# WASHINGTON UNION STATION
# SECURITY UPGRADES

# ENVIRONMENTAL ASSESSMENT

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Prepared by:

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The Washington Union Station Security Upgrades Environmental Assessment evaluates the proposed installation of bollards and hardened planters along the front and sides of Washington Union Station to provide an increased level of security in a manner that does not impact the two historic resources associated with the station (the station itself and Columbus Plaza/Circle).

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APPENDICES:

Appendix A: Reduced-scale copies of Union Station Redevelopment Corporation "Plans of Proposed Union Station Perimeter Security," undated, prepared by Parsons Transportation Group, P.C. (8 sheets)

Appendix B: Information relating to the Public Meeting, held on February 8, 2008 at the offices of USRC, including:

- Listing of Those in Attendance
- Institutions/Organizations/Individuals Invited but not in Attendance
- Compilation of Comments Received during and after the Meeting

Appendix C: Compilation of comments received from public agencies, institutions, organizations and individuals on the draft submission of this *WUS Security Upgrades EA* document, and responses provided to said comments

Appendix D: Copy of Section 4(f) Evaluation and Statement, in draft form (12 pages)

Appendix E; Copy of Memorandum of Agreement (MOA), in draft form (3 pages)

- End of Section -

# SECTION 1 – PURPOSE AND NEED

## 1.1 PROJECT OVERVIEW

Union Station is one of Washington D.C.'s most visible and culturally attractive landmarks, as well as one of the city's most used buildings. Hundreds of thousands of travelers from all over the world pass through Washington Union Station (WUS) every year on their way to and from the Nation's Capital and its sites, offices and commercial enterprises. For some, WUS is also a destination itself, with shopping and entertainment located throughout the building (see Fig. 1.1).

Fig. 1.1 – view northwest toward the front (south) façade of Washington Union Station, taken from across Columbus Circle between the intersections of First Street and Massachusetts Avenue at the Circle.

WUS is located in northeast Washington along the northern edge of Columbus Circle, a crescent-shaped, monumental, public space formed by the alignment of Massachusetts Avenue which provides the visual terminus for several radiating streets, including E Street, N.E., Louisiana Avenue, N.E., Delaware Avenue, N.E., and First Street, N.E. The alignment of Delaware Avenue, N.E. provides a direct visual and axial link to the Capitol Building. Columbus Plaza, the open park space created by the Circle, provides a green foreground to the monumental and imposing front (south) façade of WUS (see Fig. 1.2).

Fig. 1.2 – site map showing the WUS environs. The project area is enclosed within the yellow dashed line box.

WUS is one of National Railroad Passenger Corporation's (Amtrak) most important passenger stations. It anchors Amtrak's Northeast Corridor services between Boston, MA and Washington, D.C. and also serves a number of commuter and long-distance trains. Amtrak proposes to upgrade the level of security at WUS using funds provided by the Federal Railroad Administration (FRA), an operating administration within the United States Department of Transportation. The use of federal funding for the project triggers the application of several environmental and historic preservation statutes and regulations, including the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). This Environmental Assessment (EA) has been prepared to comply with NEPA and

the FRA's Procedures for Considering Environmental Impacts (64 Fed. Reg. 28545 – May 26, 1999). This EA also addresses actions taken to comply with NHPA.

Studies prepared by Amtrak have determined that the most effective method of increasing the level of security at WUS consists of the installation of a series of bollards and hardened planters along the northern curb-line of Columbus Circle, as well as along the southern portion of the west side of the station at First Street, N.E., and along the east side of the station at F Street, N.E. Bollards and hardened planters provide a predictable and defined level of vehicular stand-off, without disrupting pedestrian flow into and out of the station. Bollards and hardened planters also provide the requisite levels of increased security with the least amount of visual intrusion into the historic viewscapes of the front façade of WUS, including those views framed by the radiating streets that intersect Columbus Circle.

This *Washington Union Station Security Upgrades Environmental Assessment* document (hereafter referred to as the *WUS Security Upgrades* EA) supplements and dovetails with the *Final Environmental Assessment and Section 4(f) Evaluation - Columbus Circle/Columbus Plaza Rehabilitation* document, prepared by the Parsons Transportation Group for the District of Columbia Department of Transportation (DDOT), dated March, 2008 and the *Section 106 Compliance Review – Columbus Circle/Columbus Plaza Rehabilitation* document, also prepared by the Parsons Transportation Group for DDOT, dated March 2008 – (these documents are hereafter collectively referred to as the *Columbus Circle EA*). Whereas the *Columbus Circle EA* focuses specifically on the proposed changes to the vehicular and pedestrian flow and the architectural and landscape modifications to the Circle and Plaza – including the installation of lighting at the curb-line directly in front of the station, this *WUS Security Upgrades EA* focuses exclusively on the impact of the proposed bollards and hardened planters on the front façade of WUS and the public spaces between it and the northern edge of the Circle.

## 1.2 PROJECT DESCRIPTION

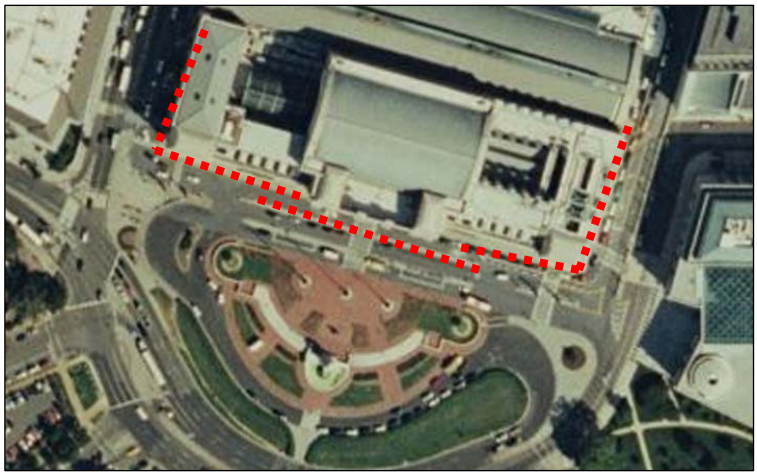

Fig. 1.3 – aerial photo of the south (front) elevation of WUS, plus Columbus Circle and Columbus Plaza directly in front. The red dashed lines indicate the approximate location of the proposed security upgrades at WUS, including bollards and hardened planters. The staggering of the bollards in the front permits certain vehicles (i.e. taxis) to enter traffic lane A, which is closest to the building. See Appendix A for exact locations of all the elements.

### *1.2.1 Summary*

The WUS Security Upgrades Project consists of the installation of bollards and hardened planters in front of, and along the east and west sides of the station to provide the requisite level of stand-off for vehicles (see Fig. 1.3; see also the project drawings in Appendix A of this document). Based on a 2005 Risk and Needs Assessment conducted at WUS by the U.S. Department of Homeland Security (DHS) and Science Applications International Corporation (DHS-SAIC), Amtrak commissioned the

Lawrence Livermore National Laboratory (LLNL) to conduct an investigation of the effects of large conventional explosives detonated at varying distances from the south (front) elevation of the station.

The LLNL investigation reported that a stand-off from the curb-line at the traffic lanes in front of the Station was necessary to truly eliminate the potential for catastrophic structural collapse of the portico from explosives. However, this would completely close-off vehicular access to the front of the station - and in further review of the operational needs of passengers, tourists and commuters being picked up and dropped off by taxis, buses and private vehicles, Amtrak and its security consultants determined that bollard placement in the aisle between traffic lanes A and B and at the curb-line along the flanking portions of the south (front) elevation would provide an acceptable level of hardening for the station.

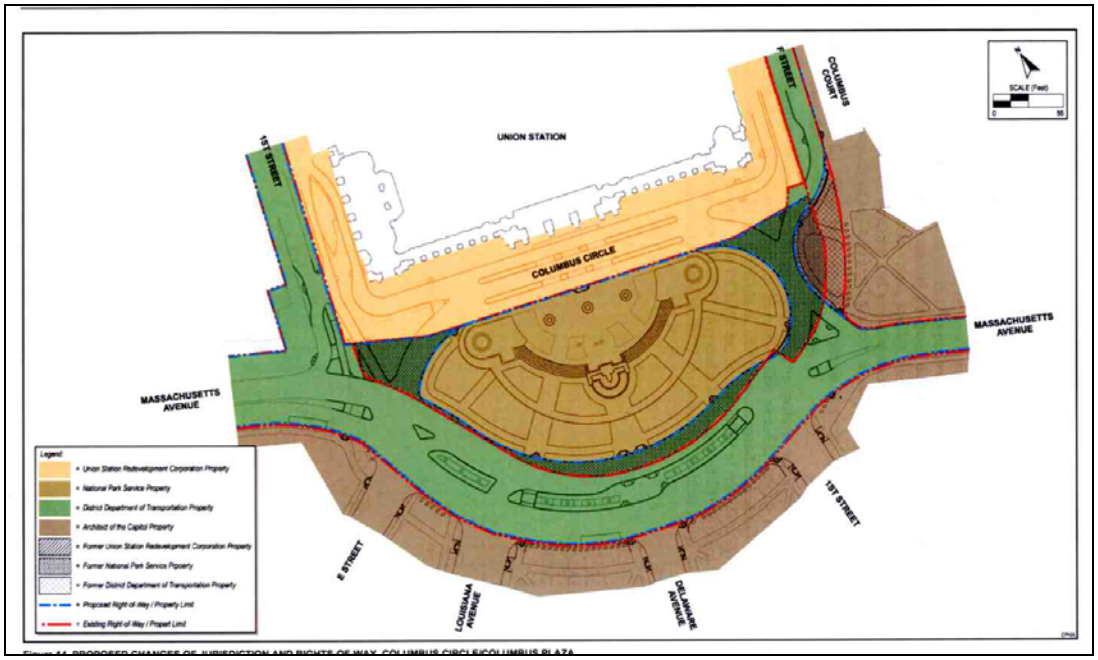


Fig. 1.4 – site plan drawing showing what entities own what parcels of land in front of WUS. The yellow area directly in front of, and to the east and west sides of the building are owned by USRC; this is the area where the WUS Security Upgrades project will take place. (This drawing is copied from Figure 14 of the *Columbus Circle EA* and reproduced with permission from the Parsons Transportation Group.)

As seen in Fig. 1.4, all of the lands to be impacted by the WUS Security Upgrades project are the property of the United States Department of Transportation and leased to the Union Station Redevelopment Corporation (USRC); however, for the convenience of discussion in this report, USRC shall be referred to as the Owner. They are shown in yellow. The other lands shown in Fig. 1.4 are owned by the National Park Service (drab olive), DDOT (green), and the Architect of the Capitol (brown). Additional details relating to land transfers, changing ownerships, and proposed and existing rights-of-way along the adjacent streets and within the Plaza and Circle may be found in the *Columbus Circle EA.*

### *1.2.2 WUS Risk Assessment*

The 2005 Risk and Needs Assessment conducted by DHS and SAIC was a nationwide investigation of all of Amtrak's high-risk properties, and included stations, bridges, tunnels and other vulnerable sites. WUS was ranked together with New York's Penn Station as the highest risk targets in the system.

As part of the assessment, various countermeasures to reduce the risks to the stations were identified and evaluated. At WUS, such measures as closed-circuit television (CCTV) monitoring and increased patrols and guards were identified as necessary; however, the most critical element identified was the need to control vehicular access from the area directly adjacent to the front portico of the building to the greatest extent possible – thus preventing the possibility of the detonation of an explosives-laden vehicle capable of causing the collapse of the front portico and vaulted ceiling in the Main Hall.

Simultaneous to this study, Amtrak and USRC also investigated several possible means of providing a stand-off in front of the building, including the installation of concrete barriers (also known as "jersey barriers") and the installation of decorative concrete benches, tables, planters and other forms of sidewalk furniture. Preliminary calculations revealed that a typical concrete bench would need to be of such a distorted height and thickness (in order to withstand a vehicular impact) that it would be grossly out of scale and visually inappropriate to the character of the building. Likewise, concrete barriers were considered equally unacceptable because they would be inappropriate to the scale and character of the building – and they require numerous break points to permit pedestrian movement.

In addition, Amtrak and USRC also undertook a corollary investigation to determine the potential threat posed to the side elevations and rear elevation of the building. These areas were determined to be less of a risk because: 1) they do not contain the quantity of people entering and exiting the building at any time, 2) they are not as structurally connected to the roof framing of the portico or the main vaulted ceiling areas, and 3) they are not as visually prominent on the building as the front elevation.

Finally, Amtrak and USRC investigated the possible use of drop-gate and collapsible concrete slab technologies as a means of providing stand-off in the front of the building. These are only feasible in certain portions of the front of the building; directly beneath certain areas on the western portion of the front elevation, the top of the METRO subway tunnel is within approximately 20" of the surface, and directly beneath certain areas of the eastern portion of the front elevation, the top of the Amtrak passenger rail tunnel is within approximately 20" of the surface. Drop-gates and collapsible concrete slabs require significantly greater depths than 20" to be properly installed; therefore, these solutions were not considered.

### *1.2.3 The LLNL Investigation*

When the scenario involving an explosive-laden vehicle causing the collapse of the front portico and vaulted ceiling in the Main Hall was identified, and no practical solutions other than bollards were identified as feasible, Amtrak engaged the LLNL to conduct an investigation and analysis consisting of three principal components. First, LLNL engineers conducted a structural

investigation of the station's steel framing and stone construction, with emphasis on the portico and its roofing and wall/column structure. Second, LLNL scientists determined the types and placements of trigger mechanisms (explosions) that would create the most catastrophic results. Finally, the LLNL developed a super-computer blast model using structural information provided by its engineers and explosives information provided by its scientists.

The super-computer modeling confirmed that the station building itself is remarkably overbuilt, and contains numerous redundancies capable of resisting the effects of a blast from the curb-line everywhere along the south elevation except at the main entrance portico, where a blast would indeed lead to a partial or full collapse of the entire frontal structure, with a commensurate level of interior collapse and loss of life.

Further super-computer analysis of blast scenarios at the front of the building were conducted and revealed three scenarios with three blast types each:

> Scenario 1 – employed vehicles filled with explosives – first, a truck rated at 10,000 lbs., and then a passenger van rated at 5,000 lbs., and then a passenger car rated at 1,000 lbs., each parked in the open space directly beneath the portico. The results of this modeling ranged from total collapse of the main hall roof and portico (truck bomb) to total collapse of the portico, but not the Main Hall roof (passenger van or passenger car).
>
> Scenario 2 – employed the same three vehicles filled with explosives, each parked at curb-side adjacent to the portico. The results of this modeling ranged from total collapse of the portico and limited blast and overpressure fatality effects (but not catastrophic collapse) to roughly 40% of the Main Hall (truck bomb) to lesser amounts of damage, including retention of the portico (passenger van or passenger car).
>
> Scenario 3 – employed the same three vehicles filled with explosives, each parked at an acceptable stand-off from the curb. The results of this modeling revealed that none of the explosive-packed vehicles released enough force to cause collapse of the portico or the Main Hall.

The LLNL investigation concluded that an acceptable stand-off from the curb-line would provide an adequate level of blast protection from most types of explosive-laden vehicles that might detonate in front of the station.

### *1.2.4 Descriptions of the Front of the Station and the Plaza*

Daniel Burnham's design of the front of WUS embodies the principals of the Beaux Arts language, honed from his many building designs of the 1893 Columbian Exposition in Chicago. These include the five-part symmetrical organization with a monumental, tripartite triumphal-arch entrance motif with arched openings in the center portico, and including colossal, fluted, engaged Ionic columns supporting six allegorical statues by Augustus Saint-Gaudens See Fig. 1.5 – next page). The end pavilions are slightly diminished in size from the center portico although they, too, contain arched openings flanked with engaged fluted Ionic columns surmounted with statuary. Connecting the end pavilions and the center portico are two open, colonnaded loggias with two-story, Ionic pilasters articulating the rhythm of each of the seven

single-story, round-arched openings and the triple office windows within each bay above (see Fig. 1.6).

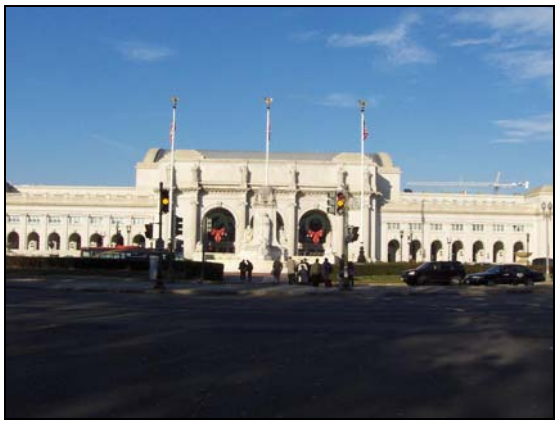

Fig. 1.5 – view north through Columbus Plaza toward center portico and flanking loggias on south (front) elevation of Washington Union Station.

Fig. 1.6 – view north through Columbus Plaza toward eastern end pavilion, loggia and center portico (photo left) of Washington Union Station.

Like the center portico, the loggia spaces to its east and west are open to the weather and enable the public and passengers alike to stroll the length of the more than 600 foot wide front of the building. The loggia and portico also provide a monumental transition for the station user into the building.

Burnham's design for Columbus Circle and Columbus Plaza were based on grand European precedents, including the Place de la Concorde in Paris and the Piazza di Stazione Termini in Rome. The design was semicircular and acted as a locus to gather and organize the radiating streets into the Plaza while simultaneously providing a grand setting for the magnificent Beaux Arts station building. The construction of the Circle and Plaza were both completed in 1912 and Lorado Taft's sculptural fountain, the centerpiece of the Plaza, was subsequently completed and installed in 1912 as well.

Burnham's Union Station was placed onto the National Register of Historic Places in 1969. Columbus Circle and Columbus Plaza were placed onto the National Register of Historic Places in 1980.

## 1.3 PURPOSE AND NEED FOR THE PROJECT

The purpose of the Washington Union Station Security Upgrades Project is to address the deficiency of the original architectural design of the front of the station and the original design of Columbus Circle and Columbus Plaza to meet Amtrak's need for providing a safe and secure environment for the users of WUS. Daniel Burnham's original design was truly monumental and grand in its scale, proportion and use of material. However, it did not anticipate the emergence of high-energy explosives and terrorism as they exist in today's society. Although the masonry construction in the building is substantial and well-built, it nonetheless will not be capable of withstanding the force of an explosive detonated within close proximity of the front portico.

Amtrak has identified WUS as one of its two highest risk assets, and a scenario that causes full or partial collapse of the front portico and portions of the Main Hall represent the greatest single threat to the building and its users. Whereas other threats to the safety of the building's users and to the train-traveling public are of equal concern to Amtrak, they do not necessitate possible modifications to the building and its monumental exterior spaces.

In front of the building, it is possible for a vehicle laden with explosives (either moving or idling) to be detonated in any of the three traffic lanes that form the northern loop of Columbus Circle. The closer to the building, the greater the chance of increased levels of damage and destruction. Likewise, the configuration of streets entering Columbus Circle enables the driver of a vehicle laden with explosives to accelerate around the Plaza and approach the front portico on a trajectory path, in order to place the vehicle as far into the open space beneath the portico as possible before detonation.

The two principal goals to be achieved by the implementation of the WUS Security Upgrades Project are:

1. to provide an adequate level of blast protection from most types of explosive-laden vehicles that might detonate in front of the station by creating a stand-off in front of the portico and flanking loggias, and

2. to preserve the historic character of the front of the station building relative to Columbus Plaza and Columbus Circle.

- End of Section -

# SECTION 2 – ALTERNATIVES

In order to meet the project's purpose and need and to address the identified goals and objectives, this *Washington Union Station (WUS) Security Upgrades Environmental Assessment* document (hereafter referred to as the *WUS Security Upgrades EA*) evaluates the implementation of proposed alternatives – the No-Build Alternative (a requirement of the National Environmental Policy Act, which provides a baseline for comparison with any other alternatives), and one Build Alternative (the Proposed Action). The proposed Build Alternative contains several Preliminary Design Refinements, which are presented as well.

For the purposes of this *WUS Security Upgrades EA* document, it shall be assumed that the configuration of Columbus Plaza and Columbus Circle are as outlined in the *Final Environmental Assessment and Section 4(f) Evaluation - Columbus Circle/Columbus Plaza Rehabilitation* document, prepared by the Parsons Transportation Group for the District of Columbia Department of Transportation (DDOT), dated March, 2008 and the *Section 106 Compliance Review – Columbus Circle/Columbus Plaza Rehabilitation* document, also prepared by the Parsons Transportation Group for DDOT, dated March 2008 – (these documents are hereafter collectively referred to as the *Columbus Circle EA*).

## 2.1 NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the existing roadways, taxi lanes, sidewalks and landscape features of Columbus Circle and Columbus Plaza would simply be maintained as at present. Under this alternative, there would be no hardening to the front of the station, and there would be no additional levels of protection provided for the building's users or for the building itself – especially the front portico and the flanking loggias.

Additionally, the No-Build Alternative would not enable a highly visual and tangible message to individuals seeking to inflict terror on Amtrak's customers and the building's users that effective and meaningful security measures have been placed into effect.

For these reasons, the No-Build Alternative is not considered to meet the purpose and need of the project.

## 2.2 BUILD ALTERNATIVE

The Proposed Action envisions the installation of a series of bollards and hardened planters in front of, and along the east and west sides of Washington Union Station (WUS). In the area directly in front (to the south) of the portico, concrete-filled steel bollards will be placed in the center of the aisleway between the first and second traffic lanes (lanes A and B) – thus providing a roughly 25 foot stand-off from the curbline at the building. The bollards will each be approximately 2'-6" in height and 6" in diameter, with plain rounded caps that contain flat tops. The bollards will be painted black to be similar in color to the adjacent street lamps and ornamental rostral columns. They will be spaced at 5'-0" intervals, and each bollard will be set into a continuous, reinforced-concrete matte, roughly 20" in thickness, placed below the finished paving material (see project drawings in Appendix A of this document).

In the areas of the curblines at the flanking loggias, steel posts with rounded caps will be grouped, with horizontal railings to create hardened planters, within which ornamental shrubs will be planted. The steel posts will also be approximately 2'-7½" in height, 6" in diameter, and spaced at 5'-0" intervals. Each post will be set into a continuous, reinforced-concrete matte, roughly 20" in thickness, placed below the finished paving and planting materials. The railings will be 1½" in diameter; both the posts and railings will be painted black.

On the hardened planters, the connections between the railings and posts will be provided by a series of 8" diameter, cast-steel caps, welded horizontally and vertically to all intersecting elements – thus providing a reinforced grillage.

The spacing of the bollards and hardened planters are designed to withstand impacts by vehicles of specific calculated weights and velocities, approaching the building from specific angles, while at the same time directing pedestrians crossing between the sidewalk in front of the station and Columbus Plaza. The hardened planters and bollards combine to provide an informal level of architectural pedestrian control, directing people to cross at designated crosswalks and at the boarding area for taxis, tour buses and private vehicles directly in front of the station. The shrubbery will form a solid line, and visually moderate the appearance of the steel posts and railings, which will discourage pedestrians from taking short-cuts to cross the traffic lanes.

As specified in the *Columbus Circle* EA, accessible curb cuts will be placed in alignment with the end pavilions at the eastern and western ends of the front of the building. These curb cuts, along the accompanying contrasting paving, will visually align with the round-arched openings in the end pavilions of the building and the existing historic rostral columns; they will direct pedestrians between the sidewalk in front of the station and the small islands containing the flanking rostral columns. The bollards in these locations will be situated within the opening of the east and west end pavilions, and will be placed 5'-0" on center, in accordance with the U.S. Access Board's minimum design requirements.

In general, there is a sense of symmetry in the overall layout of the hardened planters and bollards in the front of the building that mirrors the symmetry in the building's massing and articulation. Two continuous lines of hardened planters are placed in front of the continuous lines of the two loggias. Likewise, bollards are stepped forward into the island between traffic lanes A and B in the area of the projecting main entrance portico, and the bollards, in turn are recessed into the round-arched openings on the two pavilions on the east and west ends of the building. These elements all combine to form the requisite level of stand-off associated with the project.

Each end of the northern traffic lane (lane A) directly in front of the building will contain four removable steel bollards, placed across the lane – thus preventing vehicular access within 25 feet of the curbline in front of the building. During normal operations, these bollards will not be in place, thus allowing taxis and other authorized vehicles to come as close to the entrance as possible for the convenience of passengers being dropped off or picked up. During periods of heightened security alerts, the bollards will be inserted in place by Amtrak staff, thus increasing the level of stand-off.

On the eastern side of the building, bollards will be installed at the curbline in front of the Garage East Access Ramp to a distance of approximately 150 feet to the loading ramp. At the loading ramp, three removable bollards will be installed. Normally, the removable bollards will be kept in place; however, they can be removed when large deliveries are brought to the loading ramp.

On the western side of the building, bollards will be installed in the southern and western arched openings of the end pavilion and at the curbline directly in front of the new bicycle transit center, to a distance of approximately 130 feet, in line with the northern wall of the Washington Metropolitan Area Transit Authority (WMATA – or Metro) Corridor (loggia) on the western side of the station. On the western arched opening of the end pavilion, the two bollards will be removable, in order to accommodate movement of deliveries to merchants on the western side of the building. However, these removable bollards will ordinarily remain in place.

## 2.3 ALTERNATIVES CONSIDERED AND DISMISSED

Several alternatives were developed and considered in the early stages of this project. To begin, Amtrak and USRC investigated such passive measures as closed-circuit television (CCTV) monitoring and increased patrols and guards in front of the building. Although they were implemented, they were not found to be an adequate deterrent to a vehicle laden with explosives traveling at a high rate of speed toward the front portico of the building.

Amtrak and USRC also investigated several possible means of providing a stand-off in front of the building, including the installation of concrete barriers (also known as “jersey barriers”) and the installation of decorative concrete benches, tables, planters and other forms of sidewalk furniture. Preliminary calculations revealed that a typical concrete bench would need to be of such a distorted height and thickness (in order to withstand a vehicular impact) that it would be grossly out of scale and visually inappropriate to the character of the building. Likewise, concrete barriers were considered equally unacceptable because they too would be inappropriate to the scale and character of the building – and they require numerous break points to permit pedestrian movement.

In addition, Amtrak and USRC also investigated the potential threat posed to the side elevations and rear elevation of the building. These areas were determined to be less of a risk because: 1) they do not contain the quantity of people entering and exiting the building at any time, 2) they are not as structurally connected to the roof framing of the portico or the main vaulted ceiling areas, and 3) they are not as visually prominent on the building as the front elevation.

Finally, Amtrak and USRC investigated the possible use of drop-gate and collapsible concrete slab technologies as a means of providing stand-off in the front of the building. These are only feasible in certain portions of the front of the building. Directly beneath certain areas on the western portion of the front elevation, the top of the WMATA subway tunnel is within approximately 20” of the surface, and directly beneath certain areas of the eastern portion of the front elevation, the top of Amtrak’s passenger rail tunnel is within approximately 20” of the surface. Drop-gates and collapsible concrete slabs require significantly greater depths than 20” to be properly installed; therefore, these solutions were not considered.

## 2.4 PRELIMINARY DESIGN REFINEMENTS

The Proposed Action represents an evolving design that meets the needs of the two principal goals of the project: 1) to provide an adequate level of blast protection for the front of the station, and 2) to preserve the historic character of the front of the station building and the Plaza and Circle. Several preliminary designs were developed that ultimately led to the Proposed Action. They are listed herewith.

### *2.4.1 Stone bollards*

The initial design contained only bollards, designed to be constructed of steel posts with decorative granite or stone casings, to be either round or geometric in shape. These created a visual inconsistency with the monumental stone façade of the building, particularly in the area adjacent to the projecting front portico, irrespective of whether the shape of the bollard was round or geometric (such as square, hexagonal or octagonal). In addition, the bollard sizes would be inappropriately exaggerated due to the requisite thicknesses of the materials.

### *2.4.2 Metal bollards and hardened planters*

The refined design contained metal bollards (and only bollards) – it did not contain any hardened planters. This created a visually intrusive, repetitive appearance that was architecturally unresponsive to the rhythm of the Burnham design of the station façade.

The installation of hardened planters utilizing steel posts and railings of a similar size and scale of the bollards, combined with the use of a line of shrubbery enabled the stand-off to become significantly less visually intrusive against the front of the station and plaza. It also provided the added benefit of directing pedestrians toward the appropriate locations where safe crossing can take place.

### *2.4.3 Design of the hardened planters*

The initial design of the hardened planters showed 6” diameter, steel, horizontal railings between the vertical posts, anchored within 8” diameter steel caps. The design was refined by reducing the diameter of the horizontal railings to 1½”, which did not decrease their structural capacity, but which did noticeably reduce their visual impact on the front of the building.

During the design, the placement of the steel posts for the hardened planters was also refined slightly, so as to allow the posts to meet the ground on a slightly elevated (1” to 2” height) concrete curb. This eliminated the visual awkwardness of the posts meeting the ground within the planting bed. It also provided a clean detail to contain the soil and mulch of the planting beds and keep them from spilling out onto the sidewalk and curb.

The possibility of substituting heavy-gauge, cast-iron chains (as is seen in certain other landmark buildings around the city) in place of the steel horizontal railings was investigated during design. Although the chains reduced the overall visual impact of the hardened planters, they also increase USRC’s maintenance responsibilities in the front of the station. Cast-iron chains are prone to rust at all the points of contact between the links, and are therefore in need of constant

touch-up painting. On the other hand, steel railings only require repainting at intervals comparable to other steel elements – such as the historic rostral columns.

### *2.4.4 Bollard and hardened planter color*

The initial color of the bollards and hardened planters was grey, to blend in with the monumental stone walls of the façade of the building. Although the grey color is appropriately employed in other buildings in the city, it was found to be visually inconsistent with the color of the stone work on the building. Likewise, a green color, similar to bollards utilized in other locations in the city, was considered but also found to be visually inconsistent with the color of the stone work on the building.

The color black was considered and ultimately determined to be appropriate for the bollards and hardened planters. The existing historic rostral columns and adjacent street lamps are black, and provide a contextual precedent for the bollards and hardened planters; and the color black provides the greatest level of visual consistency with the building (the arched openings in the loggias and the projecting front portico and end pavilions provide deep shadow lines that reinforce the visual rhythm of the bollards and planters).

### *2.4.5 Bollards at the Massachusetts Avenue island at First Street, N.E.*

This initial design contained bollards throughout the pedestrian island separating Massachusetts Avenue and First Street, N.E., just west of the historic rostral columns. After careful review, these bollards were found to be functionally unnecessary – they did not significantly contribute to the stand-off in front of the southwest corner of the building. Likewise, they were visually distracting to the appearance of the station. Although they provided a modicum of protection to pedestrians standing on the island from vehicles, the benefits gained by the protection did not provide adequate justification for the visual intrusion to the front of the station.

### *2.4.6 Relocation of the curb-cut at the west end pavilion*

The initial design called for the curb cut along the western section of the hardened planters to align with the eastern end of the historic rostral column, which facilitated a direct pedestrian crossing onto the sidewalk in Columbus Plaza. During design, the curb cut was relocated approximately 25 feet westward to be in visual alignment with the axis created by the opening in the westward rostral columns and the round-arched opening in the west end pavilion. With the repositioning of the curb cut, the western section of hardened planters became one single, continuous line - symmetrical to the eastern section of hardened planters. Both sections of planters reinforce the rhythm and symmetry of the loggias flanking the projecting center pavilion.

### *2.4.7 Bollard spacing*

The initial design placed bollards at 4’-0” on center in the aisleway between the two northern traffic lanes (lanes A and B), and on the east and west sides of the building. Although this was an appropriate bollard spacing to provide proper deflection of vehicles at calculated angles and velocities, the bollards were determined to be too closely spaced for comfortable passage of

individuals using wheelchairs and individuals carrying baggage and suitcases, especially during peak rush times.

The bollard spacing was increased to 5'-0" on center, which enabled greater numbers of persons to pass through during rush times. The size of the continuous, reinforced-concrete matte below the bollards was redesigned and increased to provide the same level of protection from impacting vehicles.

In addition, the increased spacing between the bollards reduced the total quantity to be placed in front of, and along the sides of the building, thus again decreasing the amount of visual intrusion created by the project.

Finally, the placement of planters in front of the loggias and the placement of bollards in the large, round-arched openings in the east and west end pavilions and the island between traffic lanes A and B was studied to determine if they pose a possible "pinch point" either for persons exiting the building during times of emergency or for emergency crews (such as fire and rescue personnel). Amtrak and USRC consulted with the District of Columbia Fire Department personnel, and it was determined to not pose a "pinch point." The spacing of the bollards in the east and west pavilion openings was acceptably large enough for people to evacuate without delay and for emergency responders to enter without hindrance. Likewise, the distance between the front façade of the loggia and the hardened planters was acceptably large enough so as to not constrict the movement of people or equipment.

### *2.4.8 Adjustment to the quantity of bollards in the island between traffic lanes A and B*

The initial design aligned the endmost bollards of the island between traffic lanes A and B with the ends of the hardened planters. However, investigation during the course of project design revealed possible diagonal trajectory paths of an incoming vehicle aiming to approach the building between the island bollards and the planters. Therefore, it was deemed appropriate to add additional bollards in the island, in order to prevent oncoming vehicles from reaching the building by approaching at an angle in between the bollards at the island and the hardened planters at the curb-line. This quantity of additional bollards does not noticeably change the visual character of the landscape in front of the station.

### *2.4.9 Bollard and hardened planter height*

The initial design specified the bollards and hardened planters to be 3'-0" in height – a standard industry height for bollards. However, investigation of the sight lines of the bollards and hardened planters from various points within the Plaza, combined with vehicular impact investigations indicated that bollards and hardened planters could be reduced to approximately 2'-6" in height (but no less). As a clarification, however, the actual of the concrete-filled steel element must be 2'-6" in height; when the 8" diameter cap is added to the top of the planter, the overall finished height becomes approximately 2'-7½", in comparison with the 2'-6" finished height of the bollards. This minor difference is inconsequential.

The question of whether the height of the new 6" tall granite curb could be included as part of the overall minimum 2'-6" height was investigated (to see if the height of the bollards and

hardened planters could be reduced to 2'-0"). Various standards researched indicate that the height of the curb can only be included as part of the overall height if the nearest face of the bollard is positioned at 6" or less from the face of the curb. Here, the face of the bollards and hardened planters is 11½" to 12" from the face of the curb. A design effort was made to decrease the distance, but the granite curbs are uniformly 9" in thickness, and a 2½" to 3" clearance of concrete between the back of the curb and the front of the bollard is required to keep the concrete from spalling, cracking and allowing the penetration of water against the bollard.

- End of Section -

# SECTION 3 – ENVIRONMENTAL CONSEQUENCES

This section of the *Washington Union Station (WUS) Security Upgrades Environmental Assessment* (hereafter referred to as the *WUS Security Upgrades EA*) addresses the probable impacts of the No-Build and Build Alternatives of the project. The environmental consequences of the Columbus Plaza/Columbus Circle project are addressed in the *Final Environmental Assessment and Section 4(f) Evaluation - Columbus Circle/Columbus Plaza Rehabilitation* document, prepared by the Parsons Transportation Group for the District of Columbia Department of Transportation (DDOT), dated March, 2008 and the *Section 106 Compliance Review – Columbus Circle/Columbus Plaza Rehabilitation* document, also prepared by the Parsons Transportation Group for DDOT, dated March 2008 – (these documents are hereafter collectively referred to as the *Columbus Circle EA*).

## 3.1 NO-BUILD ALTERNATIVE

The No-Build Alternative would have no direct or indirect impact, since no work that might alter the existing condition of the front of the station or the Circle or Plaza would be undertaken. There would be no alteration to any historic materials on either of the two (2) cultural resources listed on the National Register of Historic Places (WUS and Columbus Plaza/Circle). There would be no alteration to historically significant viewsheds across the Plaza toward WUS.

## 3.2 PROPOSED ACTION

### *3.2.1 Impact on traffic and pedestrian circulation*

The Proposed Action will not alter the flow of vehicular traffic along Massachusetts Avenue or within Columbus Circle. There will be no change to the movement of traffic in front of WUS, except for periods of time when the nation's (and/or the station's) security alert levels are raised and the removable bollards are installed in the northernmost traffic lane (lane A) – thus preventing any vehicles from encroaching within the stand-off area (see Fig. 3.1).

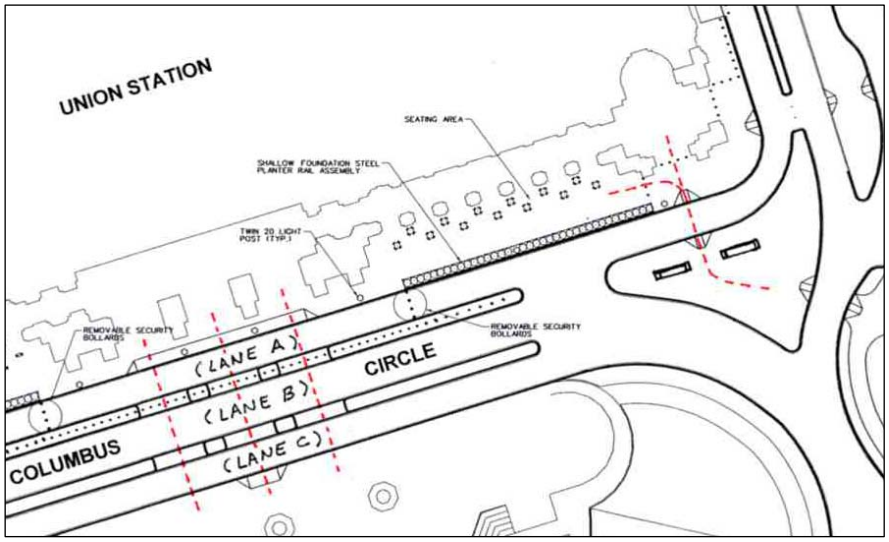


Fig. 3.1 – excerpt from Parsons Transportation Group drawing 2 of 8, entitled "Security Bollard General Plan," as seen in Appendix A. Note how the removable bollards across traffic lane A are normally removed, but can be installed during periods of raised security levels. Note also the red dashed lines that show controlled areas of pedestrian movement across the traffic lanes. A similar condition exists at the western end pavilion, as well (it is not shown herein).

With the installation of the bollards and hardened planters, pedestrian circulation between the portico areas and loggias and the Plaza (directly across the traffic lanes) will be streamlined into specific crossing zones created as part of the Columbus Circle project. As such, the bollards and hardened planters will increase the level of safety for pedestrians and persons crossing the traffic lanes by permitting people to cross only at established, controlled locations that will be well-marked and striped (refer back to Fig. 3.1 – previous page).

The placement of the bollards adjacent to the curb cuts and within the arched openings on the end pavilions of the station will not impede or diminish pedestrian circulation. They will be designed to comply with the minimum clearance requirements of the *Americans with Disabilities Act Accessibility Guidelines* and the requirements of the U.S. Access Board.

### *3.2.2 Impact on historic resources*

The Proposed Action will not alter either of the two (2) identified historic resources – WUS and Columbus Plaza/Circle. None of the construction for the bollards or the hardened planters will come in contact with Daniel Burnham's landmark WUS building. The existing concrete sidewalk and curbing (both installed in the 1980s WUS rehabilitation and not considered to be historic) directly in front of the station will be totally removed and reinstalled to a continuous width of roughly 5 feet as part of the upcoming Columbus Circle/Columbus Plaza Project. The existing non-original concrete sidewalk and curbing (also installed in the 1980s) on the west side of the station (at the end pavilion and adjacent to the building at the upcoming bicycle transit center) will be removed and reinstalled, in-kind, as part of the bollard installation. Likewise, the existing non-historic concrete sidewalk and curbing (also installed in the 1980s) on the east side of the station will be removed and reinstalled to a continuous width of 12 feet as part of the upcoming Columbus Circle/Columbus Plaza Project to a point equivalent with the northern edge of the end pavilion. From that point northward to the loading area, the existing non-historic sidewalk and curbing (installed in the 1980s) will be removed and reinstalled, in-kind, as part of the bollard installation.

Other than the sidewalk and curbing materials described herein, there will be no impact on the Columbus Plaza/Circle. No work is scheduled to take place in those areas.

As stated in Sections 1 and 4 of this document, the WUS Security Upgrades Project is subject to requirements of Section 106 of the National Historic Preservation Act (NHPA). In keeping with those requirements, the following measures have been taken:

a. Historic resources identified/affected: although no actual physical resources will be affected by the undertaking, the monumental appearance of the front of Daniel Burnham's station will be affected by the undertaking.
b. Consultation with agencies: together with the Federal Railroad Administration (FRA), Amtrak and the Union Station Redevelopment Corporation (USRC) have consulted with the District of Columbia Historic Preservation Office (DC SHPO) and the National Capital Planning Commission (NCPC) regarding the effects of the undertaking. It was agreed by all parties that the undertaking will pose an Adverse Effect on the monumental appearance of the front of Daniel Burnham's station. The following were also agreed to:

1. An environmental assessment (this *WUS Security Upgrades EA* document) would be prepared to memorialize all the steps taken by the project designers to minimize the impact of the undertaking on the affected historic resources (i.e. the monumental appearance of the front of the station) and to mitigate the resultant activities of the undertaking,
2. A public meeting would be held to introduce the project and to receive comments on the undertaking in draft form. (This public meeting was held on Friday, February 8, 2008 at the offices of USRC. See Section 4 of this document for a listing of invited organizations, agencies and individuals. Also see Appendix B for a listing of organizations, agencies and individuals in attendance at the public meeting. Finally, see Appendix B for a compilation of comments received at and after the public meeting.)
3. Comments received from the public meeting would be integrated into this *WUS Security Upgrades EA* document, and it would be distributed in draft form to the various public agencies that might be affected by the undertaking including, but not limited to: adjacent property owners and managers, and agencies with an interest in the appearance and usage of the station; comments would be requested from said public agencies. (See Appendix C for a compilation of comments received, and responses provided.)
4. The draft *WUS Security Upgrades EA* document would also be distributed to private institutions and organizations that might be affected by the undertaking, including but not limited to local preservation organizations and neighborhood area commissions; comments would be requested from said institutions and organizations. (See Appendix C for a compilation of comments received and responses provided.)
5. A Section 4(f) Evaluation and Statement would be prepared and appended to this *WUS Security Upgrades EA* document. (See Appendix D for the Section 4(f) Evaluation and Statement.)
6. A Memorandum of Agreement (MOA) would be prepared to summarize this effort in its entirety, and provide for signature by FRA, the DC SHPO, and NCPC. (See Appendix E for the MOA.)

### *3.2.3 Impact on views looking toward WUS from the surrounding streets*

The Proposed Action will not alter the character of the view looking toward WUS from any of the surrounding streets feeding into Columbus Circle, including Massachusetts Avenue (both from the east and the west), E Street, Louisiana Avenue, Delaware Avenue and First Street. Visual examination illustrates that WUS is situated in a slightly elevated setting such that the vista from each of these streets (both in the roadway and on the flanking sidewalks) looks upward toward WUS. Indeed, this observation is confirmed in the historical chapter of the *Columbus Circle EA* where the effort to bring in large amounts of fill to create an evenly-sloped incline from each of the streets up to Columbus Plaza.

The view from these streets through Columbus Plaza toward the bollards and hardened planters in the front of the station will be nearly obstructed by the raised grade of the plaza itself, as well as by the stone steps, decorative fountains, balustrades and rostral columns. In the limited locations where the bollards and hardened planters will be visible, the reduced height and black

color of the bollards will further reduce their visual impact from the streets. In addition, the constant movement of cars, taxis, trucks and buses in the traffic lanes in front of the station and around the Circle will also reduce their visual impact. Finally, the existing positioning of the various state and territory flags plus the proposed installation of new grass and shrubberies in the center median of the realigned Massachusetts Avenue (part of the scope of the Columbus Plaza/Circle project) will also reduce the visual impact of the bollards and hardened planters (see Figs. 3.2 and 3.3 – also, refer back to Figs. 1.1 and 1.6 in Section 1 of this document).

Fig. 3.2 – general view looking east along Massachusetts Avenue upslope toward the front of WUS. Note how vehicles present in the traffic lanes in front of the station will reduce the visual impact of the proposed bollards.

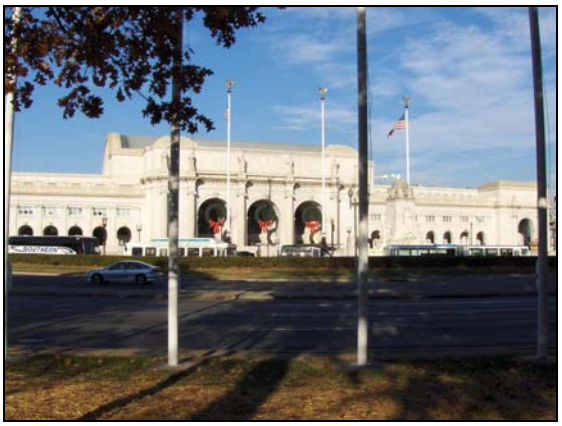

Fig. 3.3 – general view looking north through the state and territory flags, and through Columbus Plaza toward the front of the station. Even without the tour buses, note how the topography of the Plaza will reduce the visual impact of the proposed bollards.

Along the west side of the station (at the proposed bicycle transit center), the bollards will be visible to westbound vehicles and pedestrians in the Circle across from Louisiana Avenue and E Street. However, the bollards will be largely obscured by the placement of the bicycles and related equipment in the area, thus preventing them from creating a visual intrusion.

Along the east side of the station, the bollards will be visible to vehicles entering the taxi lanes and pedestrians in front of the adjacent Thurgood Marshall Building. This is a narrow vehicular passageway and will typically only be viewed from an oblique angle; the bollards do not create a visual intrusion into the character of the space between WUS and the Thurgood Marshall Building.

### *3.2.4 Impact of views from within the plaza*

The Proposed Action will not adversely impact the view of the front of the station when seen from various points in and around the Plaza. The heights of the bollards have been reduced from 3’-0” to 2’-6” and the spacing has been increased from 4’-6” to 5’-0”, decreasing the total quantity of bollards to be installed. Likewise, the design of the bollards is simple and undecorated, so as not to visually draw attention away from, or compete with Burnham’s landmark building. In addition, the hardened planters contain shrubbery which provides a visually neutral line at the curb, and which constitutes the entire area in front of the loggias - approximately 65% of the total length of the front of the building.

# SECTION 4 – CONSULTATION AND COORDINATION

This section of the *Washington Union Station (WUS) Security Upgrades Environmental Assessment* (hereafter referred to as the *WUS Security Upgrades EA*) addresses the Consultation and Coordination Process, as stipulated in the requirements of Section 106 of the National Historic Preservation Act (NHPA). The consultation and coordination process of the Columbus Plaza/Columbus Circle project are addressed in the *Final Environmental Assessment and Section 4(f) Evaluation - Columbus Circle/Columbus Plaza Rehabilitation* document, prepared by the Parsons Transportation Group for the District of Columbia Department of Transportation (DDOT), dated March, 2008 and the *Section 106 Compliance Review – Columbus Circle/Columbus Plaza Rehabilitation* document, also prepared by the Parsons Transportation Group for DDOT, dated March 2008 – (these documents are hereafter collectively referred to as the *Columbus Circle EA*).

To begin the Section 106 Consultation Process, no actual physical historic resources were identified that would be affected by the WUS Security Upgrades Project (hereafter called the undertaking). The bollards and hardened planters will be installed solely on new concrete sidewalk slabs that replace the 1980s-era slabs. However, the undertaking will affect the monumental appearance of the front of Daniel Burnham's station by installing the bollards and hardened planters in the open space in front of the station where no bollards exist at present or ever existed historically. (See Section 2 of this document for a discussion of the design refinements employed to minimize the impact of the undertaking on the appearance of the front of the station.)

Continuing the Section 106 Consultation Process, Amtrak and the Union Station Redevelopment Corporation (USRC) met with representatives of the Federal Railroad Administration (FRA – the lead federal agency for the undertaking) and subsequently conducted reviews of the undertaking with staff representatives of the following agencies:

- National Capital Planning Commission (NCPC)
- District of Columbia Historic Preservation Office (DC SHPO)

After these reviews, it was agreed by all parties that the proposed undertaking would create an Adverse Effect on the historic resource. It was also agreed that this *WUS Security Upgrades EA* document should be prepared in order to memorialize all the design refinements employed to minimize the impact of the undertaking on the affected historical resources and to mitigate the resultant activities of the undertaking.

Continuing the Section 106 Consultation Process, the following additional agencies, organizations and institutions were identified as possible Consulting Parties:

- National Park Service
- Architect of the Capitol, Planning & Programming Division
- Administrative Offices of the United States Courts
- United States General Services Administration
- United States Commission of Fine Arts (US CFA)
- District of Columbia Department of Transportation

### *3.2.5 Impacts due to construction*

The construction of the Proposed Action will have limited short-term impacts on vehicular and pedestrian circulation along the sidewalk in front of the station and at the curb-line of the Circle. Construction activity at the curbline and on the sidewalk will create customary amounts of dust, noise and vibration. In addition, vehicular circulation will be restricted at the curbline during construction, creating a minor inconvenience for taxi users. Finally, pedestrians will be directed around areas where construction takes place.

Impacts will be minimized through the use of best construction management practices and through the maintenance and protection of traffic and pedestrian access. For the purposes of this *WUS Security Upgrades EA*, it shall be assumed that construction of the Proposed Action will take place separate from the Columbus Plaza/Circle project. However, should the WUS Security Upgrades project be undertaken simultaneous with the Columbus Plaza/Circle project, there will be no impacts due to construction (except for those already identified in the *Columbus Circle EA*).

### *3.2.6 Other potential impacts*

Given the limited nature of the Proposed Action and its location in an urban environment, it is not projected to have any significant or noticeable impact on air quality, water quality, noise and vibration (beyond the construction impacts addressed above), solid waste disposal, ecological systems, wetlands, endangered species or wildlife, flood hazards or floodplain management, coastal zone management, use of energy resources, use of other natural resources, transportation, land use, socioeconomic impacts, environmental justice, public health, or recreational opportunities.

## 3.3 MITIGATION

In consideration of the refinements to the Proposed Action that have been made as a result of the consultation process as described above, and because the Proposed Action does not directly impact any historic resources, or later any of the significant viewsheds – either from the avenues around the Circle or from within the Plaza itself, and because the construction activity will create only a limited short-term impact, no further mitigation measures are needed as part of the project.

- End of Section -

- District of Columbia Office of Planning
- D.C. Preservation League
- Committee of 100 on the Federal City
- Capitol Hill Restoration Society
- Smithsonian Institution, Architectural History and Historic Preservation
- Jones Lang LaSalle (agent for the various tour companies who drop off and pick up passengers in front of WUS)
- Historical Society of Washington D.C.

Each agency, organization and institution was contacted electronically and by U.S. Mail, and invited to a public meeting where the undertaking would be presented and questions/comments by attendees taken by the Amtrak and USRC design team. Each invitation packet contained: 1) an invitation letter, 2) a rendered site plan showing the project area in front of WUS, 3) rendered drawings of bollards and planters, and 4) a list of possible consulting parties. Each agency, organization and institution was also requested to pass the invitation along to any individual or group that might also have an interest in the undertaking.

The public meeting took place on Friday, February 8, 2008, 9:30 a.m. at the offices of USRC. The undertaking was presented in detail, and numerous questions and comments were raised, and clarifications/answers were provided. (See Appendix B for a listing of individuals in attendance at the public meeting. See also Appendix B for a compilation of comments received and responses provided.) Comments received at the public meeting were integrated into the design of the undertaking, and are itemized in Section 2 of this document.

Also as part of the Section 106 Consultation Process, it was agreed that this *WUS Security Upgrades EA* document would be electronically distributed to each of the attendees at the public meeting for a period of 30 calendar days to review and offer written comments back to Amtrak and USRC. In addition, the *WUS Security Upgrades EA* document was posted on the FRA web site (www.fra.dot.gov) for ease of public review and comment, and a hard copy of this document will be made available at the offices of USRC for public inspection, review and comment during the same 30 calendar period of time. All comments received will be collated and posted, along with responses, as part of Appendix C of this document.

Further, a Section 4(f) Evaluation and Statement is included as Appendix D of this document.

The final component of the Section 106 Consultation Process is the Memorandum of Agreement (MOA), which summarizes this effort in its entirety; it is prepared for signature by the FRA, the DC SHPO and NCPC. It is included as Appendix E of this document. It is also noted that the final review and approval of the undertaking by NCPC (a signatory of the MOA) will not take place until after it is presented and discussed at a regularly-scheduled public meeting of NCPC's commissioners. In addition, NCPC's commissioners will not approve the undertaking until it has been reviewed and approved by the commissioners of the US CFA (a Consulting Party to the undertaking) at their regularly-scheduled public meeting.

- End of Section -

# SECTION 5 – PREPARERS

This *Washington Union Station Security Upgrades Environmental Assessment* document was prepared for the National Railroad Passenger Corporation (Amtrak) by:

John R. Bowie, A.I.A., Historical Architect and Principal of John Bowie Associates, Architects and Consultants to Museums, Historical Sites and Cultural Properties, 101 East Possum Hollow Road, Wallingford, Pennsylvania 19086-6238; phone (610) 565-1268, fax (610) 565-4367.

- End of Section -

## APPENDIX A

Reduced-scale copies of Union Station Redevelopment Corporation "Plans of Proposed Union Station Perimeter Security," undated, prepared by Parsons Transportation Group, P.C. (8 sheets).

## APPENDIX B

Information relating to the Public Meeting, held on February 8, 2008, 9:30 a.m., at the offices of the Union Station Redevelopment Corporation (USRC).

Listing of those in Attendance:

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Each of the individuals listed above receives an electronic copy of this document in its entirety.

Institutions/Organizations/Individuals Invited but not in Attendance:

D.C. Preservation League, attention Rebecca A. Miller, President
Committee of 100 on the Federal City
Capitol Hill Restoration Society, attention Dick Wolf, President
The Historical Society of Washington, D.C., attention Sandy Bellamy, President

Each of the individuals listed above receives an electronic copy of this document in its entirety.

Compilation of Comments Received during and after the Public Meeting:

Responses to these comments are *italicized* after each comment.

1. Need to review design standards currently in use by U.S. General Services Administration (GSA) that provide recommended heights of bollards and setbacks from curbs (i.e. how far back from a curb a bollard can be placed and still consider the curb's height as part of the overall height of the bollard). *Integrated into the design.*
2. Once the height cited in item 1 (above) is determined, attempt to set heights of bollard tops and decorative knuckles on top of planters at roughly the same height (i.e. they do not need to be exactly the same height, but should be within an inch or two of each other – not the 8" currently envisioned). *Integrated into the design.*

3. The drawings should show bollard placement within openings as accurately as possible, so as to maintain an approximately 5' distance (or thereabout, depending on the width of the opening) between a building wall and the first bollard. *Integrated into the design.*
4. In the Environmental Assessment (EA), need to provide language that indicates other ideas for creating a barrier were examined but ruled out (i.e. the use of benches was considered, but their required height and amount of fortification would be too massive – need to state this in the EA). *Integrated into Section 2.3.*
5. The use of chains in place of horizontal railings on the planters was considered but ruled out due to maintenance concerns. Instead, perhaps utilize smaller diameter horizontal bars in the planters, which would reduce the size and visual aspects of the knuckles. Discuss this in the EA as a means of minimizing the design impact as well. *Integrated into Section 2.4.3.*
6. The use of collapsible concrete as a vehicular deterrent was also considered at the curb line, but ruled out due to the lack of adequate depth beneath the street where the WMATA tracks and Amtrak's tracks pass underneath on the west and sides, respectively. Need to discuss this as a rejected idea in the EA too. *Integrated into Section 2.3.*
7. Discussion about whether the placement of planters would pose a "pinch point" for emergency egress from the building. After review of the width of the open area, agreed it was acceptable as designed. *Integrated into Section 2.4.7.*
8. Question about why the bollards in the curb lane directly in front of the building do not extend slightly beyond the inner edges of the planters, in order to reduce the effective opening width and angle of entry to be used by an incoming vehicle. Agreed to add additional bollards on both ends of the center curb lane to decrease the open space, but not noticeably increase the visual intrusion they create. *Integrated into Section 2.4.8.*
9. Need to discuss in the EA why the bollards and planters will be black (instead of grey or green – both of which are used elsewhere in the city). Cite the desire to complement the existing visually imposing Rostral Columns as well as the street lamps in the area of the Circle – both are black.. *Integrated into Section 2.4.4.*
10. Concern about the amount of disruption that will occur when this project enters construction. General consensus that undertaking the Columbus Plaza/Circle project simultaneous with this project will be preferable from the policing standpoint. *Discussed in Section 3.2.5.*

In a follow-up email from Jeff Davis of the D.C. Office of Planning, he recommended (aside from several ideas and thoughts relating to the actual design of the bollards – which are included in the discussion above) the following individuals and organizations be included in the consultation process:

a. Area Neighborhood Commission 6C – contact Alan Kimber, Commission Secretary at alan@alankimber.org - *added to the distribution list*
b. Stanton Park Neighborhood Association – Contact Monte Edwards at monte.edwards@verizon.net – *added to the distribution list*

- End of Section -

# APPENDIX C

No comments were received from public agencies, institutions, organizations, or individuals on the draft submission of the *Washington Union Station Security Upgrades Environmental Assessment*.

- End of Section -

# APPENDIX D

Copy of Section 4(f) Evaluation and Statement (12 pages).

# Section 4(f) Evaluation

**Washington Union Station Security Upgrades**
**60 Massachusetts Avenue, N.E.**
**Washington, D.C. 20002**

**Prepared by:**
John Bowie Associates, Historical Architects
101 East Possum Hollow Road
Wallingford, Pennsylvania 19086

**On behalf of:**
Amtrak
Federal Railroad Administration

**July 2008**

## INTRODUCTION

This evaluation has been prepared in compliance with the requirements of Section 4(f) of the Department of Transportation Act of 1966, as amended, 49 U.S.C. 303(c). The purpose of a Section 4(f) evaluation is to document the consideration, consultation, and assessment studies that are the basis for a determination that there are no feasible and prudent alternatives to the use of land from a publicly owned park, recreation area, or wildlife refuge, or land from a resource that is listed in or is eligible for the National Register of Historic Places, and that the proposed action includes all possible planning to minimize harm to the protected resources.

This evaluation documents the need for improving the security to the south (front) elevation of Washington Union Station through the installation of a series of bollards and hardened planters at the curb line of the taxi lanes in front of the building. Washington Union Station was listed on the National Register of Historic Places in 1969.

There are no recreational areas or wildlife refuges within the project area. However, directly adjacent to the project area – south of the three taxi lanes – is Columbus Plaza, a public park of the National Park Service. Columbus Plaza was listed on the National Register of Historic Places in 1980 (see Fig. 1).

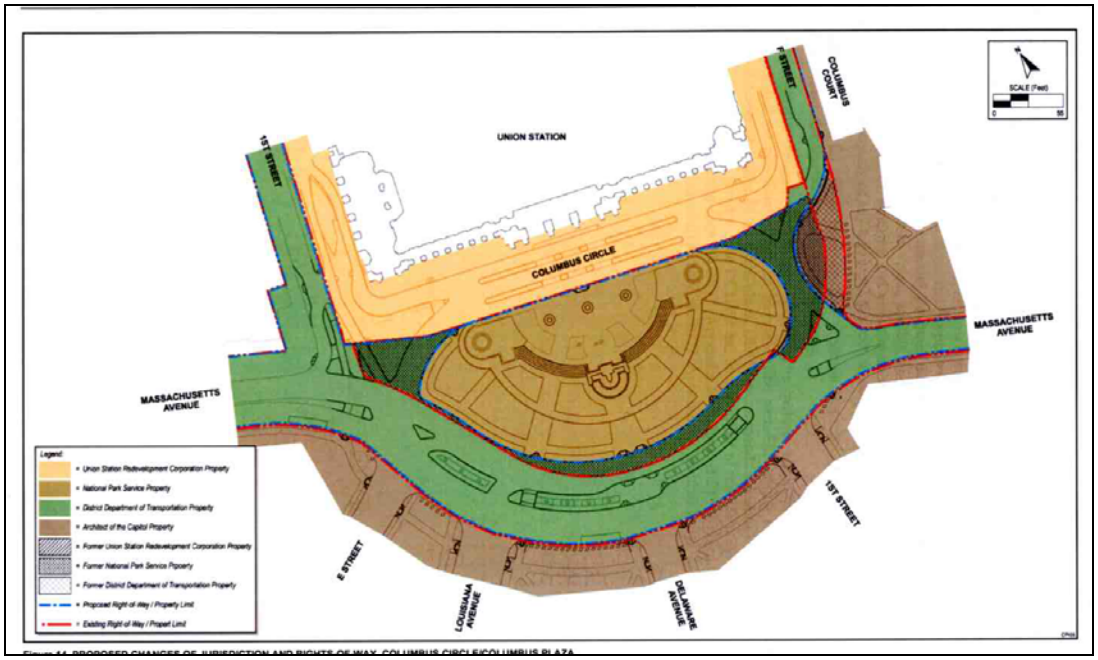


Fig. 1 – site plan drawing showing what entities own what parcels of land in front of WUS. The yellow area directly in front of, and to the east and west sides of the building are owned by the Union Station Redevelopment Corporation; this is the area where the WUS Security Upgrades project will take place. The olive green area in front of the project area is Columbus Plaza – a property of the National Park Service. (This drawing is copied from Figure 14 of the *Columbus Circle EA* and reproduced with permission from the Parsons Transportation Group.)

## PROJECT DESCRIPTION

Amtrak proposes to install a series of concrete-filled bollards and decorative hardened planters with plantings along the curb line in front of the south (front) elevation of Washington Union

Station. These bollards and hardened planters will provide blast protection from most types of explosive-laden vehicles that might detonate in front of the building.

## PROJECT PURPOSE AND NEED

The purpose of the Washington Union Station Security Upgrades Project is to address the deficiency of the original architectural design of the front of the station and the original design of Columbus Circle and Columbus Plaza to meet Amtrak's need for providing a safe and secure environment for the users of WUS. Daniel Burnham's original design was truly monumental and grand in its scale, proportion and use of material. However, it did not anticipate the emergence of high-energy explosives and terrorism as they exist in today's society. Although the masonry construction in the building is substantial and well-built, it nonetheless will not be capable of withstanding the force of an explosive detonated within close proximity of the front portico.

Amtrak has identified WUS as one of its two highest risk assets, and a scenario that causes full or partial collapse of the front portico and portions of the Main Hall represent the greatest single threat to the building and its users. Whereas other threats to the safety of the building's users and to the train-traveling public are of equal concern to Amtrak, they do not necessitate possible modifications to the building and its monumental exterior spaces.

In front of the building, it is possible for a vehicle laden with explosives (either moving or idling) to be detonated in any of the three traffic lanes that form the northern loop of Columbus Circle. The closer to the building, the greater the chance of increased levels of damage and destruction. Likewise, the configuration of streets entering Columbus Circle enables the driver of a vehicle laden with explosives to accelerate around the Plaza and approach the front portico on a trajectory path, in order to place the vehicle as far into the open space beneath the portico as possible before detonation.

The two principal goals to be achieved by the implementation of the WUS Security Upgrades Project are:

1. to provide an adequate level of blast protection from most types of explosive-laden vehicles that might detonate in front of the station by creating a stand-off in front of the portico and flanking loggias, and

2. to preserve the historic character of the front of the station building relative to Columbus Plaza and Columbus Circle.

## DESCRIPTION OF THE HISTORIC RESOURCES

Daniel Burnham's design of the front of WUS embodies the principals of the Beaux Arts language, honed from his many building designs of the 1893 Columbian Exposition in Chicago. These include the five-part symmetrical organization with a monumental, tripartite triumphal-arch entrance motif with arched openings in the center portico, and including colossal, fluted, engaged Ionic columns supporting six allegorical statues by Augustus Saint-Gaudens See Fig. 2 – next page). The end pavilions are slightly diminished in size from the center portico although they, too, contain arched openings flanked with engaged fluted Ionic columns surmounted with

statuary. Connecting the end pavilions and the center portico are two open, colonnaded loggias with two-story, Ionic pilasters articulating the rhythm of each of the seven single-story, round-arched openings and the triple office windows within each bay above (see Fig. 3).

Fig. 2 – view north through Columbus Plaza toward center portico and flanking loggias on south (front) elevation of Washington Union Station.

Fig. 3 – view north through Columbus Plaza toward eastern end pavilion, loggia and center portico (photo left) of Washington Union Station.

Like the center portico, the loggia spaces to its east and west are open to the weather and enable the public and passengers alike to stroll the length of the more than 600 foot wide front of the building. The loggia and portico also provide a monumental transition for the station user into the building.

Burnham's design for Columbus Circle and Columbus Plaza were based on grand European precedents, including the Place de la Concorde in Paris and the Piazza di Stazione Termini in Rome. The design was semicircular and acted as a locus to gather and organize the radiating streets into the Plaza while simultaneously providing a grand setting for the magnificent Beaux Arts station building. The construction of the Circle and Plaza were both completed in 1912 and Lorado Taft's sculptural fountain, the centerpiece of the Plaza, was subsequently completed and installed in 1912 as well.

## POTENTIAL IMPACTS

According to the National Historic Preservation Act implementing regulations 36 CFR 800.5(a)(1), an adverse effect is found "when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Based on this criterion, the implementation of the WUS Security Upgrades project constitutes an adverse effect and Section 4(f) use of to this building. The project does not involve a use of Columbus Plaza.

## ALTERNATIVES CONSIDERED

### *No action*

Under the *No Action Alternative*, also called the "No-Build Alternative," the existing roadways, taxi lanes, sidewalks and landscape features of Columbus Circle and Columbus Plaza would simply be maintained as at present. Under this alternative, there would be no hardening to the front of the station, and there would be no additional levels of protection provided for the building's users or for the building itself – especially the front portico and the flanking loggias.

Additionally, the No-Build Alternative would not enable a highly visual and tangible message to individuals seeking to inflict terror on Amtrak's customers and the building's users that effective and meaningful security measures have been placed into effect.

For these reasons, the No-Build Alternative is not considered to meet the purpose and need of the project; it is therefore, not prudent.

### *Alternatives Considered and Dismissed*

Several alternatives were developed and considered. To begin, passive measures such as closed-circuit television (CCTV) monitoring and increased patrols and guards in front of the building were investigated. Although they were implemented, they were not found to be an adequate deterrent to a vehicle laden with explosives traveling at a high rate of speed toward the front portico of the building.

Several possible means of providing a stand-off in front of the building, including the installation of concrete barriers (also known as "jersey barriers") and the installation of decorative concrete benches, tables, planters and other forms of sidewalk furniture were also investigated. Preliminary calculations revealed that a typical concrete bench would need to be of such a distorted height and thickness (in order to withstand a vehicular impact) that it would be grossly out of scale and visually inappropriate to the character of the building. Likewise, concrete barriers were considered equally unacceptable because they too would be inappropriate to the scale and character of the building – and they require numerous break points to permit pedestrian movement.

In addition, the potential threat posed to the side elevations and rear elevation of the building was also investigated. These areas were determined to be less of a risk because: 1) they do not contain the quantity of people entering and exiting the building at any time, 2) they are not as structurally connected to the roof framing of the portico or the main vaulted ceiling areas, and 3) they are not as visually prominent on the building as the front elevation.

Finally, the possible use of drop-gate and collapsible concrete slab technologies as a means of providing stand-off in the front of the building was investigated. These are only feasible in certain portions of the front of the building. Directly beneath certain areas on the western portion of the front elevation, the top of the WMATA subway tunnel is within approximately 20" of the surface, and directly beneath certain areas of the eastern portion of the front elevation, the top of Amtrak's passenger rail tunnel is within approximately 20" of the surface. Drop-gates

and collapsible concrete slabs require significantly greater depths than 20” to be properly installed.

For the reasons listed herein, these solutions are not prudent and in some cases not feasible.

***Proposed Action***

The Proposed Action envisions the installation of a series of bollards and hardened planters in front of, and along the east and west sides of Washington Union Station (WUS). In the area directly in front (to the south) of the portico, concrete-filled steel bollards will be placed in the center of the aisleway between the traffic lanes A and B – thus providing a roughly 25 foot stand-off from the curbline at the building. The bollards will each be approximately 2’-6” in height and 6” in diameter, with plain rounded caps that contain flat tops. The bollards will be painted black to be similar in color to the adjacent street lamps and ornamental rostral columns. They will be spaced at 5’-0” intervals, and each bollard will be set into a continuous, reinforced-concrete matte, roughly 20” in thickness, placed below the finished paving material.

In the areas of the curblines at the flanking loggias, steel posts with rounded caps will be grouped, with horizontal railings to create hardened planters, within which ornamental shrubs will be planted. The steel posts will also be approximately 2’-7½” in height, 6” in diameter, and spaced at 5’-0” intervals. Each post will be set into a continuous, reinforced-concrete matte, roughly 20” in thickness, placed below the finished paving and planting materials. The railings will be 1½” in diameter; both the posts and railings will be painted black.

On the hardened planters, the connections between the railings and posts will be provided by a series of 8” diameter, cast-steel caps, welded horizontally and vertically to all intersecting elements – thus providing a reinforced grillage.

The spacing of the bollards and hardened planters are designed to withstand impacts by vehicles of specific calculated weights and velocities, approaching the building from specific angles, while at the same time directing pedestrians crossing between the sidewalk in front of the station and Columbus Plaza. The hardened planters and bollards combine to provide an informal level of architectural pedestrian control, directing people to cross at designated crosswalks and at the boarding area for taxis, tour buses and private vehicles directly in front of the station. The shrubbery will form a solid line, and visually moderate the appearance of the steel posts and railings, which will discourage pedestrians from taking short-cuts to cross the traffic lanes.

Accessible curb cuts will be placed in alignment with the end pavilions at the eastern and western ends of the front of the building. These curb cuts, along the accompanying contrasting paving, will visually align with the round-arched openings in the end pavilions of the building and the existing historic rostral columns; they will direct pedestrians between the sidewalk in front of the station and the small islands containing the flanking rostral columns. The bollards in these locations will be situated within the opening of the east and west end pavilions, and will be placed 5’-0” on center, in accordance with the U.S. Access Board’s minimum design requirements.

In general, there is a sense of symmetry in the overall layout of the hardened planters and bollards in the front of the building that mirrors the symmetry in the building’s massing and

articulation. Two continuous lines of hardened planters are placed in front of the continuous lines of the two loggias. Likewise, bollards are stepped forward into the island between traffic lanes A and B in the area of the projecting main entrance portico, and the bollards, in turn are recessed into the round-arched openings on the two pavilions on the east and west ends of the building. These elements all combine to form the requisite level of stand-off associated with the project.

Each end of the northern traffic lane (lane A) directly in front of the building will contain four removable steel bollards, placed across the lane – thus preventing vehicular access within 25 feet of the curbline in front of the building. During normal operations, these bollards will not be in place, thus allowing taxis and other authorized vehicles to come as close to the entrance as possible for the convenience of passengers being dropped off or picked up. During periods of heightened security alerts, the bollards will be inserted in place by Amtrak staff, thus increasing the level of stand-off.

On the eastern side of the building, bollards will be installed at the curbline in front of the Garage East Access Ramp to a distance of approximately 150 feet to the loading ramp. At the loading ramp, three removable bollards will be installed. Normally, the removable bollards will be kept in place; however, they can be removed when large deliveries are brought to the loading ramp.

On the western side of the building, bollards will be installed in the southern and western arched openings of the end pavilion and at the curbline directly in front of the new bicycle transit center, to a distance of approximately 130 feet, in line with the northern wall of the Washington Metropolitan Area Transit Authority (WMATA – or Metro) Corridor (loggia) on the western side of the station. On the western arched opening of the end pavilion, the two bollards will be removable, in order to accommodate movement of deliveries to merchants on the western side of the building. However, these removable bollards will ordinarily remain in place.

## MEASURES TO MINIMIZE HARM TO 4(f) PROPERTIES

Although no actual physical resources will be affected by the proposed action, the monumental appearance of the front of the Washington Union Station building will be adversely affected. In compliance with Section 106 of the National Historic Preservation Act, Amtrak proposes to minimize the harm to the resource with the following preliminary design refinements that ultimately led to the design of the proposed action (described above):

*1. Stone bollards*

The initial design contained only bollards, designed to be constructed of steel posts with decorative granite or stone casings, to be either round or geometric in shape. These created a visual inconsistency with the monumental stone façade of the building, particularly in the area adjacent to the projecting front portico, irrespective of whether the shape of the bollard was round or geometric (such as square, hexagonal or octagonal). In addition, the bollard sizes would be inappropriately exaggerated due to the requisite thicknesses of the materials.

*2. Metal bollards and hardened planters*

The refined design contained metal bollards (and only bollards) – it did not contain any hardened planters. This created a visually intrusive, repetitive appearance that was architecturally unresponsive to the rhythm of the Burnham design of the station façade.

The installation of hardened planters utilizing steel posts and railings of a similar size and scale of the bollards, combined with the use of a line of shrubbery enabled the stand-off to become significantly less visually intrusive against the front of the station and plaza. It also provided the added benefit of directing pedestrians toward the appropriate locations where safe crossing can take place.

*3. Design of the hardened planters*

The initial design of the hardened planters showed 6" diameter, steel, horizontal railings between the vertical posts, anchored within 8" diameter steel caps. The design was refined by reducing the diameter of the horizontal railings to 1½", which did not decrease their structural capacity, but which did noticeably reduce their visual impact on the front of the building.

During the design, the placement of the steel posts for the hardened planters was also refined slightly, so as to allow the posts to meet the ground on a slightly elevated (1" to 2" height) concrete curb. This eliminated the visual awkwardness of the posts meeting the ground within the planting bed. It also provided a clean detail to contain the soil and mulch of the planting beds and keep them from spilling out onto the sidewalk and curb.

The possibility of substituting heavy-gauge, cast-iron chains (as is seen in certain other landmark buildings around the city) in place of the steel horizontal railings was investigated during design. Although the chains reduced the overall visual impact of the hardened planters, they also increase the maintenance responsibilities in the front of the station. Cast-iron chains are prone to rust at all the points of contact between the links, and are therefore in need of constant touch-up painting. On the other hand, steel railings only require repainting at intervals comparable to other steel elements – such as the historic rostral columns.

*4. Bollard and hardened planter color*

The initial color of the bollards and hardened planters was grey, to blend in with the monumental stone walls of the façade of the building. Although the grey color is appropriately employed in other buildings in the city, it was found to be visually inconsistent with the color of the stone work on the building. Likewise, a green color, similar to bollards utilized in other locations in the city, was considered but also found to be visually inconsistent with the color of the stone work on the building.

The color black was considered and ultimately determined to be appropriate for the bollards and hardened planters. The existing historic rostral columns and adjacent street lamps are black, and provide a contextual precedent for the bollards and hardened planters; and the color black provides the greatest level of visual consistency with the building (the arched openings in the loggias and the projecting front portico and end pavilions provide deep shadow lines that reinforce the visual rhythm of the bollards and planters).

*5. Bollards at the Massachusetts Avenue island at First Street, N.E.*

This initial design contained bollards throughout the pedestrian island separating Massachusetts Avenue and First Street, N.E., just west of the historic rostral columns. After careful review, these bollards were found to be functionally unnecessary – they did not significantly contribute to the stand-off in front of the southwest corner of the building. Likewise, they were visually distracting to the appearance of the station. Although they provided a modicum of protection to pedestrians standing on the island from vehicles, the benefits gained by the protection did not provide adequate justification for the visual intrusion to the front of the station.

*6. Relocation of the curb-cut at the west end pavilion*

The initial design called for the curb cut along the western section of the hardened planters to align with the eastern end of the historic rostral column, which facilitated a direct pedestrian crossing onto the sidewalk in Columbus Plaza. During design, the curb cut was relocated approximately 25 feet westward to be in visual alignment with the axis created by the opening in the westward rostral columns and the round-arched opening in the west end pavilion. With the repositioning of the curb cut, the western section of hardened planters became one single, continuous line - symmetrical to the eastern section of hardened planters. Both sections of planters reinforce the rhythm and symmetry of the loggias flanking the projecting center pavilion.

*7. Bollard spacing*

The initial design placed bollards at 4’-0” on center in the aisleway between the two northern traffic lanes (lanes A and B), and on the east and west sides of the building. Although this was an appropriate bollard spacing to provide proper deflection of vehicles at calculated angles and velocities, the bollards were determined to be too closely spaced for comfortable passage of individuals using wheelchairs and individuals carrying baggage and suitcases, especially during peak rush times.

The bollard spacing was increased to 5’-0” on center, which enabled greater numbers of persons to pass through during rush times. The size of the continuous, reinforced-concrete matte below the bollards was redesigned and increased to provide the same level of protection from impacting vehicles.

In addition, the increased spacing between the bollards reduced the total quantity to be placed in front of, and along the sides of the building, thus again decreasing the amount of visual intrusion created by the project.

Finally, the placement of planters in front of the loggias and the placement of bollards in the large, round-arched openings in the east and west end pavilions and the island between traffic lanes A and B was studied to determine if they pose a possible “pinch point” either for persons exiting the building during times of emergency or for emergency crews (such as fire and rescue personnel). Consultation with the District of Columbia Fire Department personnel determined to not pose a “pinch point.” The spacing of the bollards in the east and west pavilion openings was acceptably large enough for people to evacuate without delay and for emergency responders to

enter without hindrance. Likewise, the distance between the front façade of the loggia and the hardened planters was acceptably large enough so as to not constrict the movement of people or equipment.

*8. Adjustment to the quantity of bollards in the island between traffic lanes A and B*

The initial design aligned the endmost bollards of the island between traffic lanes A and B with the ends of the hardened planters. However, investigation during the course of project design revealed possible diagonal trajectory paths of an incoming vehicle aiming to approach the building between the island bollards and the planters. Therefore, it was deemed appropriate to add additional bollards in the island, in order to prevent oncoming vehicles from reaching the building by approaching at an angle in between the bollards at the island and the hardened planters at the curb-line. This quantity of additional bollards does not noticeably change the visual character of the landscape in front of the station.

*9. Bollard and hardened planter height*

The initial design specified the bollards and hardened planters to be 3'-0" in height – a standard industry height for bollards. However, investigation of the sight lines of the bollards and hardened planters from various points within the Plaza, combined with vehicular impact investigations indicated that bollards and hardened planters could be reduced to approximately 2'-6" in height (but no less). As a clarification, however, the actual of the concrete-filled steel element must be 2'-6" in height; when the 8" diameter cap is added to the top of the planter, the overall finished height becomes approximately 2'-7½", in comparison with the 2'-6" finished height of the bollards. This minor difference is inconsequential.

The question of whether the height of the new 6" tall granite curb could be included as part of the overall minimum 2'-6" height was investigated (to see if the height of the bollards and hardened planters could be reduced to 2'-0"). Various standards researched indicate that the height of the curb can only be included as part of the overall height if the nearest face of the bollard is positioned at 6" or less from the face of the curb. Here, the face of the bollards and hardened planters is 11½" to 12" from the face of the curb. A design effort was made to decrease the distance, but the granite curbs are uniformly 9" in thickness, and a 2½" to 3" clearance of concrete between the back of the curb and the front of the bollard is required to keep the concrete from spalling, cracking and allowing the penetration of water against the bollard.

## COORDINATION

Amtrak and FRA have consulted with District of Columbia Historic Preservation Office (DC SHPO) and the National Capital Planning Commission (NCPC), to comply with the National Historic Preservation Act. This consultation led to the development of the *Washington Union Station Security Upgrades Environmental Assessment*, a document prepared in order to analyze the potential environmental impacts of the project and to memorialize all the design refinements employed to minimize the impact of the undertaking on the affected historical resource and to mitigate the resultant activities of the undertaking.

Also as part of the Section 106 Consultation Process, the following additional agencies, organizations and institutions were consulted:

- National Park Service
- Architect of the Capitol, Planning & Programming Division
- Administrative Offices of the United States Courts
- United States General Services Administration
- United States Commission of Fine Arts (US CFA)
- District of Columbia Department of Transportation
- District of Columbia Office of Planning
- D.C. Preservation League
- Committee of 100 on the Federal City
- Capitol Hill Restoration Society
- Smithsonian Institution, Architectural History and Historic Preservation
- Jones Lang LaSalle (agent for the various tour companies who drop off and pick up passengers in front of WUS)
- Historical Society of Washington D.C.
- Area Neighborhood Commission 6C
- Stanton Park Neighborhood Commission

Each agency, organization and institution was contacted electronically and by U.S. Mail, and invited to a public meeting where the undertaking was presented and questions/comments by attendees taken by the design team, which consisted of Amtrak and the Union Station Redevelopment Corporation (USRC). Each invitation packet contained: 1) an invitation letter, 2) a rendered site plan showing the project area in front of WUS, 3) rendered drawings of bollards and planters, and 4) a list of possible consulting parties. Each agency, organization and institution was also requested to pass the invitation along to any individual or group that might also have an interest in the undertaking.

The public meeting took place on Friday, February 8, 2008, 9:30 a.m. at the offices of USRC. The undertaking was presented in detail, and numerous questions and comments were raised, and clarifications/answers were provided.

Also as part of the Section 106 Consultation Process, it was agreed that this draft *WUS Security Upgrades EA* document would be electronically distributed to each of the attendees at the public meeting for a period of 30 calendar days to review and offer written comments back to Amtrak and USRC. In addition, this draft *WUS Security Upgrades EA* document was posted on the FRA web site (www.fra.dot.gov) for ease of public review and comment, and a hard copy of this document was made available at the offices of USRC for public inspection, review and comment during the same 30 calendar period of time. All comments received will be collated and posted, along with responses, as part of Appendix C of the final *WUS Security Upgrades EA* document.

The final component of the Section 106 Consultation Process is the Memorandum of Agreement (MOA) (see Appendix E for a copy of the draft MOA), which summarizes this effort in its entirety; it is prepared for signature by the FRA, the DC SHPO and NCPC. It is noted that the final review and approval of the undertaking by NCPC (a signatory of the MOA) will not take place until after it is presented and discussed at a regularly-scheduled public meeting of NCPC's commissioners. In addition, NCPC's commissioners will not approve the undertaking until it has been reviewed and approved by the commissioners of the US CFA (a Consulting Party to the undertaking) at a regularly-scheduled public meeting.

**SECTION 4(F) DETERMINATION**

With the implementation of the measures described herein that minimize the harm to the resource, the Washington Union Station Security Upgrades Project (the Proposed Action) is the only feasible and prudent alternative.

FRA concludes that there will be a use of a Section 4(f) resource from the proposed action, but there is no feasible and prudent alternative to the proposed action that fully satisfies the project purpose and need. Amtrak and FRA have consulted with NCPC and the DC SHPO to ensure that all possible planning has been undertaken to minimize harm and/or mitigate adverse effects to historic resources.

JUL 23 2008

Administrator, Federal Railroad Administration Date

# APPENDIX E

Copy of Memorandum of Agreement (MOA) (4 pages).

# MEMORANDUM OF AGREEMENT
# AMONG THE FEDERAL RAILROAD ADMINISTRATION, THE NATIONAL RAILROAD PASSENGER CORPORATION AND THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE REGARDING WASHINGTON UNION STATION SECURITY UPGRADES IN WASHINGTON, D.C.

**WHEREAS** the National Railroad Passenger Corporation (Amtrak), with funding provided by the Federal Railroad Administration (FRA), proposes to implement certain security upgrades at Washington Union Station in Washington, D.C., hereinafter referred to as the Undertaking; and

**WHEREAS** the security upgrades will generally consist of the installation of bollards along the sidewalks in the front and portions of the side elevations of the building; and

**WHEREAS** FRA and Amtrak have consulted with the District of Columbia State Historic Preservation Office (DC SHPO), in accordance with the National Historic Preservation Act, as amended (16 USC 470) and its implementing regulations (36 CFR 800); and

**WHEREAS** Washington Union Station, designed by Daniel Burnham, is individually listed in the National Register of Historic Places; and

**WHEREAS** Amtrak, operating on behalf of the FRA, has revised the plans to minimize effects in response to comments from the DC SHPO, the U.S. Commission of Fine Arts, and the National Capital Planning Commission; and

**WHEREAS** FRA and Amtrak have determined that the Undertaking will have an adverse effect on the National Register-listed Washington Union Station; and

**WHEREAS** FRA and Amtrak have sought and considered public comment and invited participation by the following agencies, organizations and institutions:

- National Park Service
- Architect of the Capitol, Planning & Programming Division
- Administrative Offices of the United States Courts
- United States General Services Administration
- District of Columbia Department of Transportation
- District of Columbia Office of Planning
- D.C. Preservation League
- Committee of 100 on the Federal City
- Capitol Hill Restoration Society
- Smithsonian Institution, Architectural History and Historic Preservation
- Jones Lang LaSalle (agent for the various tour companies who drop off and pick up passengers in front of WUS)
- Historical Society of Washington D.C.
- Area Neighborhood Commission 6C

- Stanton Park Neighborhood Commission; and

**WHEREAS**, the Advisory Council on Historic Preservation (Council) has been notified of the determination of adverse effects in accordance with 36 CFR 800.6(a)(1) and has declined to participate in the consultation process;

**NOW, THEREFORE**, the FRA, Amtrak, and the DC SHPO agree that upon Amtrak's decision to proceed with the Undertaking, Amtrak will ensure that the following stipulations are implemented in order to mitigate the adverse effects of the Undertaking on historic properties, and that these stipulations shall govern the Undertaking and all of its parts until this Memorandum of Agreement (Agreement) expires or it is terminated.

## STIPULATIONS

### I. Mitigation Measures

To mitigate the adverse effect on historic properties caused by the Undertaking, FRA, Amtrak, and DC SHPO agree that Amtrak will prepare a Historic Resource Survey of the platform area of Washington Union Station that identifies extant potentially historical elements in the area of the platforms.

Elements of the Survey include the following considerations:

1. The Survey will focus exclusively on the platform area of the Station, and not the remaining areas of the building.
2. The Survey will contain an introductory section that describes the history and alterations of the platforms over time and an annotated floor plan graphically depicting the alterations over time.
3. The Survey will contain a narrative description of the platform area, including digital photographic images of all components of the platform which appear to be older than 40 years including, but not limited to canopies, columns, railings, platforms, signage, surfaces, and systems.
4. The Survey will identify which of the platform components appear to be significant to the history, design, and/or development of the platform area and explain why those components appear to be significant.
5. The Survey will contain a second annotated floor plan to which the digital images are keyed for ease of reference.
6. The Survey will not contain any discussion of the existing condition of the historic components of the platform area or of the condition of the platform area's super-structural or sub-structural systems.
7. The Survey will not contain any recommendations for treatment for the historic components of the platform area.

Amtrak will submit one hard copy of the Survey, in draft form, to FRA and the DC SHPO within 180 calendar days after the final signature date of this Agreement. FRA and the DC SHPO will provide written comments to Amtrak within 30 calendar days of receipt of the draft copy of the Survey. Amtrak will revise the Survey in accordance with any comments and will submit one hard copy of the Survey, in final form, to FRA and to the DC SHPO within 30 calendar days of receipt of said written comments.

## II. General Provisions

A. Amendment of the Agreement

If changes to the proposed project occur that might result in additional or new effects on historic properties, FRA will notify the SHPO and Council. In accordance with 36 CFR 800.6(c)(7) of the Council regulations, signatories to the Agreement may request that it be amended. No amendment to the Agreement will be effective until all signatories to the Agreement agree in writing.

B. Termination of the Agreement

Any signatory of the Agreement may terminate it for cause. FRA and Amtrak shall either execute an amended Agreement with the signatories or request the comments of the Council in accordance with 36 CFR 800.7(a).

C. Dispute Resolution

Should any party to this Agreement object in writing to any action carried out in accordance with the Agreement, the signatories shall consult to resolve the objection. Should the signatories be unable to resolve the disagreement, the FRA shall forward all documentation relevant to the dispute to the Council. Within 45 days after receipt of all pertinent documentation, the Council will either:

provide the FRA with recommendations, which the FRA will take into account in reaching a final decision regarding the dispute; or

notify the FRA that it will comment pursuant to 36 CFR 800.7(c), and proceed to comment. Any Council comment provided in response to such a request shall be taken into account by FRA in accordance with 36 CFR 800.7(c)(4) with reference to the subject of the dispute. Any Council recommendation or comment will be understood to pertain only to the subject of the dispute; the FRA's responsibility to carry out all actions under this Agreement that are not subjects of the dispute will remain unchanged.

D. Duration of Agreement

This Agreement shall be valid through September 30, 2012 or until the Stipulations enumerated herein have been executed or the parties have agreed to terminate the Agreement, whichever comes first. If the terms of this Agreement have not been implemented by September 30, 2012,

this Agreement shall be considered null and void. In such event, the FRA or Amtrak shall notify the parties to this Agreement, and if it chooses to continue with the Undertaking, shall reinitiate review of the undertaking in accordance with 36 CFR Part 800.

EXECUTION of this Agreement, its subsequent transmittal to the Council, and implementation of its terms evidences that FRA and Amtrak have afforded the Council a reasonable opportunity to comment on the undertaking and its effect on historic properties, that FRA and Amtrak have taken into account the effects of the Undertaking on historic properties, and that FRA and Amtrak have satisfied their responsibilities under Section 106 of the Act and implementing regulations codified in 36 CFR Part 800.

FEDERAL RAILROAD ADMINISTRATION

By: _____ Date: JUL 23 2008

Joseph H. Boardman, Administrator

NATIONAL RAILROAD PASSENGER CORPORATION (AMTRAK)

By: _____ Date: 7/23/08

Alexander Kummant, President and Chief Executive Officer

DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE

By: _____ Date: 7/23/08

David Maloney, State Historic Preservation Officer