photo location
	Express Building (now REA Building)	

TERMINAL RAIL YARD - CENTER AND NORTH END EXISTING HISTORIC RESOURCES

Figure 4. Graphic documentation of existing historic resources located in the center and north end of the Terminal Rail Yard. Note the historic site ends at Florida Avenue and does not include the catenaries, switch valves, or mile marker to the north. Source: From Building Conservation Associates, Inc. "WUS Historic Preservation Plan: Volume 1." Philadelphia, 2015.

PHYSICAL DESCRIPTION

WUS Historic Site comprises approximately 60 acres and consists of four areas: Union Station (the station building), Columbus Plaza, Terminal Rail Yard, and the First Street Tunnel. Union Station is located at the intersection of Massachusetts and Delaware Avenues, at 50 Massachusetts Avenue NE. Columbus Plaza is adjacent to the main entrance of the station to the south. The Terminal Rail Yard extends to the north of Union Station to Florida Avenue. The First Street Tunnel runs from the northeast corner of the station, passes under the station and First Street NE, and terminates at the intersection of New Jersey Avenue SE and D Street SE. Daniel Burnham (1846-1912) and his assistant, Peirce Anderson (1879-1924), of the renowned architecture firm D.H. Burnham & Company, designed Union Station, Columbus Plaza, and the main structures and buildings within the Terminal Rail Yard.

Union Station is divided into three primary spaces: the historic headhouse (1908); the historic passenger concourse (1908) currently used for retail and Amtrak ticketing; and the current non-historic passenger concourse, referred to as the Claytor Concourse (1988).

Columbus Plaza is a semicircular designed landscape that serves as a forecourt to Union Station. Columbus Fountain stands at its center and is surrounded by panels of brick paving and lawn. Automobile traffic is directed around the plaza, which intersects Massachusetts Avenue, First Street NE, E Street NE, Louisiana Avenue NE, and Delaware Avenue NE.

The Terminal Rail Yard extends from the north of the station building to Florida Avenue and is largely bordered by the “Burnham Walls,” retaining walls designed by D.H. Burnham & Company to hold the fill needed to construct the rail yard and satisfy the grade change required to operate the trains. Two existing buildings (REA Building and K Tower) designed by D.H. Burnham & Co. are located within the Terminal Rail Yard. The REA Building was originally constructed for the distribution of express freight and cargo. K Tower was originally constructed to house an interlocking system that connected switches, signals, and sensors to safely direct trains and control operations within the rail yard. Other contributing resources such as rail platforms, umbrella sheds, signal bridges, an ownership marker, and catenary poles are important to the rail yard’s operation and contribute to the significance of the Site.

Below the station and Columbus Plaza, the First Street Tunnel extends more than 4,000 feet from the station to its terminus at the intersection of New Jersey Avenue SE and D Street SE. The tunnel consists of two concrete and brick masonry tubes spanning 36 feet and was constructed by the PRR from 1903-1906.

The following sections describe the physical characteristics of the existing buildings, sites, and contributing/character-defining features within the Site.

Union Station (Station Building)

Union Station is an impressive example of Beaux-Arts architecture designed by architects Daniel Burnham and Peirce Andersen of D.H. Burnham & Company. The station faces southwest toward the U.S. Capitol along Massachusetts Avenue, and its center is aligned with Delaware Avenue (***Figure 5***)



Figure 5. *Ca. 1920 aerial view of WUS Historic Site showing location and spatial relationship to the U.S. Capitol.*
Source: War Department. Army Air Forces. Washington D.C. File Unit: Washington D.C., 1917 - 1964, 1917, National Archives Catalog <https://catalog.archives.gov/id/68152475>.

The headhouse is a magnificent Vermont white granite structure that is 630 feet long, 120 feet wide, and over 100 feet tall at its highest point. It is the most elaborate area of Union Station—its grand scale and multitude of classical features serve as an impressive entryway to and from the station. The plan of the headhouse draws on the Roman Baths of Diocletian in Rome and features a central pavilion composed of three arches flanked by two lower pavilions featuring arcades composed of seven bays anchored by two single arched end pavilions. The south façade is decorated with Ionic columns, Ionic pilasters, inscribed frieze panels, an entablature and balustrades, Roman legionnaire statues above the south portico doors, and allegorical statues atop the cornice and column capitals. These statues depict “the Progress of Railroading” and were designed by Louis Saint-Gaudens (1854-1913). They represent Fire, Electricity, Freedom, Imagination, Agriculture, and Mechanics.³ Inscriptions about these subjects, composed by renowned Harvard academic Charles W. Eliot, are cut into the three granite frieze panels over the arches.⁴

On the interior, the central pavilion contains the General Waiting Room (also known as the Main Hall or Great Hall) and features a barrel-vaulted roof with a molded plaster and gilded coffered ceiling that is divided into five bays and separated by four broad, gilt-trimmed ribs springing from 35-foot tall granite piers. The room is lit by three semicircular windows on the south elevation, five windows on the north, and a large semicircular window on the east, which leads towards the original dining room and women’s waiting room. A Doric stone colonnade supporting an entablature surmounted by statues depicting Roman legionaries encircles the Main

³ DC Preservation League, “Historic Preservation Review Board Application: Interior Spaces/Norther Approach from Property Line – Union Station,” (Application for Historic Landmark of Historic District Designation: District of Columbia Historic Preservation Review Board, 2012): 4.

⁴ Taylor, Nancy C. “Union Station (including Union Station Plaza and Columbus Fountain)” National Register of Historic Places Inventory - Nomination Form, December 1979.

Hall. The colonnade features 36 statues also designed by Louis Saint-Gaudens. Passing through the east and west colonnades, one transitions to the pavilions flanking the Main Hall. The colonnade to the north provides access to the historic passenger concourse. The floor of the Main Hall is white marble arranged in groups of four 24-inch squares with 6-inch maroon marble diamonds set at the intersections. The floor was replaced in 1988 but was based upon its original design.⁵ Other architectural features include bronze radiator grilles and marble water fountains.

The west hall of the headhouse is separated from the Main Hall by a Doric colonnade. It originally held the ticket lobby and baggage room. Today, the ground floor and mezzanine level are used by food vendors and restaurants. The hall is lit from above by a barrel-vaulted ceiling largely covered with square skylight windows. The hall was originally designed to feature a five-bay ticket window and a smoking room on the south side, and a baggage room on the north side accessible through four sets of mahogany doors leading to a wooden counter. At the western end of the hall is the former carriage entrance that now leads to the bicycle storage facility and escalators to the Metro station. The west entrance is set within a colonnade of four Doric columns with four Roman legionary statues set atop the colonnade entablature.⁶

The east hall of the headhouse is also separated from the Main Hall by a Doric colonnade surmounted by Roman legionnaires. The east hall originally held the station's dining room, serving room, lunch room, ladies' waiting room, and the State Reception Room (also called the Presidential Suite): a reception room for distinguished visitors. The east hall features a flat ceiling with skylights and clerestory windows along the north and south elevations. The clerestory windows are located above the cornice and puncture a frieze painted with garlands and Pompeian motifs. The walls are designed as arcades of alternating cream-colored piers and alcoves. Ionic columns that feature scagliola finishing, made to resemble marble, frame the alcoves.⁷ Today, the east hall is used by retail kiosks, shops, and a restaurant. The Presidential Suite, which housed a restaurant until 2013, is available to host special events.

The historic passenger concourse is the space immediately north of the headhouse. It originally spanned the entire width of the rail yard and was 760 feet long, 130 feet wide, and over 50 feet tall. It was open to the tracks and platforms beyond and featured large semicircular windows at the east and west elevations and an arched roof with skylights running along its length. The ceiling was divided into five lengthwise sections: three sections of white plaster punctuated with octagonal coffers divided by two great sections of skylights. The tracks and platforms were accessed through a cast-iron train fence that stretched from one end of the passenger concourse to the other and featured elaborate 14-foot tall entry/exit gates with pilasters, triangular pediments, and decorative palmette finials. Several gates were salvaged during renovations for the National Visitor Center and currently serve as portals to the Amtrak gates in the Claytor Concourse (see *Figure 6*).

⁵ Ibid, 4.

⁶ Ibid, 5.

⁷ Ibid, 6.



Figure 6. Salvaged gate from the original passenger concourse now serves as a gate to the waiting area in the Claytor Concourse. Source: Dana Litowitz, Beyer Blinder Belle

In the 1970s, the station was rehabilitated to accommodate the National Visitor Center and a Washington Metropolitan Area Transit Authority (WMATA) “Metro” station. To accommodate the Metro station and two vehicular ramps to a new parking facility at the northwest of the station, 70 feet was removed from both the east and west ends of the passenger concourse, greatly reducing the length and altering the original design. The two bridges connecting the Site to the City Post Office and Government Printing Office (GPO) on the west side were also demolished at this time—they were rebuilt in place after construction on the Site was completed.⁸

Further extensive renovations from 1986 to 1988 converted the historic passenger concourse into a two-story retail area. The historic concourse’s existing conditions reflect the 1988 alterations. Steel framed stairways and escalators lead from the first floor to a steel-framed mezzanine level. The original colored concrete paver flooring has been replaced with marble and a large opening

⁸ Washington Metropolitan Area Transit Authority, B & O Route Drawings; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 61.

has been cut into the floor near the entrance to the Main Hall, providing access to the basement-level food court. The basement-level space was originally used for the movement of baggage and other freight. A few original features of the passenger concourse remain, such as the plaster cornice, coffered ceiling—the skylights of which are now covered—and several sections of glazed brick and terra cotta wall.

In lieu of using the historic passenger concourse, the Claytor Concourse was constructed in 1988 to allow passengers to access the tracks and platforms as well as the Metro and parking garage. The Claytor Concourse is non-historic and non-contributing to the significance of Union Station or the Site. Its construction resulted in the demolition of the original connection between the passenger concourse and the tracks and platforms within the Terminal Rail Yard. It is unclear if the north wall of the historic passenger concourse remains behind the Claytor Concourse construction, though some sections of entablature remain visible. The concourse features tile flooring and an exposed steel roof supported by columns. A portion of the roof is arched and features skylights connecting to the historic concourse.

Columbus Plaza

Columbus Plaza serves as a grand forecourt to Union Station. The semicircular plaza consists of brick pavement and lawn panels surrounded by a roadway for traffic (*Figure 7*). It is flanked on either side by curvilinear granite steps that transition to balustrades. Circular granite fountains are located behind the balustrades on the plaza's northwest and northeast corners. Three flag poles stand to the north of Columbus Fountain, centered between the two circular fountains. Lanes for taxis, buses, and other traffic picking up and dropping off passengers are located between the plaza and the Union Station south façade. The lanes are divided by two brick-paneled medians featuring granite curbs. Two pairs of rostral columns stand near the northwest and northeast ends of the plaza, aligning with the station's east and west entrance pavilions. The columns stand as ceremonial light fixtures and are surmounted by gilded eagles standing atop globes. The rostral columns are flanked by smaller iron lampposts linked by granite balustrades.⁹

Columbus Fountain was designed by artist Lorado Z. Taft (1860-1936) and completed in 1912. The fountain features a 45-foot tall pier with classical moldings and is embellished by sculpted figures of Christopher Columbus, a bearded male figure representing the Old World, and a young American Indian figure symbolizing the New World. The prow of a ship extends from the pier with a winged female figurehead representing Discovery. The pier is surmounted by a globe surrounded by four eagles linked by festoons. A medallion and inscription depicting Queen Isabella and King Ferdinand of Spain who funded Columbus' voyage is located on the north side of the pier. The fountain basin curves below the prow of the ship and is flanked by two lions seated on pedestals.¹⁰

⁹ Eve L. Barsoum, "Additional Documentation to Union Station nomination listed 4/9/80: Union Station Plaza, Columbus Plaza, and Columbus Fountain" (National Register of Historic Places Registration Form, October 2006): 2.

¹⁰ *Ibid*, 3.



Figure 7. Photograph overlooking Washington Union Station along with Columbus Plaza and Columbus Fountain in foreground. Allegorical statues are visible atop the cornice and column capitals. Source: Ron Blunt, 2014. Courtesy of Union Station Redevelopment Corporation.

Columbus Plaza was designed by Daniel Burnham and Peirce Anderson of D.H. Burnham & Company and was built in conjunction with Union Station, although it was not completed until 1912. Originally, the plaza was paved with Belgian block pavers, which have been replaced over time by concrete or brick.¹¹ Lawn panels were added to the paved panels in 1914 (*Figure 8*).

¹¹ Ibid, 2.



Figure 8. Photograph of Columbus Plaza and Columbus Fountain, Union Station and Terminal Rail Yard behind, looking northeast. Source: War Department. Army Air Forces. Washington D.C. File Unit: Washington D.C., 1931, National Archives Catalog <https://catalog.archives.gov/id/68152565>.

Terminal Rail Yard

The Terminal Rail Yard is 760 feet wide at its greatest extent, immediately north of Union Station, and narrows along its length to 135 feet wide at its narrowest point at Florida Avenue before widening again as the tracks split toward the coach yard in Ivy City. The length of the yard from the station to Florida Avenue is approximately 3,725 feet or 0.7 miles. Terminal Rail Yard was originally constructed to accommodate 33 tracks, platforms for passengers and baggage, as well as other rail yard buildings and structures. The yard narrows beginning at H Street and is 450 feet wide at its “throat” near the intersection with K Street NE. There are a number of contributing buildings, structures, and objects that date to the yard’s original construction in 1903-1907 and to the electrification project of the 1930s. The following paragraphs provide physical descriptions of the yard’s contributing features, and briefly describes other structures and elements that are non-contributing (**Figure 9**).



Figure 9. *Ca. 1920 aerial view of WUS Historic Site showing south elevation of Union Station, Columbus Plaza, and the expanse of the Terminal Rail Yard to the north. Source: “Lot of Three Post WWI Photos Washington DC Union Station Terminal 1920s,”Ebay, accessed June 21, 2018, <https://www.ebay.com/itm/Lot-of-Three-3-Post-WWI-Photos-Washington-DC-Union-Station-Terminal-1920s-/332689707032?oid=332653940455>.*

REA (Railway Express Agency) Building

The REA Building, originally called the Railway Express Agency Building, is located along the eastern boundary of the Terminal Rail Yard between H and I Streets (900 Second Street NE). It is a rectangular two-story building with attic and basement levels. The east and west facades exhibit 28 bays defined by arches while the north and south facades each feature three bays. Its original construction consists of steel-framing with brick cladding and a terra cotta tile roof. The building is finished with decorative elements including a painted iron cornice and first floor masonry arches featuring Indiana limestone impostes (not original) at the top of the piers forming each arch. Rectangular windows punctuate the second floor above a limestone stringcourse. The

limestone lintels surmounting these windows are incorporated into an additional stringcourse. Together, the stringcourses and arcade emphasize the building's horizontality. A metal canopy, added in the 1980s, runs the length of the building's west façade—supported by cables attached below the cornice—and shades the first floor and porch overlooking the Terminal Rail Yard. A brick wall, arched entryway, and courtyard, also non-original, are located adjacent to the east façade (*Figure 10*).



Figure 10. REA Building's east façade, looking northeast. Source: BBB, 2017.



Figure 11. REA Building's east façade ca. 1909. Source: James Steward & Company, Contractors, "Some Stewart Structures," 1909, p. 115.

The building was originally designed by D.H. Burnham & Company and was completed in 1907 or 1908 for the distribution of express freight and cargo transported by the Adams, Southern, and United States Express companies.¹² Originally, the first floor was divided into three main sections to serve the three express companies, while the second floor was used for offices and administration. A shallow awning on the east (street-facing) elevation extended below the fan lights of the window arcade where the limestone impostes are currently placed (*Figure 11*). Two fireproof vaults were located on each floor, and six elevators connected the various levels. As originally configured, the building was approached from the Terminal Rail Yard by paired tracks separated by five trucking platforms. The platforms were protected by sheds constructed of concrete and steel (*Figure 12*).¹³ At the northern end of the building, one platform was originally dedicated to the deliveries of milk and other dairy products.¹⁴ This platform was replaced by Substation 25A in 1934-35 when a portion of the Terminal Rail Yard was electrified (more information provided below).



Figure 12. The REA Building’s west façade with platforms and steel and concrete shed; view looking south towards Union Station. Source: Detroit Publishing Co., “Switch yards, WUS, Washington, D.C.” Between 1906 and 1910. Photograph. From the Library of Congress, <https://www.loc.gov/item/det1994008384/PP/>.

¹² “Traffic Center Rising,” *Washington Post*, July 14, 1907; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 128.

¹³ Strouse, “Passenger Terminals,” (1911): 111; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 129.

¹⁴ “Report of Committee XIV—on Yards and Terminals,” in *Proceedings of the Fourteenth Annual Convention of the American Railway Engineering Association* vol. 14 (1913), 934; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 129.

The exterior design of the building remains largely intact; however, the original interiors, street facing awning, track-side canopy, rail platforms and shelter sheds have been demolished since its original construction. The original exterior cornice, windows, and doors have also been replaced, and the existing stone string course intersecting the arcade was added. After a series of railroad mergers, the CSX Corporation inherited the REA Building from the B&O Railroad in 1983. The following year the building was sold to the Potomac Development Corporation and was adapted to offices and commercial space in 1989. The building was purchased by Fluorine in 2012 then acquired by Amtrak in 2015. The building now houses offices for Amtrak personnel, including operations staff, Amtrak Police Department and Emergency Management. The REA Building has been nominated for individual listing on the D.C. Inventory of Historic Sites.

K Tower

K Tower is a two-story-and-basement masonry structure measuring 12 feet wide and 61 feet long located in the center of the Terminal Rail Yard south of K Street. Single-story brick masonry wings extend 45 feet to the north and 50 feet to the south of the main two-story core. The basement is concrete and extends the entire length of the tower. The central tower features a first floor, mezzanine level, and second floor. The tower's second floor is composed of steel framework supporting glazed terra cotta and copper panels. The single-story wings extending to the north and south feature five and six bays, respectively. Within the central block, six bays of windows define the first and mezzanine floors, while the second story exhibits a band of continuous windows. A large glazed window bay is cantilevered from the south elevation of the tower. The many window openings define the building's façades and were designed to allow operators to observe and direct activity within the Terminal Rail Yard. Currently, the first floor and mezzanine level windows are covered with wood panels (*Figure 13*).

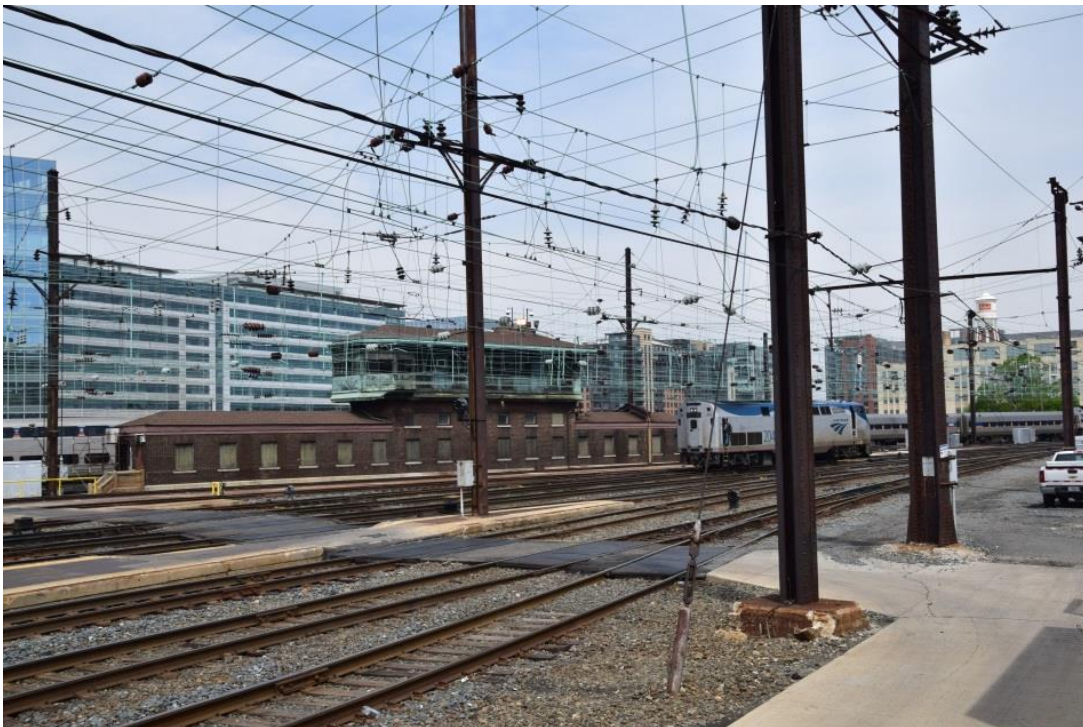


Figure 13. Photograph of the Terminal Rail Yard showing existing conditions of “K” Tower and several original single catenaries, looking north. Source: BBB, 2017.

K Tower, A Tower, and C Tower were designed by D.H. Burnham & Company and constructed in 1907 to house and operate the interlocking system that ran throughout the Terminal Rail Yard.¹⁵ K Tower contained the largest interlocking machine and illuminated track model in existence at the time (**Figure 14**). The illuminated track model revealed the exact positions of the moving trains in the yard to the operators in the tower.¹⁶ Tower directors operating from K Tower coordinated the interlocking, signaling at Signal Bridges A through J, and the train-starting systems to allow for the safe and efficient movement of all trains within the Terminal Rail Yard. In 1935, when a portion of the Terminal Rail Yard was electrified, K Tower also controlled the operation of Substation 25A, which is further described below.¹⁷

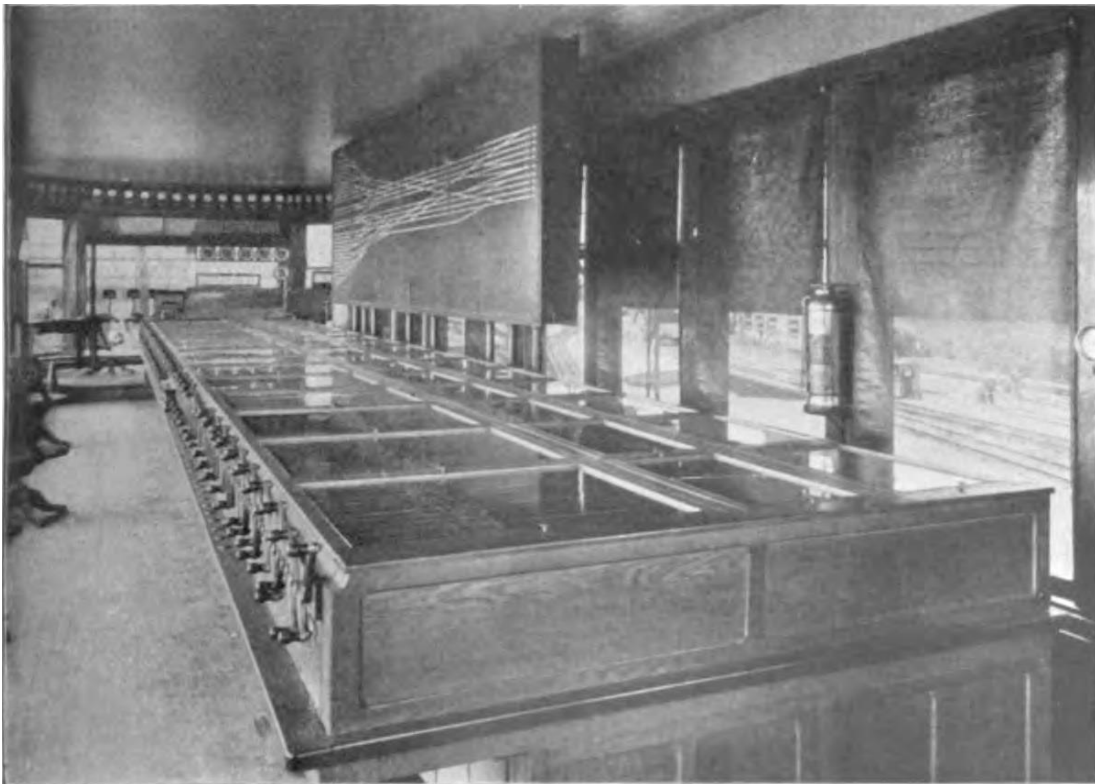


Figure 14. Interior View of K Tower showing the original illuminated track model in addition to the interlocking lever system and the platform light boxes associated with the train-starting system. Source: From William F. Strouse, “The Reconstruction of the Passenger Terminals at Washington, D.C.” Transactions of the American Society of Civil Engineers 71. (1911): 115.

The exterior design of the building remains largely intact, although few original interior elements survive. In 1934, the northern extension was modified to support the rail electrification improvements in the yard. A catenary pole was erected on the roof and an additional small one-story structure was built to the north. The tower was remodeled in 1956 and the interlocking machine originally located on the second floor was removed at an unknown time. All original

¹⁵ The interlocking system is discussed in greater depth in the Historical Narrative section.

¹⁶ Strouse, “Passenger Terminals,” (1911): 112-113.

¹⁷ Pennsylvania Railroad, “Eastern Region Electric Power System ET-1,” Schematic Plan, June 10, 1935.

windows have been replaced, altered or infilled. The copper cladding on the second-floor level has been altered and the original copper flashing has been removed. The roofline on the north and south ends has been reconfigured, and the original red tile roof has been replaced with asphalt shingles.¹⁸

Tracks, Platforms, and Umbrella Sheds

Currently, the Terminal Rail Yard consists of 23 operational tracks: 14 high-level stub-end tracks, eight low-level run-through tracks, and one low-level stub-end track. Tracks are accessed by concrete platforms featuring a variety of original and non-original metal-framed umbrella sheds. As a working rail yard, the Terminal Rail Yard has experienced many changes and alterations to the tracks, platforms, and umbrella sheds over the past 110 years. Tracks have been removed or reconfigured, affecting the location and extensions of the platforms and umbrella sheds (*Figure 15*).

Union Station was originally serviced by 33 tracks divided into two groups by a low retaining wall set within the rail yard (west of current Track 22). The first group of high-level tracks were located at the western portion of the Terminal Rail Yard and consisted of twenty stub-end tracks accessed by thirteen wooden platforms. Three of the platforms were reserved exclusively for baggage, while the other ten were used for both passengers and baggage. Wood platforms were used on the high-level tracks to account for the settlement that was likely to occur, and the wood was later replaced by cement.¹⁹

A second group of low-level tracks were located at the eastern portion of the Terminal Rail Yard and included four stub-end tracks and nine run-through tracks, which continued underneath Union Station through the First Street Tunnel and connected to destinations south of Washington, D.C. The lower-level section was serviced by five platforms constructed of concrete to hold both passengers and baggage. Baggage was transferred to and from the platforms from the basement-level baggage room by elevators located at the south ends of the platforms. Originally, platforms extended 900 feet from the station, stopping just before H Street. Passenger platforms were typically 20 feet wide, while those reserved exclusively for baggage were 17 feet wide.²⁰

The tracks, including rails, ties, and ballast have been replaced over the years for general maintenance and to accommodate new and heavier trains. According to the Washington Terminal Company Annual Reports, the renewal of ties, rails, and ballast occurred annually. Beginning in 1923, the 85-lb rails began to be replaced with 100-lb rails.²¹

Umbrella sheds were constructed at 30-foot intervals along the center of each platform. Originally, these structures were constructed of cast iron columns, featuring 16-inch-diameter fluted shafts and Ionic capitals that supported a V-shaped roof consisting of Economite tile on

¹⁸ BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 136.

¹⁹ It is unknown exactly when the wood platforms were replaced with cement. It is possible that the change coincided with platform extensions, which took place in several phases (from 1922).

²⁰ BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 123.

²¹ *Ibid*, 131.

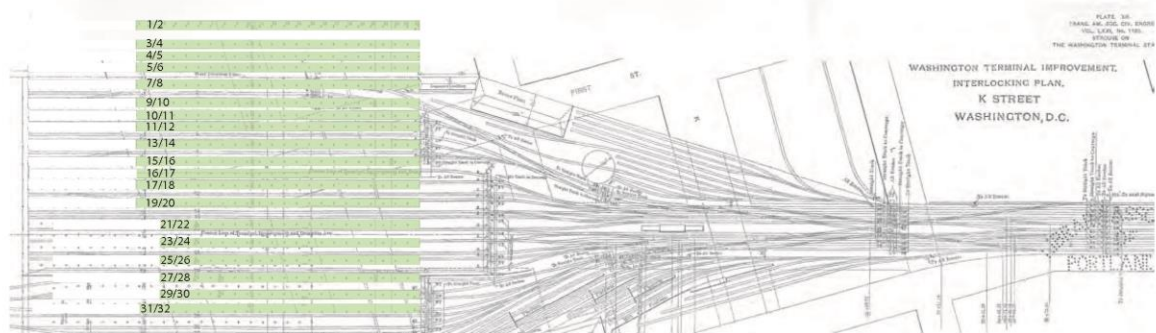
wood sheathing with a 5-foot continuous wired glass skylight on each side of the roof's centerline. Economite tile consisted of roofing felt cemented together with asphalt concrete tiles. According to the Union Station Historic Preservation Plan, the umbrella shed columns were "painted cream and maroon;" however, no additional evidence of this paint scheme has been uncovered.²² Based on photographs, it appears the lower half of the columns were painted a dark color and the remaining portions painted a light color. The sheds were composed of 23 bays and stretched 690 feet along the platforms. The slope of the roof was enough to direct precipitation towards drainpipes hidden at the center of every other column. Because of anticipated settlement on the high-level tracks, concrete piles were used to support the high-level umbrella sheds. Light boxes, which were a part of the rail yard's train-starting system, were attached to the columns and were connected by a circuit to the signal towers; allowing the train conductors and tower directors in K Tower to communicate.²³

Between 1911 and 1969, extensions were made to platforms and umbrella sheds at tracks 3 through 28. Notably, early photographs show that the umbrella shed extensions did not continue to feature roofs with glazed panels. A photograph from c.1929 shows umbrella sheds were extended and continue to feature a fluted cast iron column with Ionic capital but do not feature glazed roof panels, which can be seen at the umbrella sheds closer to the station (*Figure 16*).

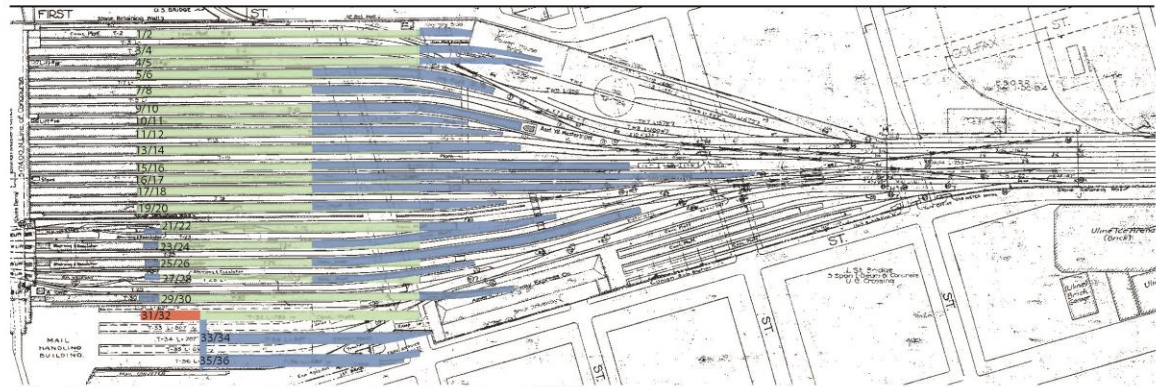
In 1934-1935, tracks 12-29 were fully electrified and the tracks entering the First Street Tunnel were lowered to accommodate new overhead wires. From 1967-1968, elevated platforms were installed at tracks 13-14 and 17-18 to accommodate new Metroliner trains. Track 21 was retired in 1961 and tracks 1-6 were retired in 1974 with the construction of the Metro and parking garage. In 1986, tracks 7-20 were shortened prior to the rehabilitation of the station and construction of the Claytor Concourse. Currently, platforms serving tracks 11-30 retain portions of the historic umbrella shed structures, recognized by the cast iron fluted column shaft with Ionic capital (for track numbers refer to *Figure 15*). The original roofing materials have been replaced with cedar boards or corrugated sheet metal.

²² Ibid, 124.

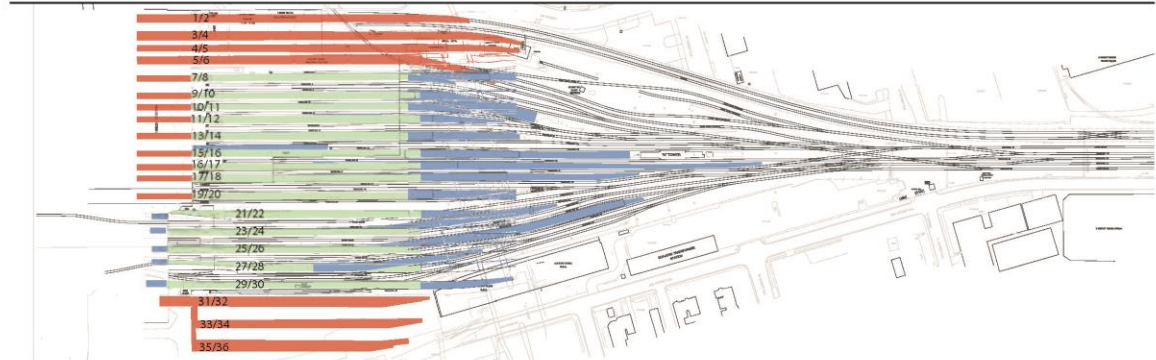
²³ Strouse, "Passenger Terminals," (1911): 118-19; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 124.



South End of Terminal Rail Yard, 1911
 from Strouse, "The Reconstruction of the Passenger Terminals at Washington, D.C."



South End of Terminal Rail Yard, last revised 1969
 Washington Terminal Company, Right-of-Way and Track Map (AMT Catalog)



South End of Terminal Rail Yard, c. 2010
 Amtrak, Washington Union Terminal composite drawings (AMT catalog)

GRAPHIC DOCUMENTATION OF PLATFORM LOCATIONS TERMINAL RAIL YARD

LEGEND

- Original platform location
- Location of platform extension/new platform
- Location of platform removal

Figure 15. Graphic documentation of track and platform alterations within Terminal Rail Yard. Edited from source: Building Conservation Associates, Inc. "WUS Historic Preservation Plan: Volume 1." Philadelphia, 2015.



Figure 16. Photograph of the Terminal Rail Yard platforms and umbrella sheds circa 1929, view south toward Union Station. Source: Harris and Ewing, 1929, From the Library of Congress.

Burnham Retaining Walls

Stone-faced retaining walls, known as the Burnham Walls or the Burnham retaining walls, define large portions of the east and west boundaries of the Site, extending on the west side from the station to K Street NE and on the east side from the station to M Street NE. A middle retaining wall is located within the Terminal Rail Yard to delineate the high-level stub end tracks on the western portion of the yard from the lower-level through and stub-end tracks on the eastern portion of the yard. The middle retaining wall extends to a point near I Street NE where the grades of the two track levels meet. The walls are constructed of quarry-faced ashlar stone backed with Portland-cement concrete and stand from five to 35 feet in height. The wall foundations are also constructed of Portland-cement concrete. In several places, the walls have been reconstructed or infilled. In several areas along the west side, the wall has had openings cut to provide access to the Metro facility (see *Figure 19* for details). The east and west walls originally featured decorative iron railings that surmounted the coping stone of the wall. The railings featured a Grecian pattern and were set between round granite posts atop the retaining walls (*Figure 17*).²⁴ The only section of original ornamental railing that remains today is located on the west retaining wall between H and K Streets NE.

²⁴ BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 124.



Figure 17. Photograph of the west retaining wall and ornamental railing circa 1914 with the station power plant in the distance, looking north. Source: Harris & Ewing, “Covered train platforms of Union Station, Washington, D.C., with First Street, N.E. seen along stone wall.” Washington, D.C. Between 1914 and 1945. Photograph. From the Library of Congress, <https://www.loc.gov/item/hec2009001450/>.

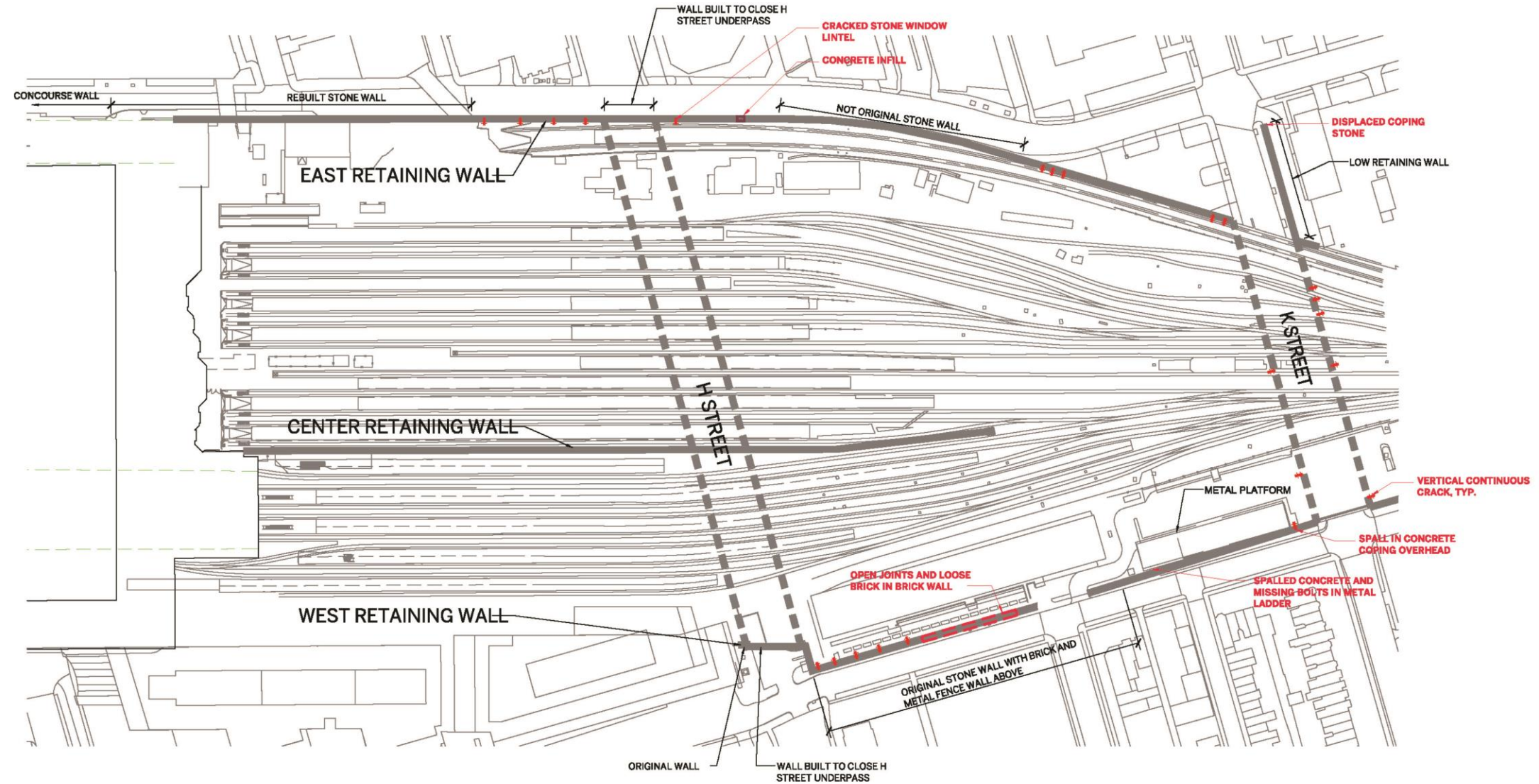
The east wall remains largely intact north of H Street NE. The wall was demolished south of H Street in 1941 to accommodate a mail handling facility constructed behind the east side of the station at that time.²⁵ The east wall was originally designed with an opening at I Street NE to allow access to the REA Building at track level. The middle wall also remains intact and continues to delineate the high and low-level tracks. Originally, the wall extended to the north of H Street where the grade within the rail yard leveled. The wall was extended to I Street at an unknown time. The extension is clearly distinguished from the original wall as it is constructed of reinforced concrete and does not feature quarry-faced stone (*Figure 18*).

²⁵ Washington Terminal Company, *Organization and Operation* (Washington, D.C.: Washington Terminal Company, 1981), 8



Figure 18. Photograph of Terminal Rail Yard showing the existing conditions of the platforms and umbrella sheds, looking southwest. The cast iron columns have been repainted and the roof structure modified. The stone retaining wall, dividing the high-level tracks and platforms from the lower-level tracks and platforms can be seen in the foreground. Source: BBB, 2017.

Many sections of the west wall remain intact, although sections have been cut, infilled, and reconstructed over time. Originally, the wall featured a channel cut 12 feet wide and 13 feet high that ran between the station and the original station power plant (no longer extant). The channel contained the pipes and wires that connected the two structures, supplying power to the Site. Between 1971 and 1976, the construction of the Metro and parking garage required the demolition, reconstruction, and modification of significant portions of the wall (see *Figure 19* for details on alterations made to the retaining walls). Vent and door openings were cut into the wall south of H Street, and the demolition of the station power plant required the removal of a section of the wall, which was then reconstructed using salvaged stone. The construction of the H Street Bridge and infill of the underpass in 1976 resulted in the continuation of the wall below the bridge. In all cases where cuts were made or removal was required, the original stone was salvaged and reused in areas requiring reconstruction and infill.



1. PLAN BETWEEN CONCOURSE AND K STREET

MATERIAL CONDITIONS RETAINING WALLS AND UNDERPASSES					SEE SHEETS: (T-1 - T-11)
ORIGINAL	ELEMENT	MATERIALS	FINISHES	CONDITIONS	NOTES
YES	COLUMNS	CAST IRON	PAINT	RUST, CRACKED COLUMN BASE, MISSING COLUMN BASE	
NO	WALL	CONCRETE	-	EFFLORESCENCE, FERROUS STAIN, CRACK, SPALL, EXPOSED REBAR	
YES	WALL	SANDSTONE	-	SOILING, EFFLORESCENCE, FERROUS STAIN, CRACKS, CONTINUOUS CRACKS, CONCRETE INFILL, SPALL	

TERMINAL RAIL YARD RETAINING WALLS AND UNDERPASSES

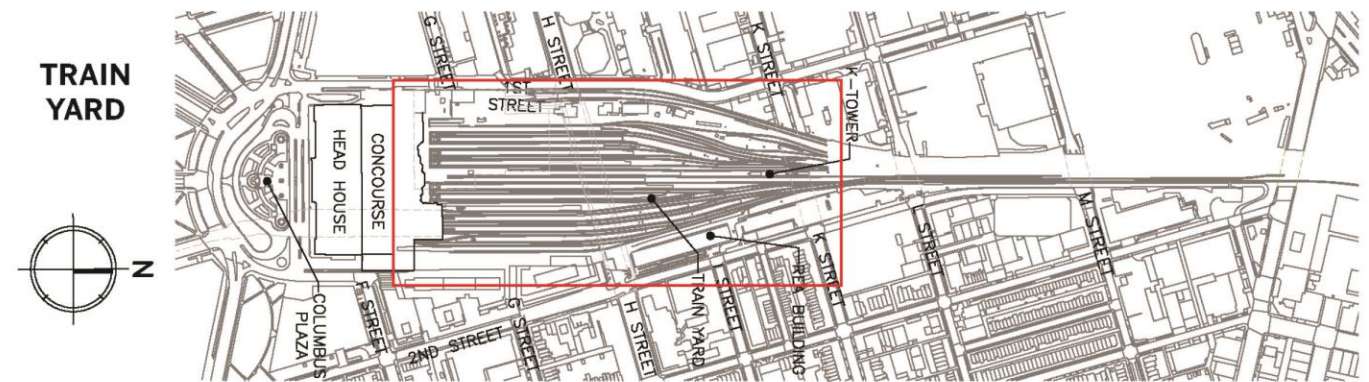


Figure 19. Graphic documentation of the retaining walls and underpasses at the south end of the Terminal Rail Yard.
 From source: Building Conservation Associates, Inc. "WUS Historic Preservation Plan: Volume 1." Philadelphia, 2015.

Rail Bridges and Underpasses

In order to accommodate the Terminal Rail Yard, railroad engineers found it necessary to lower H, K, L, and M Streets as well as Florida Avenue so that the roads could pass below the railroad tracks. The streets were lowered between 11 and 16 feet, depending on the existing grade, and the grading was extended 300 to 500 feet east and west to avoid drastic grade changes at street level. Rail bridges were constructed to carry the rail yard across the depressed street underpasses (*Figure 20*).



Figure 20. Photograph of L Street underpass and eastern retaining walls, looking southwest. An original signal bridge is visible above the underpass, and Substation 25A is visible on the left. Source: BBB, 2017.

The five resulting rail bridges are constructed with masonry abutments, and steel columns, box girders, and bridge decking. All rail bridges, except Florida Avenue, consist of 24-inch deep, 80-pound, steel I-beams spaced at 18-inch intervals. The beams were embedded in concrete and topped with a waterproofing layer protected by a five to six-inch layer of reinforced concrete decking. The Florida Avenue bridge consists of 20-inch, 80-pound I-beams spaced at 12-inch intervals.²⁶

Each bridge was originally designed to accommodate ten tracks, separated into two groupings of five tracks. The space between the tracks was originally inset with various materials to provide light and ventilation to the underpasses below. Originally, the M Street NE and Florida Avenue bridges (both 134-foot wide) featured prismatic glass, while the bridge at L Street NE (at 220-foot wide) featured Clinton wire netting. The K Street rail bridge (450-foot wide), used both Clinton wire netting and prismatic glass. The K, L, and M Streets NE and Florida Avenue rail bridges and underpasses remain largely intact, although the prismatic glass appears to have been removed or covered. In order to meet modern codes and brighten the underpasses, standard

²⁶ Strouse, "Passenger Terminals," (1911): 74; and Strouse, "Washington Terminal Improvement: A General Description," (1904): 531; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 125.

municipal lampposts have been installed and low barriers have been erected to protect the rail bridge columns from vehicular traffic.

The H Street rail bridge, carrying the rail yard above the H Street underpass is 709 feet wide, and is designed to accommodate both the high and low-level tracks and their passenger platforms. The high-track section is elevated 8 feet above the low-level section. The H-Street underpass remained in operation until 1976 when the existing six-lane H-Street Bridge overpass was constructed, resulting in the public closure of the H-Street underpass and the infill of the west retaining wall. The rail bridge over the underpass remains intact while the underpass is currently used for Amtrak employee parking.

Signal Bridges

Only three original Signal Bridges (H, J, and K) remain of the 18 that were originally constructed for the operation of the Terminal Rail Yard. The signal bridges are steel-framed structures anchored to concrete foundations that extend across different sections of track within the rail yard. Signal Bridge H is located south of L Street NE, Signal Bridge J is between L and M Streets, and Signal Bridge K is south of Florida Avenue NE.

Originally, the signal bridges located within the Terminal Rail Yard were between 33 and 145 feet long and were controlled by the three interlocking towers (K Tower included). Cast-iron junction boxes connected the signals on the bridges to the towers. Each signal bridge held a series of three-armed blades, or signals, which operated as semaphores to alert operators of approaching trains and communicate when it was safe to proceed to the station gates. Battery cupboards located at some of the bridges supplied energy for the track circuits, indicators, relays, and electric locks.²⁷

The Signal Bridges were manufactured by three firms including the American Bridge Company in New York, the Toledo-Massillon Bridge Company in Ohio, and Barber and Ross in Washington, D.C. The bridges manufactured by Barber and Ross differed from the others in that they were not stand-alone structures, but rather supported by the tops of the platform umbrella sheds to control train movements through the First Street Tunnel. The signal bridges were identified by letter, beginning with Signal Bridge A at H Street NE, on the western edge of the rail yard and continuing to Signal Bridge T north of New York Avenue (beyond the Terminal Rail Yard).²⁸ All elements of the original semaphore-type signaling system have been replaced with contemporary signaling equipment (*Figure 21*).

²⁷ Strouse, "Passenger Terminals," (1911): 115-118; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 128

²⁸ Ibid.

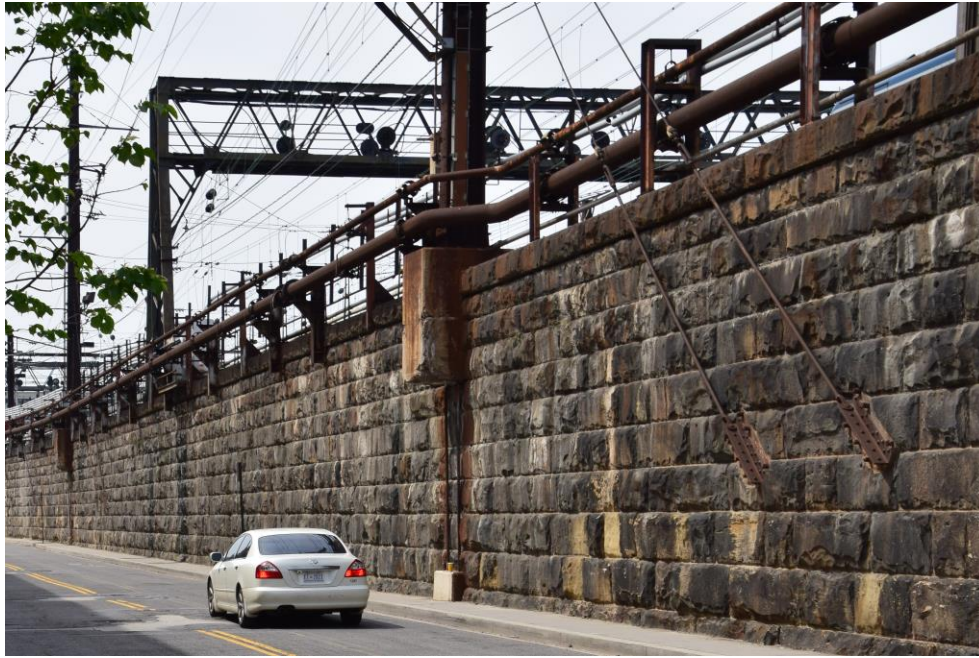


Figure 21. Photograph of Signal Bridge J, between L Street NE and M Street NE. The lower half of a single catenary and a portion of the eastern retaining wall are visible in the foreground. Source: BBB, 2017.

Ownership Marker

The Terminal Rail Yard contains an ownership marker for the Pennsylvania, Baltimore & Washington Railroad (a subsidiary of PRR) located on the north side of L Street. The triangular, vertically standing marker dates to 1908 and is a contributing object of the Terminal Rail Yard (see location of the marker in *Figure 4* *Figure 2*).

Features Relating to the Electrification of Terminal Rail Yard (1934-1935)

Between 1934 and 1935 PRR electrified over 396 miles of track between New York City and Washington, D.C. The conversion from steam power operations to electric required the construction of Substation 25A and the installation of catenary poles, catenary bridges, and new switch valves to electrify tracks 12-29 within the Terminal Rail Yard.

Substation 25A is a large, open-air structure which uses lattice steel frameworks to mount 132 kV terminators, transformers, and switchgear (*Figure 22*). It was one of two substations constructed in Washington, D.C.²⁹ As of 2012, the substation was in operation as a 12-kV switching station, supplied by a new electrical substation located in the Ivy City Engine Terminal and Yard to the north.³⁰

²⁹ The other, now-demolished, substation was located on South Capitol Street, near G Street SE.

³⁰ Strouse, "Passenger Terminals," (1911): 115-118; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 128



*Figure 22. Photograph of the Substation 25A and eastern retaining wall below, looking southwest.
Source: BBB, 2017.*

Steel catenary poles and bridges dating to 1934-35 are scattered throughout the Terminal Rail Yard and were used to carry the system of overhead wires used to supply electricity to the trains. They typically feature concrete foundations with chamfered edges and steel H-beam construction. The beams are riveted and bolted and usually feature a peaked cap (see *Figure 13*, and *Figure 21*).

New pneumatic switch valves were also installed as part of electrification. The switch valves permit compressed air to flow in one direction to control the movement of the rail switch points, controlling the movement of trains within Terminal Rail Yard. The switch valves consist of a cast iron enclosure, and each switch is identified with a unique number cast on the enclosure. They are located throughout the rail yard where the tracks merge and require switches to route a train from one track to another.

Non-Contributing Terminal Rail Yard Resources

The most visible non-contributing structure to the Site is the parking garage. Begun in 1974 and left unfinished until 1988, the reinforced concrete structure and associated ramps covers a portion of the tracks. The parking garage, in addition to the construction of the Metro rail, necessitated the removal of tracks 1-6. Other non-contributing structures and objects can be found throughout the rail yard including non-contributing platforms, umbrella sheds, signal bridges, and catenary poles constructed or installed after 1935. Non-contributing umbrella sheds do not feature cast iron Ionic columns or the historic shape of canopy framing, the remaining distinguishing characteristics of the original design.

First Street Tunnel

A key contributing structure to the Site is the First Street Tunnel, which extends 4,033 feet from the north face of Union Station to the intersection of New Jersey Avenue SE and D Street SE. The tunnel was completed in 1906 to serve the PRR rail lines south of Washington, D.C. and runs below the station along First Street NE and SE until C Street SE where it turns west towards its terminus. The tunnel features several components, including the eight-low-level run-through tracks below the station, a bellmouth, and a two-tube tunnel, which continues to the south portal at D Street SE. The bellmouth is a 525 feet long area that narrows to funnel the tracks running below the station to the two-tube tunnel.³¹ It narrows from 116 feet at the south end of the station to 36 feet at the junction of the two tubes. Each tube is 16 feet wide and 17 feet tall from the top of the rail. A four-foot-thick masonry wall divides the tubes with openings that are spaced every 100 feet to allow for access. The sidewalls of the tubes are concrete, and the vaulted ceiling is brick. The bellmouth's masonry sidewalls are constructed of ashlar sandstone with Portland cement backing and foundations. Pedestal walls and columns are arranged within the bellmouth to suit track layout. The ceiling consists of 30-inch girders set at 20-foot intervals, between which are 20-inch I-beams at 3-foot centers covered with steel buckle-plates. All steelwork is incased in concrete.³²

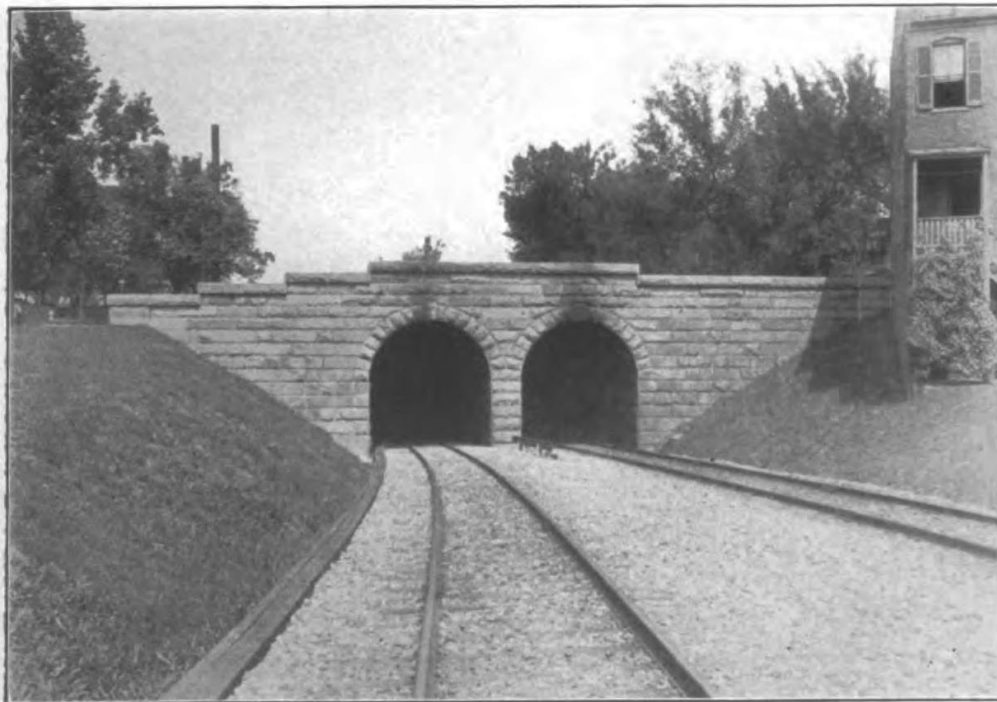


Figure 23. *South Portal to the First Street Tunnel. Source: From William F. Strouse, "The Reconstruction of the Passenger Terminals at Washington, D.C." Transactions of the American Society of Civil Engineers 71. (1911): 137.*

³¹ Strouse, "Passenger Terminals," (1911): 143-144

³² Ibid, 143-144

When the Terminal Rail Yard and Union Station were originally constructed, nine run-through tracks converged to enter the two-tube tunnel. The southern and northern tunnel portals were originally faced with quarry-faced Potomac stone framing the tunnel entrances (*Figure 23*). The Potomac stone survives inside the tunnel and at the south portal and is partially intact at the north portal along the façade of the passenger concourse (*Figure 24*).



Figure 24. Looking southeast, along the First Street Tunnel beneath Union Station, featuring quarry faced Potomac stone. Source: BBB, 2017.

HISTORICAL NARRATIVE

Early Rail Use and the Development of WUS Historic Site

The first railway to serve Washington, D.C. was chartered in 1833 when the Maryland legislature granted the B&O permission to build a 32-mile branch connecting to Baltimore. Service officially began on August 25, 1835, improving travel along the mid-Atlantic seaboard and spurring economic growth and development in Washington, D.C. While the railroad did encourage growth, the urban development of the L'Enfant Plan for the city was largely unrealized. Scottish visitor Alexander Mackay wrote in 1849 that, "Washington so violates one's preconceived notions of a capital, and is, in its general features, so much at variance with the estimate which one forms of the metropolitan properties that it is difficult, in dealing with it as a capital, to avoid caricaturing a respectable country town."³³

During the Civil War (1861-1865), Washington, D.C. reached unprecedented levels of growth and the B&O experienced heavy use transporting soldiers, civilians, and supplies throughout the northeast corridor. Population and economic growth continued after the war, stimulating the need for increased rail operations. In the 1860s the Pennsylvania Railroad Company (PRR) began to expand its services to Washington, D.C. disrupting the B&O monopoly on rail transport. The PRR acquired the Baltimore & Potomac line in 1868, which held a charter to build a railroad between Baltimore and Charles County, Maryland to the south of Washington with the right to build twenty-mile spurs from the main right-of way, a distance within reach of D.C. With this new acquisition and the ability to service D.C., PRR constructed a terminal in Washington that opened in 1873. In 1872, the PRR obtained control of Long Bridge, a railroad-only bridge crossing the Potomac River, providing access to Alexandria, VA and points further south.

The B&O and PRR operated individual passenger stations within the city. The first B&O station was located near Pennsylvania Avenue and Second Street NW on the National Mall. By the 1850s the station was no longer sufficient to accommodate the increasing ridership and a new station was completed in 1852, located at C Street and New Jersey Avenue NW (currently located within the Senate Park and U.S. Capitol grounds). The tracks ran from the station to Delaware Avenue, along Delaware Ave northeast to I Street NE, and then northeast toward Florida Avenue (then called Boundary Street) before curving to form the eastern boundary of Gallaudet University and the Ivy City neighborhood. A passenger station was located at Ivy City, serving the neighborhood and the popular Ivy City race track and fair grounds (in operation from the 1880s to the 1890s).

The PRR passenger terminal was located at Sixth and B Streets NW (currently located on the National Mall near the National Gallery of Art). The terminal's location and construction was met with contention, and the motion for its creation was filibustered in Congress before passing in a 115 to 55 vote.³⁴ Over the next two decades, the station became the center of railroading in Washington. Rails extended north and south of the city. From the north, PRR trains came across

³³ Alexander Mackay, *The Western World; or, Travels in the United States in 1846-47 Volume 1* (Lea & Blanchard, 1849), 108-109.

³⁴ "Washington News and Gossip," *Evening Star*, [Volume 39 No. 5941] (Washington, D.C.) April 01, 1872, <http://chroniclingamerica.loc.gov/lccn/sn83045462/1872-04-01/ed-1/seq-1/>.

the Anacostia Bridge running along Virginia Avenue SE and SW to Sixth Street SW where the line turned north to the PRR station. The PRR moved south along Maryland Avenue SW and crossed the Long Bridge over the Potomac River to Virginia. By the 1890s, the increased use and congestion of the railroad terminals, along with their proximity to the Mall and Capitol, caused concern amongst many citizens leading one U.S. Senator to exclaim, “In ten years’ time there will not be a rod square of ground in all the Government reservations that is not occupied by a railroad depot with all its dirty surroundings.”³⁵

In addition to the congestion and noise, safety was also a concern. Grade crossings throughout the city were dangerous resulting in many accidents, deaths, and delayed street traffic. Though the railroads were constantly reprimanded, there was little incentive or pressure for them to elevate or depress their tracks. It was only in 1900 when the B&O presented a plan to reconstruct its lines and eliminate grade crossings.³⁶

In 1901, Congress passed two acts permitting both railroads to expand their operations, allowing the B&O to build a new passenger terminal and allowing the PRR to enlarge their existing terminal on the National Mall; provided both companies eliminate grade crossings. That same year, the McMillan Commission was created to prepare a plan for the city and its parks that would reinstate the original vision established by the 1792 L’Enfant Plan. The resulting McMillan Plan ultimately specified the removal of all railroad stations and rail lines from the Mall and Capital area, a recommendation at odds with the recent approvals granted to the B&O and PRR railroads (*Figure 25*). A compromise was struck and the railroad companies agreed to form a “union station,” to be constructed in an area consistent with the McMillan Plan, which would jointly serve the needs of both railroads.

³⁵ Highsmith and Landphair, *Union Station: A History of Washington’s Grand Terminal*. (Chelsea Publishing, Inc, 1998), 40.

³⁶ Strouse, “Passenger Terminals,” (1911): 11-12

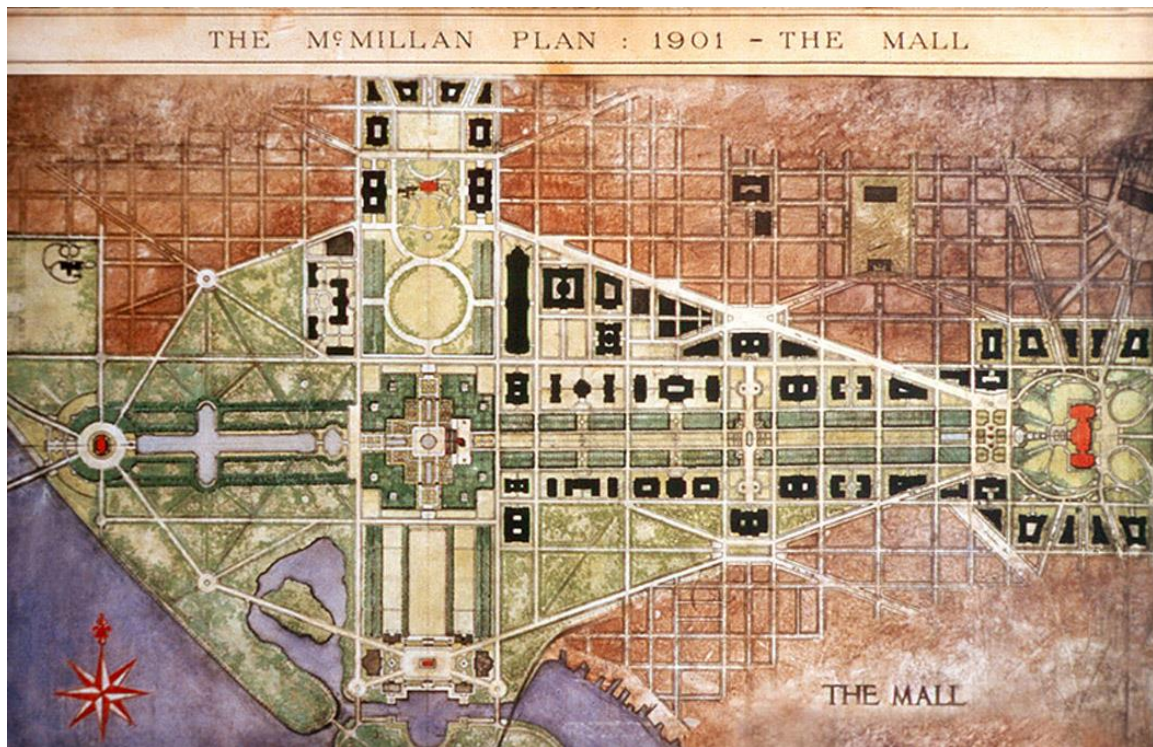


Figure 25. The 1901 McMillan Plan is a comprehensive planning document with a central focus on the National Mall and monumental core.

The site of the new station—extending north of Massachusetts Avenue at its intersection with Delaware Avenue—was chosen because while it was near the Capitol, it was far enough away so as not to overwhelm or impede on the Capitol’s significance.³⁷ This choice of site also allowed for “treatment in harmony with the general park system, and [...] proper development of the Mall.”³⁸ In addition, its location north of Massachusetts Avenue enabled the station to be designed with a front plaza, reminiscent of many European stations. Unfortunately, the topography of the site required extensive re-grading to allow trains to travel north. Preliminary drawings of Union Station were made public in March 1902, and in 1903 construction received congressional approval. It was agreed that the B&O and PRR would receive \$1.5 million in government funds to assist with financing the operation.

The B&O and the PRR formed the Washington Terminal Company to construct and operate the station and rail yard. PRR would continue to operate their route along Maryland and Virginia Avenues, but would add a tunnel below First Street, east of the Capitol, to connect to the new station. B&O and PRR northbound trains would share the station and rail yard to Florida Avenue where PRR would split off on a new line through northeast Washington (*Figure 26*).³⁹

³⁷ Strouse, “Passenger Terminals”, 12.

³⁸ Strouse, “Passenger Terminals”, 15.

³⁹ Strouse, “Passenger Terminals”, 151-155.

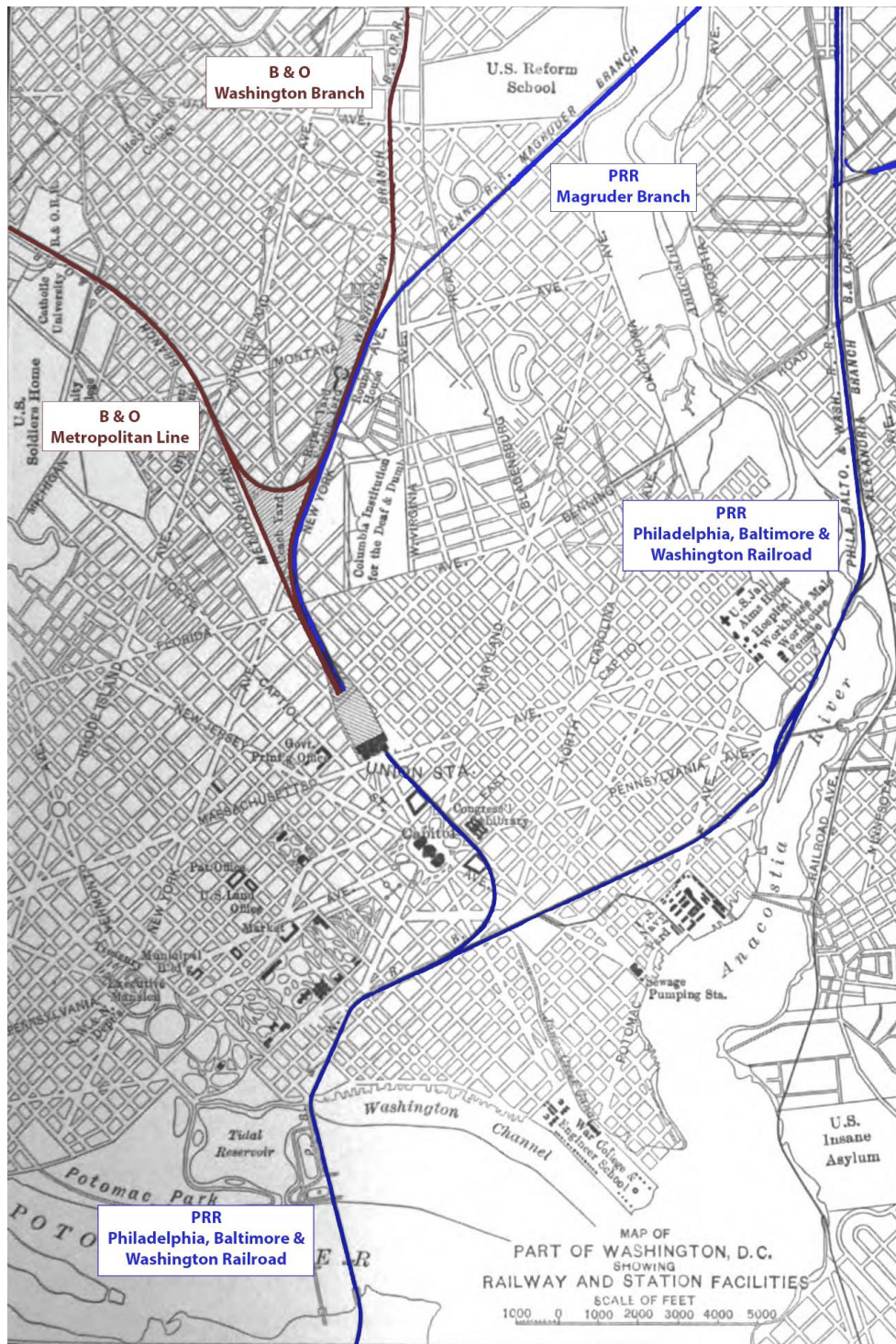


Figure 26. Map depicting the altered routes for the B&O and PRR railroads, following the construction of Washington Union Station. (Source: "Map of Part of Washington, D.C. Showing Railway and Station Facilities." From William F. Strouse, "The Reconstruction of the Passenger Terminals at Washington, D.C." Transactions of the American Society of Civil Engineers 71. (1911): 19.

Original Design and Construction

The creation of the Site not only provided an opportunity to expand rail operations to meet increasing demands and make the rail right-of-way safer for Washington residents, but it also provided the city with a befitting monumental building in which to welcome visitors to the nation's capital. Architect Daniel Burnham and his firm D.H. Burnham & Company of Chicago were selected to design the new station. Burnham had already been in talks with PRR to design their new terminal. In addition, Burnham, along with architect Charles McKim and landscape architect Frederick Law Olmstead, Jr. Burnham had been greatly involved with the creation of the McMillan Plan. These three men had a decisive role in the creation of the Site. They encouraged PRR to remove its terminal from the National Mall and helped select the station site north of Massachusetts Avenue.⁴⁰

Peirce Anderson, the chief designer for D.H. Burnham & Company, led the design for Union Station and its auxiliary buildings in the Terminal Rail Yard. The two chief engineers of the B&O and PRR, D.D. Carothers and William H. Brown, respectively, were tasked with overseeing construction related to the station and its facilities. D.D. Carothers was responsible for supervising all rail yard construction north of Massachusetts Avenue, and Brown, under which J.T. Stuart (and later Robert Farnham) supervised construction of the First Street Tunnel and all necessary tracks to the south. William F. Strouse (1864-1945) a graduate of the engineering program at Pennsylvania State College (now the Pennsylvania State University) was an assistant engineer at B&O and was responsible for overseeing the construction of Union Station and the Terminal Rail Yard.

The construction of the Site between 1903 and 1912 required the clearing and regrading of land and the demolition of over 300 buildings, including the former coal yard of the B&O Railroad, several Union Trust & Storage Company warehouses, and numerous wood-framed and masonry residences in the Swampoodle neighborhood (**Figure 27**).^{41 42} So many demolitions occurred that the market for used brick collapsed from oversupply. Construction of the Terminal Rail Yard and northern approach required 6,000 tons of rail tracks extending 50 miles.

⁴⁰ Strouse, "Passenger Terminals", 12-15.

⁴¹ "Union Terminal at Washington, D.C. –Main Power Plant," *Railway Age* 45, no. 17 (April 24, 1908): 649 and Baist, *Baist's Real Estate Atlas*, vol. 2, (1903): plates 11-13; from BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 123.

⁴² The "Swampoodle" neighborhood was generally bounded by First Street NW to the west, Second Street NE to the east, K Street in the north and G Street to the south. The working-class neighborhood was home to laborers and immigrants. Over 300 buildings in Swampoodle were demolished during the construction of Union Station between 1903 and 1907. For further information please refer to "Capitol Hill Historic District (Boundary Increase 2015)" *National Register of Historic Places Registration Form*.

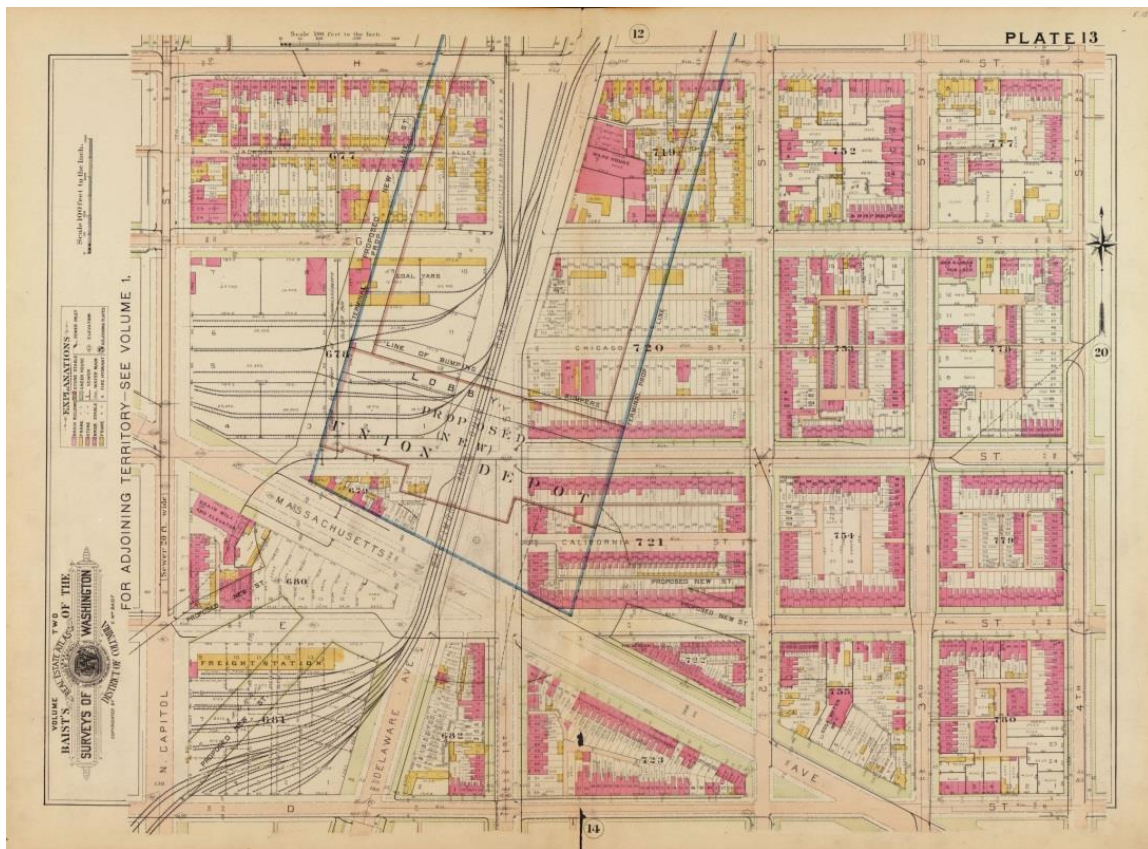


Figure 27. Baist Real Estate Map (1903) illustrating the proposed footprint of Washington Union Station. The image depicts the number of buildings removed during construction of the station building and the Terminal Rail Yard, as well as the original rail lines, which were relocated as part of construction. Source: Baist, G. Wm. "Baist's real estate atlas of surveys of Washington, District of Columbia: complete in three volumes." Philadelphia: G.W. Baist, 1903. Map. From the Library of Congress, <https://www.loc.gov/resource/g3851bm.gct00131b/?sp=16>.

During the construction, fill was used to elevate the 33 tracks serving the station so that the east-west running streets, including H, I, K, L, and M Streets and Florida Avenue could pass underneath the rails. Fill for the construction of the station, the Terminal Rail Yard, and Columbus Plaza came from the construction of the coach and engine yards to the north, the excavation of the First Street tunnel, and the excavations for the two new Congressional office buildings (Cannon House and Russell Senate Buildings) also occurring at the time. Steel and concrete bridges supported the tracks where they intersected with the streets passing below, and the elevated ground was held in place by massive concrete retaining walls faced with rusticated sandstone. Retaining walls, designed by D.H. Burnham and Company, and known as the Burnham retaining walls, ran along the perimeter of the rail yard.

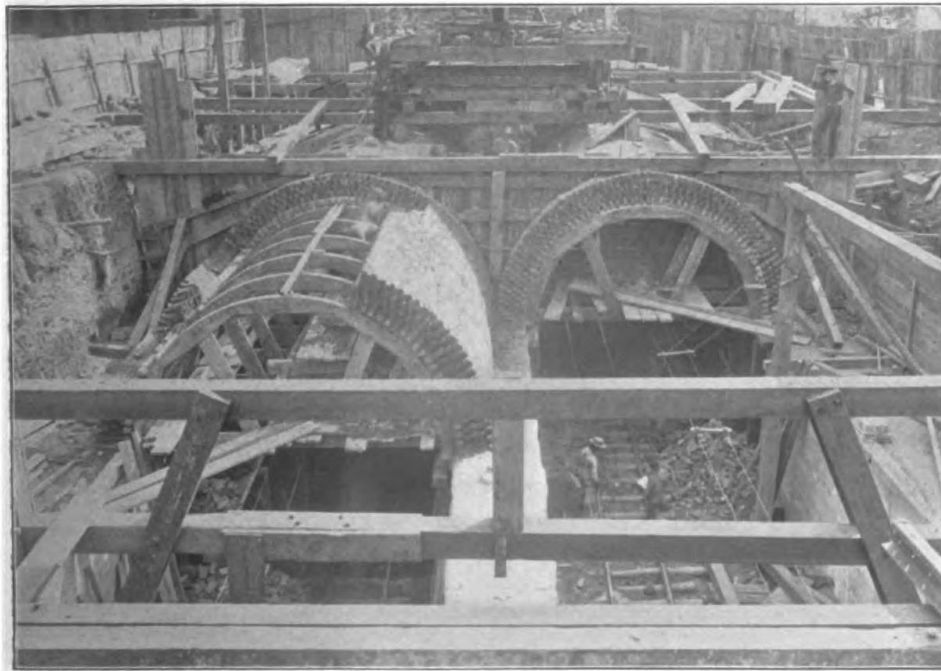


Figure 28. Open cut section of First Street Tunnel construction, showing arches. Source: From William F. Strouse, "The Reconstruction of the Passenger Terminals at Washington, D.C." Transactions of the American Society of Civil Engineers 71 (1911): 137.

Construction on the First Street Tunnel began in December 1903 and was completed by September 1906. The tunnel's construction was critical to the implementation of the McMillan Plan, in which all railroad tracks would be removed from the grounds of the U.S. Capitol and National Mall. The tunnel made the city safer for pedestrians and street traffic. Like the station and the Terminal Rail Yard, it was agreed that the tunnel would also be owned and operated by the Washington Terminal Company. The construction of the tunnel fell under the purview of PRR and was overseen by the engineer in direct-charge, J.T. Stuart (succeeded by Robert Farnham Jr. in 1904). Because of its location and soil composition, the First Street Tunnel required extensive use of electric and compressed-air powered machinery and was itself a significant engineering accomplishment. A variety of construction methods were employed during construction: some sections were completed using cut-and-cover (**Figure 28**), while other portions, such as the drift-tunnel, required excavation of each tube by hand (**Figure 29**). Traveling derricks were used to construct the side and center walls and a conveyor was used to fill over the top of the arches (**Figure 30**). Where the tunnel passes beneath the Cannon House Office Building the footings of the tunnel are wider and deeper, stonework abuts the side and center walls above the springing line, and I-beams reinforce the top of the tunnel.⁴³ The bellmouth of the First Street Tunnel housed a ventilator plant, consisting of two fans and associated ducts, which removed the steam and gases from the tunnel and track space beneath the station.⁴⁴

⁴³ Construction of the Cannon House Office Building began in 1906 and was completed in 1908. The engineers for the building used concrete pilings 26 feet deep in order to support the building's foundations over the tunnel.

⁴⁴ Strouse, "Passenger Terminals", 134-146.



Figure 29. Crew members at the bottom of drifts during construction on the First Street Tunnel. Source: C.K. Allen Collection. Between 1904-1905. Photograph. From the Library of Congress.



Figure 30. Crews using a traveling derrick for constructing the side and central walls of the First Street Tunnel. Source: C.K. Allen Collection. Between 1904-1905. Photograph. From the Library of Congress.

In addition to the grand Beaux-Arts station building and Columbus Plaza, D.H. Burnham & Company designed a cargo express building (currently named the REA Building), K Tower, a station power plant (no longer extant), an inspector's building (no longer extant), and A Tower, the interlocking tower at Massachusetts Avenue (no longer extant) (**Figure 31** and **Figure 32**). These buildings featured architectural details that extended the splendor of the Beaux-Arts aesthetic from the station building to the Terminal Rail Yard. Peirce Anderson's design for the station headhouse drew heavily from classical sources, specifically the Baths of Diocletian in Rome, and classical elements were visible even in the less-prominent areas including the Terminal Rail Yard's platforms and umbrella sheds.⁴⁵ Individual umbrella sheds, supported by cast iron Ionic columns, were designed to shelter the platforms as opposed to a larger, all-encompassing train shed primarily used in Europe. Structurally, it was infeasible for such a structure to have covered all the station's platforms without rising above the monumental headhouse (**Figure 33**). Daniel Burnham reflected, "I much prefer the umbrella sheds to a great mass of high roofs in this part of the city. There should be no conflict, as between the Capitol building and the station, unfavorable to the Capitol itself. This station is intended to be the vestibule of the city of Washington and should be handled strictly in accordance with that idea."⁴⁶

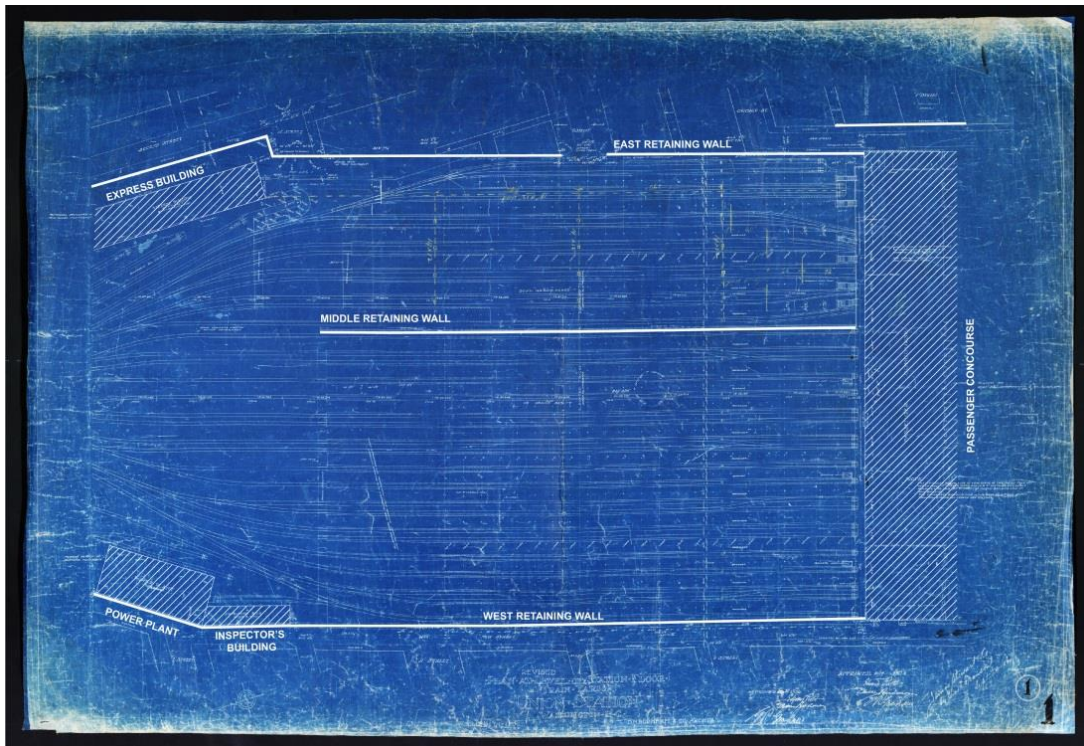


Figure 31. Diagram over a 1904 Terminal Rail Yard blueprint showing that the yard begins to narrow to the north of H Street. Buildings are outlined and shaded, and the retaining walls are highlighted. Base map source: "Train Yard." Chicago. Between 1903 and 1908. Photograph. From the Library of Congress, <https://www.loc.gov/item/2014647393/>.

⁴⁵ Strouse, "Passenger Terminals", 21.

⁴⁶ "Umbrella Sheds for the Washington Terminal" *Railway Age* 41, 59; from BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 124.



Figure 32. Image showing the construction of the REA Building and adjacent tracks, 1903-1908. Source: Daniel H. Burnham Collection, Ryerson & Burnham Archives, The Art Institute of Chicago.

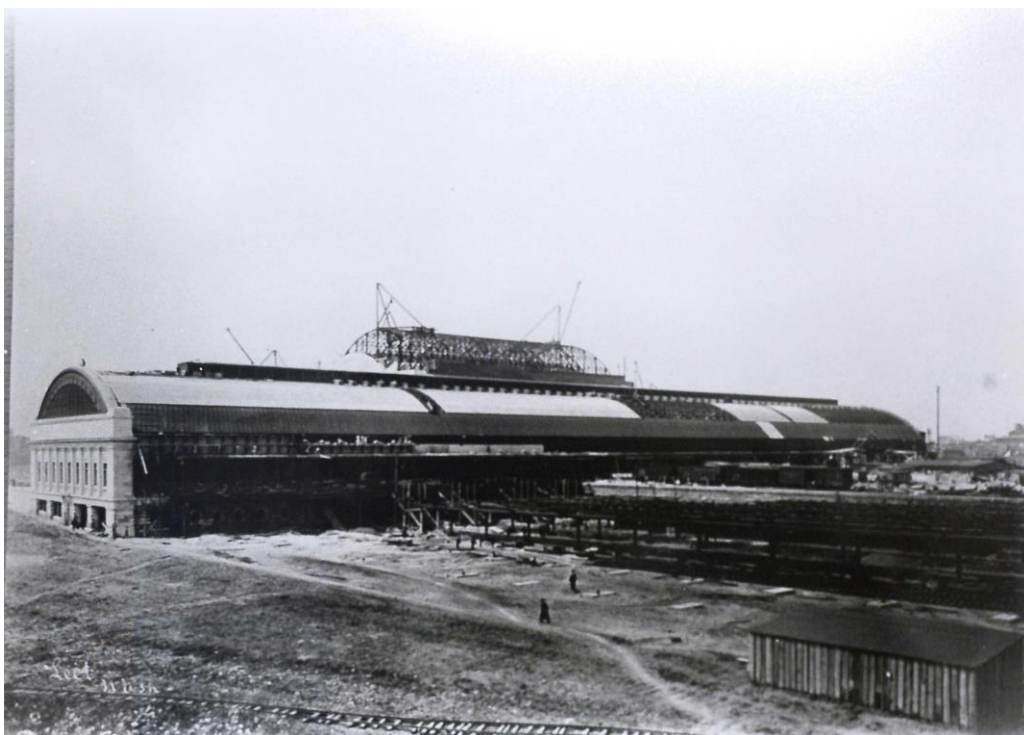


Figure 33. Union Station headhouse under construction with umbrella sheds in the foreground, 1903-1908. Source: Daniel H. Burnham Collection, Ryerson & Burnham Archives, The Art Institute of Chicago.

Burnham's design for Columbus Plaza reflected a desire to provide a proper setting for the station while also providing a suitable setting for a memorial fountain.⁴⁷ Interest in creating a permanent memorial to Christopher Columbus grew following the World's Columbian Exposition in 1893.⁴⁸ On March 4, 1907 Congress approved \$100,000 in appropriations for such a memorial, authorizing the Columbus Memorial Commission to choose a site and artist. On February 4, 1908 Union Station Plaza was confirmed as the site.⁴⁹ In honor of Columbus' journey, the commission requested design proposals from American, Italian, and Spanish sculptors, ultimately selecting the submission by Lorado Taft, a Chicago-based artist, in 1909.⁵⁰ Creating the plaza required about 35 feet of fill, and changes to the elevations of surrounding streets to allow for an easy approach to the station. The grand unveiling of the memorial took place in June 1912, with an estimated crowd of 20,000 to 50,000 visitors, many of whom passed through Union Station on arrival.⁵¹ Construction of the plaza surrounding the fountain was not completed until 1912.

The now-demolished station power plant and inspector's building located within the Terminal Rail Yard also featured classical decoration (*Figure 34*). The station power plant was designed to serve Union Station and the Terminal Rail Yard and was located near First and I Streets NE along the western rail yard boundary and retaining wall. It contained the boiler and engine rooms to furnish electricity, steam heat, hot water, air for testing railcar breaks, hydraulic pressure for fire protection, and power for operating a vacuum cleaning system for the railcars. Power wires connected the power plant to the station and the REA Building, which was located across the Terminal Rail Yard along the eastern boundary. The inspector's building, directly south of the station power plant, was a single-story structure with a basement, which housed offices, storage, a lunchroom for rail yard workers, and a repair shop. The station power plant's arched windows mirrored the arches designed throughout Union Station. Like the still-extant REA Building, both the power plant and inspector's building were constructed of brick and limestone, with a red Spanish tile roof with copper gutters.⁵² The station power plant and the inspector's building were both demolished in the 1970s to make way for the Metro line.⁵³

⁴⁷ Strouse, "Passenger Terminals", 25.

⁴⁸ The influential World's Columbian Exposition in 1893 celebrated the 400th anniversary of Columbus arriving in the New World. The fairgrounds, known as the 'White City', were designed by Daniel Burnham, John W. Root, Frederick Law Olmsted and Charles B. Atwood in the Beaux-Arts style, and served as a stage for the latest American social, cultural, and technological innovations. The fair was a touchstone of American progress for decades following, and also brought national prominence to Burnham's Beaux-Arts designs.

⁴⁹ Eve L. Barsoum, "Additional Documentation to Union Station nomination listed 4/9/80: Union Station Plaza, Columbus Plaza, and Columbus Fountain" (National Register of Historic Places Registration Form, October 2006): Section 8, Page 3.

⁵⁰ "Splendid Columbus Memorial to be Unveiled in Washington on Saturday," *The New York Times*, June 2, 1912.

⁵¹ "Nation Pays Tribute to Christopher Columbus," *The Washington Post*, June 9, 1912.

⁵² "The Electric Lighting System of the Washington Union Station, Washington, D.C." *Electrical Review* 53, no. 5 (1908): 162; From BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 128.

⁵³ While the Station Power Plant was demolished, the Eckington Power Plant, north of the Site remains. The Eckington Power Plant is not a part of the Terminal Rail Yard due to its location and difference in ownership and design. It is located within the Ivy City Engine Terminal and Yard, which was jointly owned by the B&O and PRR and is an important vestige of railroad industrial architecture. A separate Determination of Eligibility Form was prepared and submitted for Eckington Power Plant by KSK Architects Planners Historians, Inc. on July 6, 2010,

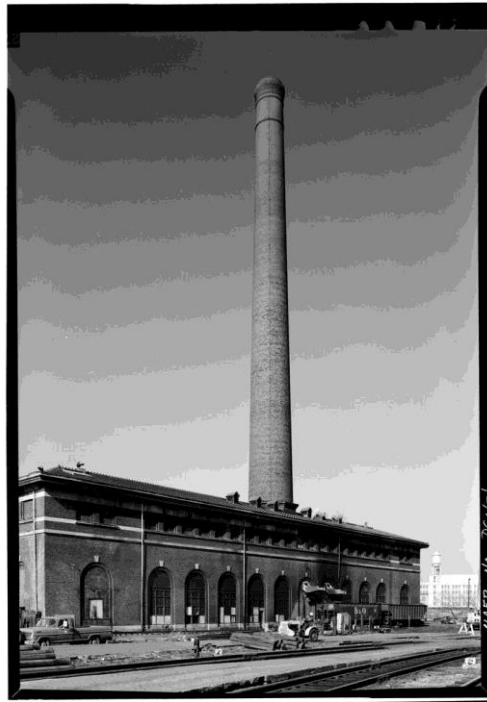


Figure 34. Station power plant demolished in the 1970s. Source: *Historic American Engineering Record*, “Washington Terminal Company Power Plant, First Avenue Northeast, Washington, District of Columbia, D.C.” Washington, D.C. Documentation compiled after 1968. Photograph. From the Library of Congress, <https://www.loc.gov/item/dc0347/>.

In addition to servicing Union Station, the power plant provided power to the Terminal Rail Yard’s extensive interlocking system. Interlocking systems were first introduced in the United States in the 1870s to connect switches, signals, and sensors to prevent accidents. Once a “leverman” moved a piece of track, interlocking technology prevented anyone from setting adjacent signals in contradictory positions. The earliest interlocking systems were operated by hand, but by the early 1900s they were electrified, allowing railroads to consolidate controls for the system in towers erected in rail yards and along the right-of-way. The towers reduced labor costs and improved communications because one man could control multiple levers, while also observing operations within the rail yard.

The Site’s interlocking system contained approximately 300 levers controlled across three electro-pneumatic interlocking towers, each of which was located at a major switching area and installed by the Union Switch and Signal Company.⁵⁴ “A” Tower lay below Massachusetts

recognizing its significance under NRHP Criterion A for its association with the consolidation of railroads in Washington, DC and the construction of the Site. The DCHPO responded that the Eckington Power Plant is also significant under Criterion A for its association with the evolution of the Eckington neighborhood, as well as Criterion C as an example of a “type, period or method of construction used to carry out one of the most significant transportation-related developments in the District of Columbia – the consolidation of all railroad facilities into one system” (Andrew Lewis to Johnette Davies, August 13, 2010).

⁵⁴ Strouse, “Passenger Terminals”, 112.

Avenue, controlling the switches at the point where the tracks serving the lower level platforms fed into the First Street tunnel. “C” Tower was located near New York Avenue where both branches of the B&O line, the PRR main line, and the leads from the various yards merged. It controlled switches and signal bridges K through N (from just south of Florida Avenue to New York Avenue). Finally, K Tower, the only remaining tower, was constructed just south of K Street at the “throat” of the Terminal Rail Yard, the point where the eight tracks leading to the station widen in approach of the platforms and gates at Union Station (*Figure 35*). K Street Tower was the largest of the towers and contained the main interlocking system that connected switches, signals (signal bridges A through J), and sensors to ensure safety on the tracks within the Terminal Rail Yard.⁵⁵



Figure 35. K Tower standing between two signal bridges, looking north, circa 1909. Source: Unknown. Between 1909 and 1932. Photograph. From the Library of Congress, <https://www.loc.gov/item/97503313/>.

The interlocking system of the Terminal Rail Yard was not completed until March 1908, several months after the rail yard was in use. Until then, workers with special keys mechanically operated the switches throughout the yard, which increased the likelihood of accidents. Such an accident occurred near the First Street Tunnel in November 1907. Twenty-one passengers were injured and damage was sustained by two engines, several coaches, and \$6,000 worth of track.⁵⁶

The Terminal Rail Yard used three-position upper-quadrant signals on the signal bridges, operated by an electro-pneumatic magnet and valve, and run according to the common standards

⁵⁵ Strouse, “Passenger Terminals”, 112-115.

⁵⁶ BCA, *Washington Union Station Historic Preservation Plan 1* (2015): 224, 228.

of both B&O and PRR.⁵⁷ Other engineering advances used at the Terminal Rail Yard included pneumatic tubes, which allowed baggage handlers in the station basement to instantaneously message handlers at the baggage room on the main floor. The station was even equipped with its own telephone switchboard that was capable of serving 300 branches.⁵⁸ When completed, the station employed an intercommunication system of pushbuttons and semaphore indicators housed in the signal towers, which allowed operators to communicate among themselves and with lever men in the interlocking towers. The Site also featured a first-of-its-kind train-starting signal system, a system later installed at Chicago's Union Station, which opened in 1925.⁵⁹

The train-starting system consisted of light boxes (containing two lamps each) and circuit controllers placed at intervals of 180 feet within the umbrella shed columns along the platforms and at the platform gates (*Figure 36*). The system allowed the train conductors, gatemen, and tower directors (persons within the interlocking towers, such as K Tower) to coordinate the departure of trains. The light boxes along the platforms and at the platform gate were connected to sets of three lamps in each tower, a set of lights corresponding to each track number. A minute before a train was due to depart, the conductor would operate the circuit controller on the platform, lighting the first lamp of the associated lamps in K Tower. The tower director would then arrange the route, extinguish the first lamp and light the second, triggering a light in the light box along the columns and at the gate. When the train was set to depart, the gateman would close the gate and operate a switch, lighting the second lamp in the columns and at the gate which notified the conductor to begin moving the train out of the shed. The tower director would then extinguish all the lights.⁶⁰

⁵⁷ Strouse, "Passenger Terminals", 118-120.

⁵⁸ Ibid, 42.

⁵⁹ Strouse, "Passenger Terminals," 112. Chicago Union Station was also designed by Burnham's firm.

⁶⁰ Strouse, "Passenger Terminals," 119.

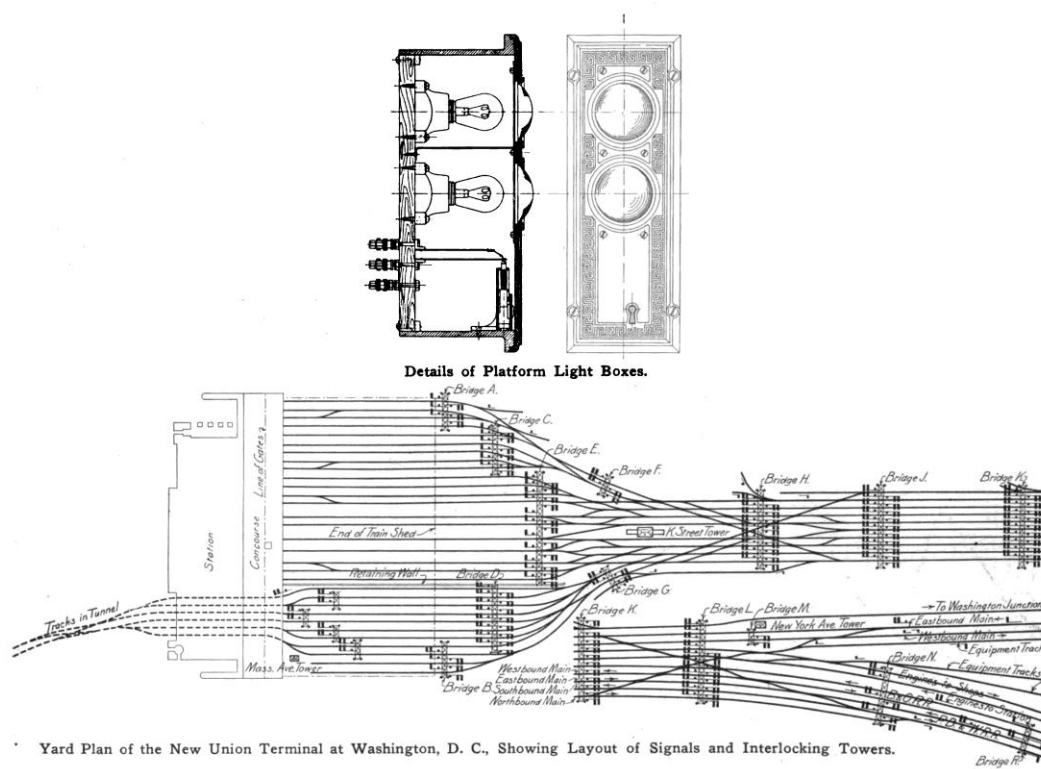


Figure 36. Detailed diagrams of the platform light boxes associated with the train-starting system and a yard plan of the interlocking system. (Source: "The Interlocking Signal System for the New Union Passenger Terminal, Washington, D.C.," *The Engineering Record: Building Record and Sanitary Engineer* 58, No. 20 (1908): 543.

Evolution of Development and Use

The Terminal Rail Yard was first used by the B&O in the spring of 1906 as work to complete the station and Columbus Plaza continued.⁶¹ Eager to save money and begin operations as soon as possible, both railroads began passenger services before the station or the rail yard interlocking system was complete. The station opened to passengers when the B&O began offering passenger service on October 27, 1907. The PRR and other lines opened for operation on November 17, 1907.⁶² Construction of the station was completed in 1908.

Between 1928 and 1935, PRR electrified its northeast corridor rails connecting New York and Washington, transitioning from steam and coal powered rail to electric powered rail. As part of this enormous undertaking, 19 tracks in the Terminal Rail Yard were converted to electric operation. The project involved the installation of catenary poles and bridges, Pirelli cabling, an electrical substation (Substation 25A), and new pneumatic switch valves within the rail yard. Signal Bridges C & E were decommissioned and replaced by ground signals and the tracks at the

⁶¹ Ibid, 169.

⁶² Ibid, 176.

northern end of the yard were reorganized.⁶³ Drawings from 1943 indicate that a portion of the First Street Tunnel was electrified. Electrification infrastructure terminated within the tunnel and did not extend to the south portal.⁶⁴

Electrification offered a cleaner solution to the smoke produced by steam locomotives and by the early 1900s it was widely used by streetcar systems in urban areas. Electric rails lowered operating costs and lowered travel time, the faster service attracting more passengers.⁶⁵ Prior to 1928, PRR had electrified smaller portions of its tracks around New York City and Philadelphia, and while PRR resisted the idea of long-distance electrification in the early twentieth century because of technological and financial concerns, by 1928 it became clear that the company would need to electrify the northeast corridor in order to efficiently and successfully meet growing demands and compete with other forms of transport. PRR's electrification of their railway between New York and Washington was the largest capital improvement program by a U.S. railroad company up to that time, and it remains the largest railroad electrification project in U.S. history.⁶⁶ When work stalled in Wilmington, Delaware during the Great Depression, PRR borrowed 77 million dollars from the Public Works Administration in order to complete the 108 remaining miles to Washington and provide work for approximately 25,000 people.⁶⁷ Electrification reduced the amount of smoke coming from coal-fired locomotives for a time; however, by the 1940s the Terminal Rail Yard was handling 200 coal-fed engines a day, leading residents to complain about smoke, soot, and noise from the rail yards. Increased train use during World War II led to the addition of ticket office facilities and escalators from the concourse to lower level platforms. In 1941, a mail handling facility was constructed behind the east side of the station, which required the demolition of the east Burnham retaining wall south of H Street NE.⁶⁸

The Washington Terminal Company continued to administer and operate the station after WWII; however, by 1962, daily use had shrunk to about 35,000 travelers, as automobiles and the rapidly expanding interstate highway system became the preferred mode of travel and commercial air travel was gaining in popularity. Over time, original design elements were removed and maintenance was deferred. The Washington Terminal Company retained ownership of the station but, in 1968, it was leased to the Department of the Interior to create a National Visitor Center, which opened in 1976 following renovations. In 1971, the Washington Terminal Company, the B&O railroad and the Philadelphia, Baltimore & Washington Railroad companies sold western portions of the rail yard to the Washington Metro Area Transit Authority (WMATA). In 1974, the main power plant, inspector's station and the main substation were demolished to make way for WMATA's construction of the Metrorail. C Tower, "L" Signal Bridge, and tracks 1-6 and 35-37 were also removed. In addition, portions of the western Burnham retaining wall were

⁶³ BCA, *Washington Union Station Historic Preservation Plan* 1, 132.

⁶⁴ Presently, Amtrak trains that run south of Union Station switch to diesel locomotives before continuing south. The switching sometimes requires electric locomotives to run into the tunnel and back out to the north.

⁶⁵ Michael Bezilla, "Pennsylvania Railroad Electrification Strategy," *Business and Economic History* 9 (1980), 145.

⁶⁶ Bezilla, "Pennsylvania Railroad Electrification Strategy", 141-148.

⁶⁷ "P.R.R. Will Spend \$77,000,000 at Once", *New York Times*, January 31, 1934.

⁶⁸ BCA, *Washington Union Station Historic Preservation Plan* 1, 135.

taken down in order to demolish the station power plant and inspector's building and then reconstructed using the original stones.⁶⁹

During this time, rail travel continued but passengers used a new temporary station located at the rear of the station building in the southwest corner of the rail yard. The National Visitor Center failed to attract the anticipated numbers of visitors and closed in 1978, and the inconvenient replacement rail station was not heavily patronized. By the late 1970s, the benefits of rail transportation were realized once more. Passenger usage was expected to rise significantly, and Union Station was recognized as an important transportation link for Amtrak (created in 1971) and also for Washington's public transit network. In 1981, the Union Station Redevelopment Act was passed, which transferred the station's lease from the Department of Interior to the Department of Transportation. The act included stipulations for the conversion of the original passenger concourse into retail space, the addition of a new concourse to the north, and completion of the parking structure. The same year, Amtrak gained complete ownership of the Washington Terminal Company.⁷⁰

In 1983, the Union Station Redevelopment Corporation (USRC) was established to serve as the steward of Union Station, and the station was renovated from 1986 to 1988. The original passenger concourse was adapted to retail space, and the Claytor Concourse was added at the station's north elevation. Construction of the new concourse took place in space originally devoted to tracks and platforms, further altering that area of the Terminal Rail Yard. A food court was placed in the station basement, accessed via openings cut into the first floor of the historic concourse near the south connection to the headhouse and general waiting room. Currently, Union Station serves as a multi-modal transportation center, shopping mall and tourist destination to over 30 million visitors each year. USRC continues to operate and administer Union Station on behalf of the Federal Government, while Amtrak operates the Terminal Rail Yard and the National Park Service manages Columbus Plaza.

⁶⁹ Ibid, 61.

⁷⁰ Amtrak, "Historic Timeline." Amtrak: A History of America's Railroad. <https://history.amtrak.com/amtraks-history/historic-timeline> (January 28, 2019).

SIGNIFICANCE AND CRITERIA CONSIDERATIONS

Statement of Significance

WUS Historic Site is historically and architecturally significant for its contributions to the early twentieth-century development of Washington, D.C., representing advancements in transportation and engineering. It is also an excellent example of Beaux-Arts architecture designed by notable architects Daniel H. Burnham and Peirce Anderson of D.H. Burnham & Company. All buildings, structures and objects within the Site were originally owned and operated by the Washington Terminal Company, share consistent classical design aesthetics—most of which was the design of D.H. Burnham & Co.—and are directly related to the holistic functionality of the Site.

Union Station, Columbus Plaza, the First Street Tunnel and the Terminal Rail Yard were originally organized and constructed between 1903 and 1912 and were developed at a time when railroads were the most utilized form of transportation, playing a vital role in the economy and society. The first “union” or jointly operated rail station opened in Indianapolis in 1853. “Union” stations and rail yards, which joined multiple railroads companies, became common throughout the United States as cities sought to mitigate the negative effects of competing railroads whose operations and grade crossings divided urban centers and created safety concerns. As a part of this national trend, the B&O and PRR railroad companies agreed to form the station and remove their individual stations and rail yards, which allowed for implementation of the McMillan Plan and played a key role in the early twentieth-century design and development of Washington, D.C.

In addition to its historical significance, the Site is architecturally significant as an excellent example of the Beaux-arts style design of D.H. Burnham & Company. The Site also represents the innovative engineering and technological systems incorporated in the construction and operations of the station, rail yard and tunnel. The various buildings, structures, and objects are important examples of railroad infrastructure designed to be functional in supporting the engineering and safety demands of the rail yard, while also contributing to the overall aesthetic and grandeur of the Site. At the time of its construction, Union Station and the Terminal Rail Yard was the largest station building and rail yard in the United States and was highly regarded for its interlocking system in addition to its first-of-its-kind train-starting signaling system, which was later implemented in subsequent rail yard designs, including Chicago’s Union Station in 1925.

Evaluation of Significance

According to the standards set forth by the Secretary of the Interior, eligibility for the *National Register of Historic Places* is evaluated under the following criteria:

- A. Resources that are associated with events that have made a significant contribution to the broad patterns of history; or
- B. That are associated with the lives of significant persons in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded or may be likely to yield, information important in history or prehistory.

WUS Historic Site is **eligible under Criterion A** due to its association with railroad transportation improvements facilitated by the Washington Terminal Company—a consolidation of the B&O and PRR railroad companies in Washington, D.C. —which established a monumental landscape befitting the capital city, allowed for increased safety and future rail growth, and initiated the twentieth-century development and urban design of Washington, D.C.

Across the nation, railroads came to great prominence during the latter half of the nineteenth century, stimulating both economic and population growth in the city. As rail transportation grew, Washington, D.C. was affected by inconvenient, unsightly, and dangerous grade-crossings. In addition, the existing B&O and PRR stations were inappropriately located and increasingly inadequate to serve the growing number of passengers and freight. Union Station, the Terminal Rail Yard, and the First Street Tunnel were developed to meet growing transportation demands, increase safety for pedestrians and street traffic, and allow for the demolition and removal of the existing stations from near the Senate Park and National Mall. Most importantly, the establishment of the Site meant that a design befitting of the monumentality of the capital could be constructed and that the McMillan Plan could be realized, which allowed for the development of Washington, D.C. and the National Mall in its current form.

The Site is not eligible under Criterion B. Its association with noted architects Daniel Burnham and his Chicago-based firm D.H. Burnham & Company is evaluated under Criterion C. Associations with other prominent figures are more appropriately recognized under Criterion A in association with the development of the station. Further study may be undertaken to establish associations with railroad industry leaders including Alexander Cassatt, President of the PRR, and Leonor F. Loree, President of the B&O, as well as commissioners of the McMillan Plan including Frederick Law Olmsted Jr., Charles F. McKim, Augustus Saint-Gaudens, Daniel Burnham, Charles Moore, and Senator James McMillan. However; these individuals, with the exception of Daniel Burnham, are not represented by their physical connection to the Site.

The Site is **eligible under Criterion C** as an excellent example of Beaux-Arts architecture and for its association with notable architects and artists including Daniel Burnham and Peirce Anderson of D.H. Burnham & Company and American sculptor Lorado Taft, artist of the

Columbus Fountain. The size, stature, style, and materials of the Beaux-Arts design contribute to the understanding of the Site as a prominent transportation hub and monumental gateway to Washington, D.C. In addition to its design and association with one of the most prominent American architecture firms of its time and noted American sculptor Lorado Taft, the Site is also eligible under Criterion C as a significant example of early twentieth-century railroad engineering and rail transportation design.

The Terminal Rail Yard and First Street Tunnel employed the latest engineering advances and technologies in their design, construction, and operation including train-starting signaling and sophisticated interlocking technology. Between 1934 and 1935, the PRR electrified sections of the Terminal Rail Yard as part of a larger infrastructure plan to electrify its northeast corridor from New York to Washington, D.C. The electrification project was initiated to lower operating costs and decrease travel time, with the added benefit of improved air quality. It was the largest capital improvement program by a U.S. railroad company up to that time, and it remains the largest railroad electrification project in U.S. history.⁷¹

Union Station, Columbus Plaza, and several buildings within the Terminal Rail Yard were designed by Daniel H. Burnham and Peirce Anderson from the exalted architecture firm D. H. Burnham & Company. Burnham (1846-1912) came to prominence as a founding partner of the Chicago firm Burnham & Root, known for their groundbreaking work on skyscrapers in the late nineteenth century. Together, Burnham and his partner John Root were tasked with coordinating the ambitious and well-received World's Columbian Exposition in Chicago (1893), which greatly influenced American architecture and city planning for the next several decades. Following the unexpected death of Root in 1891, Burnham renamed the firm D.H. Burnham & Company, becoming well known for urban design, monumental public works, and Neoclassical and Beaux-Arts architecture. Peirce Anderson (1870-1924) joined the firm in 1900 as a respected architect trained at the Ecole des Beaux-Arts and well-versed in Classical design. In addition to the Columbian Exposition and Union Station, Burnham is best known for his urban planning and city plans for Chicago (1909), San Francisco (1905), and Manila (1905); his contribution to the McMillan Plan (1901); his designs of the Monadnock Building, Reliance Building, and Union Station in Chicago, and the Flatiron Building in New York City. The 46 Roman centurions adorning the interior and exterior of the station, as well as six allegorical statues on the south façade, were designed by American sculptor Louis Saint-Gaudens, brother of renowned sculptor Augustus. Louis Saint-Gaudens (1854-1913) studied at the Ecole des Beaux-Arts from 1879-1880 and assisted his brother on numerous works. The sculptures he designed at Union Station were his greatest achievement.⁷²

The centerpiece of Columbus Plaza is the Columbus Fountain, designed by Lorado Taft, who worked alongside Burnham on the commission. Taft, respected for his writings in addition to his work as a sculptor, was selected from 20 artists who submitted designs for consideration, among them other famous sculptors of the period such as Philip Martiny and Charles Keck. Taft studied at the École des Beaux-Arts from 1880 to 1883, returning to the United States in 1886 where he taught at the Art Institute of Chicago until 1929. Along with several well-respected woman

⁷¹ Bezilla, "Pennsylvania Railroad Electrification Strategy", 141-148.

⁷² "Louis Saint-Gaudens Dead," *New York Times*, March 10, 1913.

sculptors collectively known as the “White Rabbits,” Taft assisted Daniel Burnham in creating decorative sculptures for many buildings at the World’s Columbian Exposition of 1893. In addition to the Columbus Memorial fountain, Taft is best known for his sculpture “Fountain of Time,” “The Blind,” and his statue of Black Hawk. This later work is 50 feet in height and is noted as the first example of a statue constructed of concrete.

Burnham and Anderson’s designs have a Classical architectural aesthetic that extends throughout the Site. Beaux-Arts elements are integrated into the majority of contributing resources. Columbus Plaza features decorative balustrades, rostral columns, and sculptural fountain, matching the grandeur of the Union Station facade. Classical details also continue within the Terminal Rail Yard, including fluted umbrella shed columns with Ionic capitals and retaining walls with quarry-faced ashlar stone. The REA Building’s limestone detailing, decorative cornice, arched masonry openings, and red Spanish tile roof reflects a Classical aesthetic. K Tower was also originally designed with a red Spanish tiled roof, copper gutters, and second-story copper sheathing with Classical ornamentation. The Classical and monumental aesthetic was also translated to the First Street Tunnel. Designed and constructed by the PRR, the tunnel is built into the north foundation wall of the Union Station passenger concourse and features large rusticated stone, much like the Burnham Walls, inside the tunnel and at the south portal. While early twentieth-century industrial and transportation-related architecture in Washington, D.C. has largely been demolished, the Site maintains examples of such structures, illustrating this rich period of rail history and development.

The Site was the world’s largest rail station until the Pennsylvania Railroad Station opened in New York City in 1910. Such a large station and rail yard required advanced levels of communication and rail operation technology. The interlocking system in Terminal Rail Yard was notable for its extensive intercommunication system and pioneering train-starting signaling system, which used illuminated light boxes to signal when it was safe for a train conductor to pull out of the gate. The technology designed for rail yard operations at the Terminal Rail Yard was the most sophisticated of its time, representing great advances in railroad engineering.

The Site is **potentially eligible under Criterion D**. An archaeological assessment conducted in 2015 determined there was low to high potential for significant prehistoric and historic resources at the Site (primarily from the nineteenth and twentieth centuries).⁷³ Further assessment would be necessary to determine the individual eligibility or contributing resource status of any archaeological resources in the area.

Period of Significance

The period of significance of the Site extends from its period of construction in 1903-1912 through to the electrification of portions of the Terminal Rail Yard in 1935. The period of significance reflects the importance of the Site’s original design and construction as it relates to the early twentieth-century development of Washington, D.C., transportation and rail infrastructure, and Beaux-Arts design. The period extends to 1935 to recognize the significance

⁷³ “Archaeological Assessment for the Washington Union Station” in BCA, *Washington Union Station Historic Preservation Plan 3*, E-1 through E-130.

of the electrification of the Terminal Rail Yard undertaken by the PRR Company from 1934-1935. The electrification of the yard marks an important development in rail technology and engineering and was a key component of the largest railroad electrification project in U.S. history.

Evaluation of Integrity

The Site retains a moderate to high level of integrity with respect to the period of significance. Though most contributing buildings, structures, and sites have been substantially altered through modifications, additions, and new construction, many character-defining elements remain. Overall, the district's aspects of integrity including the location, design, materials, feeling, association, and workmanship are maintained.

The Site retains a high level of integrity relating to its location. The physical boundaries of Union Station, Columbus Plaza, Terminal Rail Yard, and First Street Tunnel remain largely unchanged and many extant buildings, structures, sites, and objects remain in their original locations. While the REA Building and portions of the western section of the yard have exchanged ownership, they have not been removed and continue to be associated with the Site.

The Site retains a moderate level of integrity relating to setting. While the physical environment of the station, Columbus Plaza, and First Street Tunnel remains intact, the Terminal Rail Yard has been significantly altered with the addition of the Claytor Concourse to the north of the station, and the construction of the parking garage and H Street Bridge within and above the Terminal Rail Yard. Within the rail yard, many original buildings and structures have been demolished or replaced, and platforms have been extended or modified, altering the relationships between various rail yard elements. In addition, the neighborhoods surrounding the Site have seen increased development in recent years, altering the station's contextual setting.

Overall, the Site retains a moderate level of integrity relating to design, materials and workmanship. In conjunction with the setting, the design of the Terminal Rail Yard and the passenger concourse within Union Station have been altered over time, affecting the integrity. The interior of the REA Building has been highly modified (no historic fabric remains in the interior), although much of the exterior design and materials remain. The exterior design of K Tower retains moderate integrity. Many of the original materials including the tile roof, copper flashing, and windows have been altered or replaced; however, the building's distinctive massing, roof shapes, brick and copper wall cladding, and limestone sills remain. Other structures in the rail yard such as the Burnham retaining walls and rail bridges and underpasses retain a moderate to high degree of integrity as they retain their original form, materials, and characteristics associated with the workmanship and original construction.

The station headhouse retains a moderate to high level of integrity as it maintains many original features and original fabric. Recent restorations have ensured that like-for-like materials are used and that the original design is respected and maintained. However, the historic passenger concourse within the station has been significantly modified to serve the current retail function. Columbus Plaza retains a moderate degree of integrity as elements of the original design have been altered. Additional areas of paving have been added over time and many of the paving

materials have been replaced. However, Columbus Fountain, and many of the other contributing features remain. The First Street Tunnel retains a moderate to high level of integrity. Many of its architectural features remain intact including the masonry within the tunnel and the quarry-faced stone at the south portal.

The Site maintains a moderate level of integrity pertaining to feeling, which is a property's expression of the aesthetic or historic sense of a particular period of time. The station and Columbus Plaza retain a strong sense of their historic and monumental design as a gateway to Washington, D.C. through their continued maintenance and use as a transportation hub and forecourt. The feeling of Terminal Rail Yard has been reduced through frequent alterations and the addition of non-contributing structures such as the parking garage, new umbrella sheds, and other structures that reduce the holistic Classical design once shared by the Terminal Rail Yard buildings and structures. The First Street Tunnel also maintains a high level of integrity related to feeling as an engineering structure still vital to rail travel today.

The Site's association with transportation heritage, the twentieth-century development of Washington, D.C., and Beaux-Arts architecture is high. The station continues to serve as a hub and gateway for various methods of transportation, including rail, and the Terminal Rail Yard continues to feature important buildings, structures, and objects associated with its function as one of the largest rail terminals in the United States. K Tower, the remaining signal bridges, platforms, umbrella sheds, catenaries, and other objects all serve as important identifiers, illustrating the rail yard's contribution to transportation engineering. The association between Union Station, Columbus Plaza, the Terminal Rail Yard, and the First Street Tunnel is strong and ensures that the Site remains united in its purpose, operation, and significance.

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PREPARER'S DETERMINATION

Eligibility Recommended

Eligibility Not Recommended

Applicable National Register Criteria:

A B C D

Applicable Considerations:

A B C D E F G

Prepared By: Beyer Blinder Belle Architects & Planners in collaboration with the Federal
Railroad Administration and Amtrak

Date: April 4, 2019

DC SHPO REVIEW AND COMMENTS

Concurs with Recommendation

Does Not Concur with Recommendation

The DC SHPO concurs that the Washington Union Station Historic Site is eligible for listing in the National Register of Historic Places and the DC Inventory of Historic Sites as described above.

David Maloney
District of Columbia State Historic Preservation Officer

Date: April 29, 2019