

1 Introduction

- 1 This chapter supplements Chapter 1 of the 2020 Draft Environmental Impact Statement (DEIS) for the
2 Washington Union Station (WUS) Expansion Project (the Project). ⁷
- 3 Union Station Redevelopment Corporation (USRC) is the Project Sponsor. USRC will be responsible for
4 implementing the Project through final design and construction, in coordination with Amtrak. As Project
5 Sponsor, USRC will also be responsible for implementing the measures proposed in **Section 7.1,**
6 *Mitigation Measures and Project Commitments*, to avoid, minimize, or mitigate the adverse impacts of
7 the Project.
- 8 No other additions or changes are made to this chapter.

⁷ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 1, *Introduction*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-1-introduction>.

2 Purpose and Need

- 9 No additions or changes are made to this chapter.⁸

⁸ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 2, *Purpose and Need*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-2-purpose-and-need>.

3 Alternatives

This chapter supplements Chapter 3 of the 2020 Draft Environmental Impact Statement (DEIS) for the Washington Union Station (WUS) Expansion Project (the Project)⁹ as follows:

- **Section 3.1** provides a summary of the comments received on the 2020 DEIS Preferred Alternative.
- **Section 3.2** describes the steps taken by the Federal Railroad Administration (FRA) and the Project Proponents—Union Station Redevelopment Corporation (USRC) and the National Railroad Passenger Corporation (Amtrak)—to refine the Project in light of these comments. This resulted in the development of a new Action Alternative, Alternative F.
- **Section 3.3** describes Alternative F.
- **Section 3.4** explains the designation of Alternative F as the Preferred Alternative.
- **Section 3.5** briefly summarizes the No-Action Alternative as presented in and unchanged from the 2020 DEIS.

3.1 Overview of Comments on the 2020 DEIS

The comment period for the 2020 DEIS lasted from June 4, 2020, through September 28, 2020, for a total of 116 days.¹⁰ Additionally, FRA hosted an online public hearing on July 14, 2020. During the review period, FRA received a total of 145 comments, including 122 written comments and 23 verbal comments submitted at the public hearing.¹¹ Commenters included elected officials; Federal and District agencies or organizations; private organizations, advocacy groups, and businesses; and private individuals.

Most of the comments on the 2020 DEIS were about various aspects of Alternative A-C (the 2020 DEIS's Preferred Alternative). The following summary does not constitute a comprehensive analysis of all

⁹ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 3, *Alternatives*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-3-alternatives>.

¹⁰ Council on Environmental Quality regulations implementing the National Environmental Policy Act at 40 Code of Federal Regulations 1506.11 (d) and FRA's *Procedures for Considering Environmental Impacts* at 64 *Federal Register* 28545, 5 May 26, 1999, as updated by 78 FR 2713, January 14, 2013 (under which the 2020 DEIS was prepared) provide for a minimum review period of 45 days.

¹¹ "Comment" as used here refers to a discrete written or verbal communication from a person, organization, or group of persons or organizations. One comment may address several topics and contain multiple items calling for separate responses. The same person or organization may have submitted several comments. Comments ranged in length and complexity from brief emails to a 650-page submission presenting alternative design solutions and impact analyses.

comments received. Instead, it highlights the comments focused on the 2020 DEIS Preferred Alternative and of relevance to the new Preferred Alternative:¹²

■ **Parking Capacity and Location:** Multiple commenters, including the Council of the District of Columbia, the District of Columbia Office of Planning (DCOP), the District Department of Transportation (DDOT), the National Capital Planning Commission (NCPC), Advisory Neighborhood Commissions (ANC) 6C and 2A, Amtrak, Federal City Council, the NoMA Business Improvement District (BID), and numerous private organizations and individuals requested reconsideration of the parking program. They commented that Alternative A-C provided excess parking capacity. They requested that FRA reconsider the Project's parking program to further reduce parking or eliminate it altogether. Most commenters advocating for a smaller parking program also opposed placing parking above ground or recommended placing it below ground.

■ **Bus Facility Capacity and Location:** Comments on the bus program were divided; some stakeholders requested more bus slips and others called for a smaller facility. Multiple comments from intercity bus operators (including Megabus, Greyhound Lines Inc., DC Trails, and the American Bus Association) as well as from tour guides and operators (including the Guild of Professional Tour Guides of Washington, DC and 45 professional tour guides or tour operators) expressed dissatisfaction with the proposed reduction in the number of bus slips relative to the existing bus facility. They also opposed the proposed dynamic management approach and associated 30-minute dwelling time limit.¹³

Other commenters emphasized the need to "right-size" the facility, suggesting a smaller facility. These commenters included organizations such as Federal City Council, DC Sustainable Transportation, and the Coalition for Smarter Growth, among others. NCPC, noted that several stakeholders questioned the size of the bus program and recommended that FRA further evaluate the facility's size. A few commenters suggested that the bus facility should be located below deck or underground.

Commenters such as DCOP and several bus operators noted that in Alternative A-C, buses exiting the proposed facility could not make a left turn onto H Street NE westbound. They asked that this limitation be reconsidered.

■ **Pick-up and Drop-off:** Several commenters (including, among others, ANC 6C, DCOP and NCPC) advocated for a centralized pick-up and drop-off facility in addition to the locations already provided in Alternative A-C. Many of these commenters recommended that this centralized facility be located underground.

¹² All comments received on the 2020 DEIS, as well as those received on this SDEIS, will be included in the Final EIS (FEIS), along with responses.

¹³ The 2020 DEIS referred to this approach as "active management". The currently preferred industry terminology is "dynamic management." This is the term used in this document.

- 62 ■ **Urban Design:** Often in conjunction with requests to reduce or eliminate parking and
63 relocate the proposed parking and bus facilities, many commenters indicated that
64 Alternative A-C did not make the most of the urban design opportunities offered by the
65 Project. For instance, DCOP commented that the Project should create a “great place” and
66 found that the long-term vision proposed for Washington Union Station did not match the
67 significant opportunity offered by such a critical location. NCPC emphasized the need for an
68 overarching vision and high-quality urban design that would maximize accessibility;
69 prioritize pedestrian and bicycle movements and effective pick-ups and drop-offs; and avoid
70 conflicts with vehicles. NCPC also noted that placing parking below ground could address
71 many of the Project’s urban design challenges.

72 ANC 6C commented that the Project must have as one of its priorities the creation of active,
73 inviting public spaces that enhance quality of life for those visiting the station and
74 surrounding area and for those living there. The District Councilmember for Ward 6 pointed
75 out that any design must create a station that is better integrated with the rest of the
76 neighborhood and serves the place-making role that this national gateway to the District
77 represents. Similarly, Federal City Council and other organizations recommended planning
78 for a vibrant urban place. Akridge, the owner of the private air rights above part of the rail
79 terminal, proposed what it described as an “inspirational plan” and a “vision” to modify
80 Alternative A-C.¹⁴

- 81 ■ **Pedestrian and Bicycle Access:** The Virginia Bicycle Federation, Adventure Cycling
82 Association, and the Washington Area Bicyclist Association, among others, commented on
83 pedestrian and bicycle access. Additionally, concerns about multimodal access, including
84 pedestrian and bicycle access, were reflected in many parking-related comments, as
85 commenters emphasized that better multimodal access would reduce the need for
86 automobile parking. Concerns about pedestrian and bicycle access were also commonly
87 associated with comments related to urban design. Commenters considered improved
88 pedestrian and bicycle connectivity an important part of a successful design.

89 Specific recommendations included providing protected bike lanes or paths; secured and
90 covered bike parking; secured lockers for storing valuables; and more Capital Bikeshare
91 stations. Other commenters recommended the construction of a greenway on the First
92 Street side of the station.

93 DCOP noted the importance of pedestrian-friendly connections between the H Street Bridge
94 and the train hall. The agency also noted the importance of enhanced pedestrian and bicycle
95 connections between the multiple entrances of the station and the surrounding

¹⁴ In 1997, Congress directed the General Services Administration to auction the then Federally owned air rights above the railroad infrastructure to the north of the historic station building for development purposes (Public Law 105-33). In 2002, Akridge, a private developer, won the public auction. Through this transaction, Akridge acquired air rights for a 14-acre area starting 70 to 80 feet above the tracks and extending from north of the historic station to K Street NE, excluding the areas currently occupied by the Claytor Concourse, vehicular ramps, WUS’s bus and parking facility, and the H Street Bridge.

neighborhood's sidewalk and bicycle networks. NCPC generally commented that the Project must maximize pedestrian and bicycle access in addition to promoting other transit access modes, including bus and rail.

3.2 Post-DEIS Refinements

In light of the comments received on the 2020 DEIS, FRA paused the NEPA process on October 5, 2020. FRA and the Project Proponents reviewed the comments and identified areas where the approach to the Project elements could be refined while remaining consistent with the Purpose and Need. FRA and the Project Proponents identified the following areas for refinement: parking and pick-up and drop-off; the bus facility; opportunities for air rights development; traffic circulation; urban design and building massing; and visual and aesthetic quality. **Section 3.2.1, *Refinement Process***, describes the coordination process through which the Project elements' design was updated and refined; **Section 3.2.2, *Updates and Refinements***, describes the results of the refinement process.

3.2.1 Refinement Process

3.2.1.1 Refinement Framework

Consistent with comments recommending a more integrated approach to urban design, FRA coordinated with Akridge on planning issues affecting both the Project and the future private air rights development. In 2021, FRA and the Project Proponents met with Akridge in a series of workshops to discuss and coordinate various elements of both projects. The refined approaches to the train hall, bus facility, multimodal transportation planning, and public space planning described in **Section 3.2.2, *Updates and Refinements***, emerged in part from this effort.

During the pause in the NEPA process, FRA and the Project Proponents also continued coordinating with DDOT and DCOP to discuss transportation and planning issues. The Project team met monthly to bi-weekly with these agencies to discuss key issues such as the bus facility; the parking program; pick-up and drop-off circulation; traffic management strategies, and transit bus activity. In a letter to FRA dated December 17, 2021, DDOT indicated their support for the proposed refinements.

Simultaneously, FRA and the Project Proponents conducted discussions with intercity bus carriers to further develop the bus program. CoachUSA/Megabus, Greyhound, BestBus, Peter Pan, and the Guild of Professional Tour Guides were involved in those conversations. The primary purpose of this coordination effort was to improve FRA and the Project Proponents' understanding of bus operations, including peak holiday operations, and to receive feedback on iterations of the bus program during the design refinement process.

3.2.1.2 Stakeholder Engagement

Beginning in Fall 2021, FRA and the Project Proponents engaged with a broader range of Project stakeholders through targeted briefings to offer updates and opportunities to provide feedback on the

refinements. FRA and the Project Proponents briefed the following stakeholders: the Mayor's Office; the Deputy Mayor for Planning and Economic Development office; DDOT; DCOP; the District State Historic Preservation Office (SHPO); NCPC staff; Commission of Fine Arts (CFA) staff; the Federal Transit Administration (FTA); and ANC6. Subsequently, FRA presented the Project to the Section 106 Consulting Parties on March 2, 2022, and to the Cooperating Agencies on March 4, 2022.¹⁵

In the spring of 2022, FRA and the Project Proponents identified further refinements to reduce construction costs and duration. Following these further refinements, FRA and the Project Proponents presented the Project to CFA at CFA's June 16, 2022, public information meeting. In its written response, dated June 22, 2022, CFA noted that the updated design is highly responsive to previous comments.¹⁶

FRA and the Project Proponents presented the Project to NCPC for comments at NCPC's July 7, 2022, public meeting. In its written response, NCPC expressed its support for the updated Project design and commended FRA and the Project Proponents for developing a design that is substantially responsive to previous comments.¹⁷ As part of the meeting, the NoMA BID, ANC 6C, the Washington Area Bicyclist Association, and Akridge expressed general support. Bus operator representatives expressed concerns about the size and operation of the bus facility.

3.2.2 Updates and Refinements

This section describes the updates and refinements FRA and the Project Proponents made to the Project elements through the process summarized in **Section 3.2.1.1, *Refinement Framework***, in response to the comments received on the 2020 DEIS. These updates and refinements focused on the following elements:

- The parking facility (**Section 3.2.2.1**);
- The bus facility (**Section 3.2.2.2**);
- Pick-up and drop-off (**Section 3.2.2.3**);
- Urban design (**Section 3.2.2.4**); and
- Pedestrian and bicycle access (**Section 3.2.2.5**).

3.2.2.1 Parking Facility

To address comments calling for reconsideration of the parking program, FRA and the Project Proponents reviewed the demand analysis that was used to develop the parking program presented in

¹⁵ The following Section 106 Consulting Parties attended the March 2 meeting: SHPO; Advisory Council on Historic Preservation; Architect of the Capitol; CFA; FTA; NCPC; District Council member Charles Allen; DDOT; ANC6; Washington Metropolitan Area Transit Authority; MARC; VRE; National Trust for Historic Preservation; DC Preservation League; DC Chapter of National Railway Historical Association; Committee of 100 on the Federal City; Capitol Hill Restoration Society; CoachUSA/Megabus; and Akridge. The following agencies attended the March 4 meeting: DDOT; FTA; and NCPC.

¹⁶ <https://www.cfa.gov/records-research/project-search/cfa-16-jun-22-1>

¹⁷ <https://www.ncpc.gov/review/archive/2022/07-07/>

the 2020 DEIS. The demand analysis provided projections based on a 2015-2016 existing demand baseline and resulted in a total projected demand of approximately 1,600 spaces.

In 2020, after the publication of the DEIS, more recent usage data became available, covering the years 2017, 2018, and 2019. FRA and the Project Proponents updated their demand projections based on these new data, using the same methodologies as the original projections. The update also incorporated additional data from Amtrak passenger surveys and an updated mode share factor derived from DDOT's 2014 *Move DC* plan,¹⁸ which called for a 13 percent reduction in automobile trips in the District relative to a projected 2040 baseline.

These updates resulted in a revised demand projection of approximately 860 spaces, including long-term parking, short-term parking, rental car parking, and WUS office parking. This projected demand is 46 percent less than the demand assumed in the 2020 DEIS.¹⁹

During the parking demand analysis update, FRA and the Project Proponents further confirmed that at least some parking should be maintained at WUS to accommodate a range of station users. Such users include those traveling in the early morning or late evening, when no or limited transit options are available. Other users include those who cannot easily use alternative transportation options. Some short-term parking should also be available for passenger matching activity, events at the station, and to support visitor access to the Capitol area as envisioned by the Union Station Redevelopment Act of 1981.

As part of the refinement process, FRA and the Project Proponents initially considered a two-level below-ground parking facility, sharing the space with a below-ground pick-up and drop-off facility on the first level (see **Section 3.2.2.3, Pick-up and Drop-off**). Access to the facility was considered via a two-way ramp on First Street NE, an inbound one-lane ramp on G Street NE, an outbound one-lane ramp on G Place NE, and an inbound ramp on K Street NE. After further review, to reduce cost and construction duration, FRA and the Project Proponents eliminated the second below-ground level. As a result of this change, the below-ground facility could only accommodate from 400 to 550 parking spaces. The K Street ramp was no longer needed and was eliminated from the Project. Additionally, in response to a review by DDOT, the unidirectional G Street and G Place NE ramps were consolidated into one bidirectional ramp on G Street NE. Because of the ramp on G Street NE, the bus slips proposed at this location in the 2020 DEIS were eliminated. Additionally, the updated parking program would provide an opportunity to accommodate electric vehicle (EV) charging. The number of charging spots would be determined during design.

3.2.2.2 Bus Facility

FRA and the Project Proponents also reviewed the scale and location of the bus facility to address comments on the bus program. FRA and the Project Proponents coordinated with the bus carriers to

¹⁸ <https://movedc-dcgis.hub.arcgis.com/documents/DCGIS::2014-movedc-part-1-strategic-multimodal-plan/explore>

¹⁹ Refer to **Appendix S1, Multimodal Refinement Report**, for a detailed discussion. The projected parking demand must be distinguished from the amount of parking provided by the Project, as explained further down in this section.

receive additional input about schedules, operating assumptions, and peak operating demand data to inform reconsideration of bus facility operations.

FRA and the Project Proponents evaluated a range of potential growth rates for bus service to 2040. On this basis, FRA and the Project Proponents developed a program of 38-39 bus slips. FRA and the Project Proponents also identified a location for the bus facility that was not considered in the 2020 DEIS. The new east to west oriented bus facility would be located immediately adjacent to the train hall and integrated into the deck. This location would facilitate the integration of the bus facility with the train hall and the remainder of WUS; allow for efficient bus circulation; and free up space on the deck for public space development. The facility would provide an opportunity for electric bus charging infrastructure.

Based on feedback from carriers and the tour bus industry, FRA and the Project Proponents also evaluated how the facility would manage peak events, such as the Thanksgiving season or major events in the District. An evaluation of peak event demand showed that the proposed program could accommodate estimated annual peak intercity travel events, such as major holidays. However, a few times a year, additional space may be required to accommodate exceptional tour and charter bus peak loads associated with special events, such as the Cherry Blossom Festival or large demonstrations. In such cases (four to 10 days per year), the demand could exceed the 38-39 proposed slips. FRA and the Project Proponents determined that the pick-up and drop-off area on the H Street deck level in front of the train hall could accommodate approximately 15 additional buses during these exceptional peak events.

3.2.2.3 Pick-up and Drop-off

FRA and the Project Proponents revised the Project design to include a below-ground, centralized pick-up and drop-off facility, as several 2020 DEIS commenters suggested. This facility would be co-located with parking on one below-ground level with access ramps on G Street NE and First Street NE (see **Section 3.2.2.1, Parking Facility**). In addition, an exit ramp along the east side of WUS would provide access from the queuing area of the facility to the front of the station. Some pick-up and drop-off space would continue to be provided on First and Second Streets NE, in front of WUS, and at the deck level (next to the train hall, above the bus facility).

3.2.2.4 Urban Design

FRA and the Project Proponents coordinated with Akridge on opportunities to enable a public space on the H Street deck level. This coordination effort is consistent with the Project's purpose of integrating the Project with adjacent land uses. It is also responsive to requests by Federal and District agencies, including NCPD, to achieve a shared vision for the civic and urban space around the station.

This coordination effort focused on developing an approach to the Project elements at the H Street deck level that would enhance opportunities for the creation of a public space commensurate with WUS's historic and architectural significance, centered on the historic station building. Moving parking below ground and integrating the bus facility into the deck would make it possible to establish a strong visual connection between the station and H Street. It would also allow for an overall site design respectful of

the symmetry of WUS. The private air rights developer would be primarily responsible for the design of the public space and would be responsible for its construction, which would occur in conjunction with the development of the private air rights. Project elements within the space, such as skylights to provide the passenger concourse below with daylight, would be placed and designed in collaboration with the private air rights developer.

3.2.2.5 Pedestrian and Bicycle Access

The refinements made included two new ramps to provide enhanced pedestrian and bicycle access opportunities on the west and east sides of WUS, respectively. These ramps would replace the existing west and east ramps currently providing access to and from the parking garage. The west ramp would facilitate pedestrian and bicycle access from the front of WUS and First Street NE to H Street and the air rights development on the deck level. To maintain needed operational flexibility, the ramp could be used to move cars from H Street NE to First Street NE when planned or unplanned closures require it. This would be an infrequent occurrence. Most of the time, the ramp would function as an exclusively pedestrian and bicycle pathway.²⁰

The east ramp would facilitate bicycle and pedestrian access from Columbus Circle and the east side of WUS to the bus facility. It would occasionally provide an alternative exit for buses when the exit to H Street NE is unavailable, for instance during planned maintenance activities or unplanned, emergency situations. Such occasions are anticipated to be rare. The development of this feature led to the elimination of the vehicular southbound ramp from the deck to F Street NE that was proposed in the 2020 DEIS. New bicycle parking would be provided in the undercroft of the ramps as well as in the H Street Concourse, near the entrances from First and Second Streets NE.

3.2.3 Purpose and Need Analysis

FRA used the screening process described in Section 3.1.3, *Concept Screening*, of the 2020 DEIS to assess whether the Project, after incorporation of the refinements described in Section 3.2.2, *Updates and Refinements*, would meet the Purpose and Need. The result of this assessment is summarized in Table 3-1.

Table 3-1. Purpose and Need Assessment

Purpose and Need Element	Analysis
Support current and future long-term growth in rail service and operational needs?	Yes. With the refinements, the Project would provide the needed platform/rail capacity and rail operational requirements.
Achieve compliance with the Americans with Disabilities Act (ADA) and emergency egress requirements?	Yes. With the refinements, the Project would achieve compliance with the ADA and emergency egress requirements, which would be incorporated in Project design.

²⁰ The west ramp could also potentially connect to a future “greenway” north of H Street NE if one is provided as part of the separate development of the private air rights in that area.

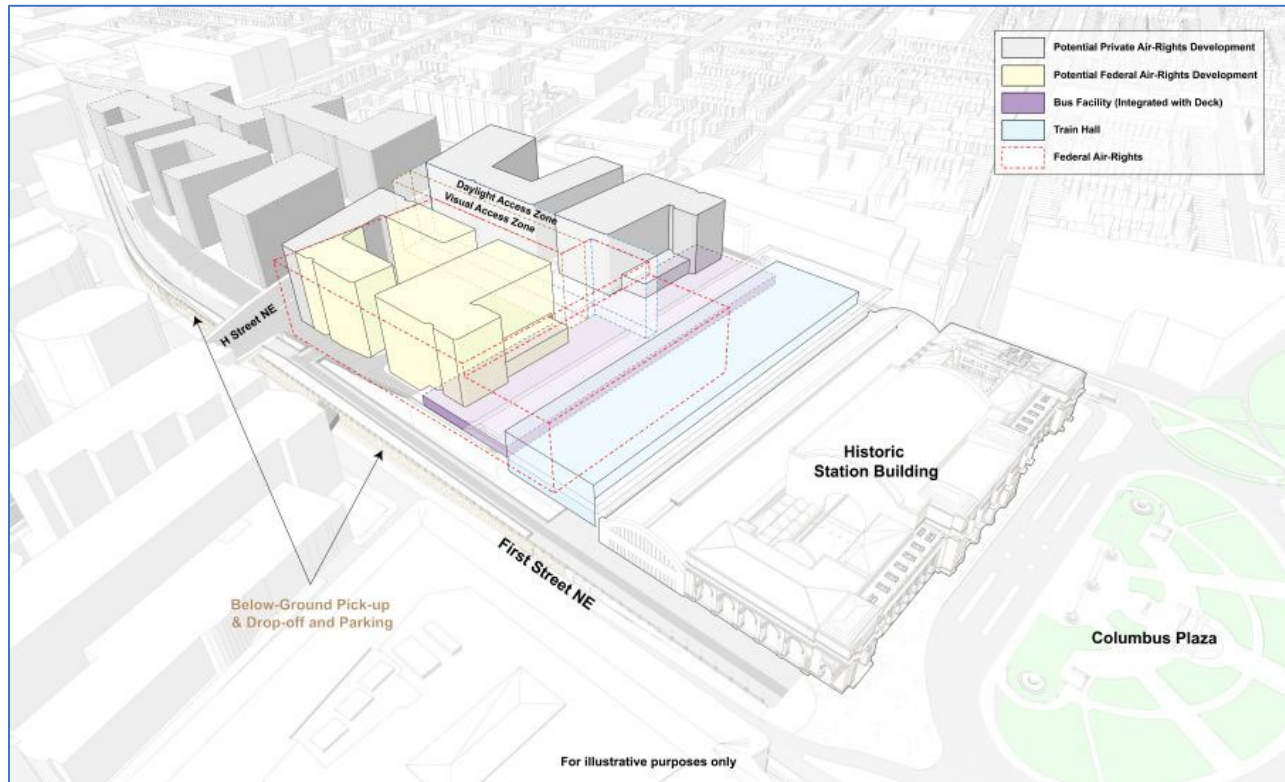
Purpose and Need Element	Analysis
Facilitate intermodal travel?	Yes. With the refinements, the Project would provide facilities that meet future multimodal capacity needs. It would improve internal circulation by keeping these facilities close to the front of the station.
Provide a positive customer experience?	Yes. With the refinements, the Project would provide a new train hall and concourses with room for enhanced amenities. It would closely integrate the bus facility with the train hall, keeping multimodal uses close to the front of WUS.
Enhance integration with the adjacent neighborhoods, businesses, and planned land uses?	Yes. With the refinements, the Project would provide an enhanced opportunity for a public space on the deck north of the station through the placement of the bus facility in the deck and coordination with the private air rights developer.
Sustain the station's economic viability?	Yes. With the refinements, the Project would provide additional space for retail, commercial, and station uses to generate revenue to maintain the station's economic viability.
Support continued preservation and use of the historic station building?	Yes. With the refinements, the Project would preserve and maintain use of the historic station building. All new elements would be constructed north of the historic Retail and Ticketing Concourse. Circulation patterns, including space for pick-ups and drop-offs in front of the station, would ensure the continued use of the historic headhouse.

The Project with the refinements described in this section would meet the Purpose and Need. Therefore, FRA identified the Project with the refinements as Alternative F and retained it for evaluation in this Supplemental DEIS (SDEIS).

3.3 Description of Alternative F

Alternative F features an east-west train hall north of the historic station building that would replace the existing Claytor Concourse. It includes a one-level, east-west bus facility integrated into the deck and directly connected to the train hall. Parking and a pick-up and drop-off facility would be located on one below-ground level below the new central, First Street, and H Street Concourses. Space on the H Street level north of the train hall would be available for establishing a central public space. In Alternative F, the historic station would continue to be the monumental focal point, the “gateway to the Nation’s capital,” and a primary pedestrian entrance and pick-up and drop-off location. **Figure 3-1** illustrates the key features of Alternative F; summary descriptions are provided after the figure. More detailed descriptions are available in **Appendix S2, Description of Alternative F**.

Figure 3-1. Illustration of Alternative F



- 257 ■ **Rail Infrastructure:** The rail terminal would be reconstructed to replace the existing tracks

258 and platforms with 19 new tracks: 12 stub-end tracks on the west side and seven run-

259 through tracks on the east side, along with associated platforms.
- 260 ■ **Concourses:** Four new concourses would be provided to facilitate public access and

261 circulation: east-west Concourse A (integrated with the train hall); east-west H Street

262 Concourse; north-south Central Concourse; and north-south First Street Concourse. The

263 new concourses would cover approximately 330,000 square feet.
- 264 ■ **Structures:** The east-west train hall would be approximately 150,000 square feet; it would

265 cover the train engines and part of the first car on all the tracks. The bus facility would be

266 approximately 122,500 square feet; it would be integrated within the deck.
- 267 ■ **Mix of Uses:** New retail space would be approximately 64,000 square feet; the Amtrak and

268 related support area would be approximately 379,400 square feet (mostly north of H Street

269 NE).
- 270 ■ **Parking:** Parking (including for rental cars) would be provided on one below-ground level

271 parking facility shared with a pick-up and drop-off facility. There would be space to park

272 approximately 400 to 550 cars. Access to and from the parking facility would be via ramps

273 on G Street NE and First Street NE.

- **Buses:** The one-level integrated bus facility would connect directly to the train hall, facilitating access and intermodal transfers. The bus facility would have 38 slips in normal configuration. An additional slip could be provided in the island platform when needed, for a total of 39 slips. In times of unusually high demand from tour and charter buses, buses could make use of the deck-level pick-up and drop-off area adjacent to the train hall, which would provide the equivalent of approximately 15 bus slips. Buses would access the bus facility via H Street NE and a new intersection on the east side of the H Street Bridge. Buses would exit back to H Street NE via a new intersection on the west side of the bridge.
- **For-Hire Vehicles/Pick-up and Drop-off:** A pick-up and drop-off facility would be provided on one below-ground level, shared with the parking facility. Access would be via the ramps on G Street NE and First Street NE described above for parking. In addition, there would be an exit ramp on the east side of WUS allowing taxis to drive to the front of the station to pick up passengers. The facility would provide the equivalent of approximately 60 pick-up and drop-off spaces. Pick-up and drop-off areas would also be provided in front of WUS, on First and Second Streets NE near H Street NE, and at deck-level next to the train hall, above the bus facility.
- **Bicycles:** Bicycle access would be facilitated by two ramps, one on the west side and one on the east side of the station. Parking and storage for approximately 900 bicycles would be provided beneath the ramps and in the H Street Concourse near the entrances from First and Second Streets NE. Additional bikeshare spots would also be provided (approximately 100).
- **Pedestrians:** Pedestrians would access WUS via the existing Metrorail station's First and G Street NE entrance; the southwest portico of WUS; the front of the station; and from H Street NE. New entrances would be located under the H Street Bridge and headhouses would be provided at deck level on both sides of the H Street Bridge. Pedestrian access would also be facilitated by the two previously mentioned ramps on the west and east sides of the station.
- **Visual and Daylight Access Zones:** Areas enabling the development of a public space on the H street deck consistent with the significance of the historic station are included in Alternative F. These areas consist of a "Visual Access Zone", free of Project elements between H Street and the train hall; and a "Daylight Access Zone," also mostly free of Project elements but within which skylights would be installed to provide the new station concourse underneath with natural light. The private air rights developer would have primary responsibility for the design of the public space and would implement it, in coordination with the Project Sponsor for the Project elements and shared elements supporting the Project, such as the skylights.
- **Intercity and Commuter Operations and Ridership:** Levels of service would grow along with projected demand. Train volume increases relative to existing levels would range from 148 percent (Amtrak) to 187 percent (Virginia Rail Express [VRE]).

- **Property Acquisition:** Approximately 2.9 acres of private air rights would be needed to accommodate various elements of Alternative F.^{21,22}
- **Potential Development of Federal Air rights:**²³ The Federal air rights above the rail terminal not needed for the Project would be available for potential future transfer and development. For the purposes of the SDEIS, it is assumed that the Federal air rights development would consist of approximately 500,000 square feet of mixed uses, including 175,000 square feet of residential uses; 310,000 square feet of office uses; and 15,000 square feet of retail uses.²⁴
- **Estimated Construction Cost:** Alternative F would cost approximately \$8.8 billion to construct.²⁵
- **Estimated Construction Duration:** Construction of Alternative F is estimated to take 13 years. The construction would occur in four main phases, moving from east to west of the rail terminal. During each phase, a set of tracks would be taken out of service. Between Phases 1 and 2, there would be a one-year period (Intermediate Phase) during which work would only occur in the First Street Tunnel underneath the historic station building. A more detailed description of construction phasing is provided in **Appendix S2, Description of Alternative F, Section S11.1, Construction Methods and Activities**. **Table 3-2** shows the duration of each phase.

²¹ Additionally, as noted above, daylighting features for the underlying concourse would be installed within the area identified as the “Visual Access Zone,” in coordination with the private air rights developer.

²² Based on coordination with the developer, the private air rights development in the Preferred Alternative would consist of approximately 979,250 square feet (1,031 units) of residential uses; 1,060,000 square feet of office uses; 85,000 square feet of retail uses; and 608,000 square feet (716 keys) of hotel uses.

²³ The Federally owned air rights area corresponds approximately to the location of the existing parking garage. Although development of the Federal air rights is not part of the Project, such development may result from the Project. Therefore, the possible impacts associated with potential future development of the Federal air rights are evaluated in the EIS as indirect impacts.

²⁴ FRA developed these assumptions during the refinement process described in **Section 3.2**. They are consistent with the USN zoning that applies to the adjacent private air rights. FRA determined that a change to USN zoning in the Federal air rights parcel was reasonably foreseeable based on coordination with DCOP; the limitations of the existing zoning (PDR-3 precludes residential development), which is inconsistent with the adjacent USN zoning; and the goals of DCOP and other stakeholders to promote a symmetrical development north of the historic station.

²⁵ This rough-order-of-magnitude estimate is for the construction of the Project alone, including track work north of K Street NE and excluding costs associated with the private air rights deck. This estimate is subject to future refinement.

Table 3-2. Construction Phases and Durations

Phase	Total Duration (Approximate Excavation Duration)
Phase 1	2 years 4 months (5 months)
Intermediate Phase	12 months (none)
Phase 2	2 years 8.5 months (10 months)
Phase 3	2 years 8.5 months (11 months)
Phase 4	4 years 3 months (2 years 1 month)
Total	13 years (4 years 3 months)

3.4 Designation of Alternative F as the Preferred Alternative

Alternative F is designated as the Preferred Alternative (replacing the 2020 DEIS Alternative A-C) because:

- It would meet the Purpose and Need for the Project as well or better than Alternative A-C (see **Table 3-1**); and
- It addresses the major concerns and comments about the Project expressed during review of the 2020 DEIS, including:
 - **Comments on the size of the parking program and location of the parking facility:** Alternative F would provide a smaller parking facility and it would place all parking below ground. Access to and from the facility would be on the west side of WUS.
 - **Comments on the size and location of the bus facility:** Alternative F would provide enough bus slips to meet future demand based on updated projections developed by FRA and the Project Proponents. The east-west orientation of the bus facility would make for a more efficient layout and circulation. Exiting buses could turn left onto westbound H Street instead of having to turn right and go to the east. The facility would be integrated into the deck and directly connected to the train hall, allowing for full integration with the rest of the station and freeing space on the deck for development of a civic space commensurate with WUS's setting.
 - **Comments on pick-up and drop-off activity:** Alternative F would provide a centralized, below-ground pick-up and drop-off facility that is anticipated to accommodate about half of all pick-ups and drop-offs at the station, resulting in less activity at street- or deck-level pick-up and drop-off areas, including on Second Street NE. Access to and from the facility would be on the west side of WUS.
 - **Comments on urban design:** Alternative F would enhance opportunities for achieving a symmetrical civic space behind the station that is commensurate with WUS's historic significance; the extent of available space was defined in coordination with the private air rights developer.
 - **Comments on pedestrian and bicycle access:** Alternative F would provide enhanced pedestrian and bicycle access via two ramps on the west and east sides of WUS,

359 respectively, that would connect development on the deck (west ramp) and the bus
360 facility (east ramp) with the front of WUS. Alternative F would also provide additional
361 space for bicycle parking and storage.

362 **Table 3-3** presents a summary comparison of Alternative A-C and the Preferred Alternative.

Table 3-3 Comparison of Alternative A-C and the Preferred Alternative

Alternative A-C	Preferred Alternative
Tracks and Platforms	
Nineteen tracks (12 stub-end tracks and 7 run-through tracks)	Same
Concourses	
Four new concourses	Same
Loading	
Upgraded dock on First Street NE and new dock on Second Street NE	Same
Pedestrian and Bicycle Access	
Pedestrian and bicycle access in front of WUS, and on First, Second, and H Streets NE	Same, plus pedestrian and bicycle ramps on west and east sides of the station, respectively, and additional bicycle parking and storage
Parking	
1,600 cars in six above-ground levels at location of existing parking garage	400 to 550 cars on one below-ground level
Pick-up and Drop-off	
Pick-ups and drop-offs in front of WUS, on deck next to train hall, on First Street NE, and on Second Street NE	Same, plus below-ground pick-up and drop-off facility anticipated to accommodate about half of the total station-related pick-ups and drop-offs
Bus Facility	
Up-to-40-slip facility on two levels above ground at location of existing parking garage Six additional bus slips on G Street NE	38-39 slips in new east-west facility integrated into the deck on one level. No bus slips on G Street NE. Deck-level pick-up and drop-off area available in time of unusually high travel demand with room for approximately 15 additional buses
Train Hall	
East-west train hall	Same, but larger and better integrated with bus facility and surroundings

Alternative A-C	Preferred Alternative
Vehicular Access and Circulation	
<p>First Street NE one-way from Massachusetts Avenue to I Street NE</p> <p>Northbound one-way west ramp from First Street to deck</p> <p>Southbound one-way east ramp from deck to front of WUS and F Street NE</p> <p>Two new intersections (east intersection and west intersection) on H Street Bridge; west intersection would be offset</p> <p>Separate bus facility exit on H Street, right (eastbound) turns only</p>	<p>First Street NE one-way from Massachusetts Avenue to G Street NE and two-way north of G Street NE</p> <p>Two-way ramp on G Street NE and two-way ramp on First Street NE for access to the below-ground facility</p> <p>One-way southbound ramp from below-ground facility to front of WUS on east side of the station</p> <p>No ramp from deck to F Street NE</p> <p>Two new intersections on H Street Bridge (east intersection and west intersection), both fully aligned</p> <p>No separate bus facility exit; buses would use the above intersections, with full range of movements allowed for inbound and outbound buses</p>
Urban Design	
<p>Above-ground parking garage and bus facility on the deck north of WUS, impeding the development of a symmetrical public space commensurate with WUS's historic and architectural significance.</p>	<p>No above-ground parking or bus facilities, enhancing opportunities for the development of a symmetrical public space commensurate with WUS's historic and architectural significance.</p>

3.5 Summary of the No-Action Alternative

The No-Action Alternative is described in detail in Section 3.4.1, *No-Action Alternative*, of the 2020 DEIS. A summary description is provided here for easier reference.

The No-Action Alternative reflects the state of the environment in the absence of the Project in the planning horizon year 2040. In the No-Action Alternative, many aspects of WUS would continue as at present, including:

- **Station Structures:** No major new infrastructure would be built for WUS. Routine maintenance and repairs would continue.
- **Mix of Uses:** The current mix of uses at WUS would continue, including approximately 208,000 square feet of retail space, 120,000 square feet of office space, and 85,600 square feet of Amtrak support areas.

- **Parking:** Parking would remain southwest of H Street NE within the existing garage, capable of accommodating around 2,450 cars. Access to the garage would continue to be from H Street NE (west intersection) and Columbus Circle (east ramp). Exit would continue to be through H Street NE via the west intersection and through the ramp running parallel to First Street along the west side of the station (west ramp).
- **Buses:** The existing bus facility, located in the existing parking garage southwest of H Street NE, would continue to be used. Buses would continue to enter the facility via the H Street west intersection and to exit through the bus-only exit ramp to H Street NE.
- **For-Hire Vehicles/Pick-up and drop-off:** Taxis would continue to have approximately 24 spaces, distributed across the two northernmost lanes of Columbus Circle, for pick-up and drop-off. Non-taxi for-hire vehicles would continue to share with private vehicles the approximately 24 spaces available in the two southernmost traffic lanes of the circle.
- **Bicycles:** Bikeshare facilities would remain on the east side of WUS at F Street NE, with 54 bikeshare spaces.
- **Pedestrians:** Pedestrians would continue to enter or exit WUS via the First and G Street Metrorail entrances; the southwest portico and front of the historic station building; and the bus facility.
- **Intercity and Commuter Rail Operations and Ridership:** Operations by Amtrak, VRE, and Maryland Area Regional Commuter (MARC) trains would continue but with increased passenger volumes and levels of service as shown in **Table 3-4**. Growth would be constrained by the lack of infrastructure improvements. The ridership and service increases in **Table 3-4** represent the growth possible without the improvements proposed in the Preferred Alternative.

Table 3-4 Estimated Train Passengers and Volumes by Service in No-Action Alternative

Service	Existing Passenger Volumes	2040 Passenger Volumes	Train Volume Increase over Existing
Amtrak	16,400 daily 5.033 million annually	21,800 daily (+33%) 6.694 million annually	24%
MARC	28,100 daily 7.683 million annually	37,930 daily (+35%) 9.483 million annually	11%
VRE	3,900 daily 1.060 million annually	4,900 daily (+51%) 1.378 million annually	6%

The No-Action Alternative would further include the following projects, which are all independent of the Project and have anticipated completion dates earlier than 2040:

- Multiple near-term station and track improvement projects at WUS, including but not limited to, the Concourse Modernization Project, which would fully renovate the Claytor

- 400 Concourse and North Hangar; the relocation of Substation 25A; ADA-compliance
401 improvements; and track electrification and rehabilitation work.
- 402 ■ VRE Midday Storage Replacement Facility Project: The VRE Midday Storage Replacement
403 Facility Project would replace the current storage space leased from Amtrak at the Ivy City
404 Coach Yard in the District.
- 405 ■ H Street Bridge Replacement: DDOT is planning to replace the H Street Bridge because the
406 deck is reaching the end of its useful life.
- 407 ■ DC Streetcar Extension: The current DC Streetcar line, which runs from WUS to Benning
408 Road NE and Oklahoma Avenue NE is programmed for extension eastward.
- 409 ■ WMATA Station Improvements: WMATA would expand and relocate the First Street
410 entrance to the North Mezzanine of the Union Station Metrorail Station. A new ramp would
411 be outside of the station, above the First Street sidewalk. Moving the ramp outside would
412 make room for additional fare gates and circulation space inside.
- 413 ■ Private Air Rights Development: This project would be a mixed-use development in the
414 private air rights above the WUS rail terminal. Total development would be approximately
415 3.7 million square feet of residential, hotel, office, and retail uses.²⁶ Development would be
416 in accordance with the existing zoning designation for the private air rights area.
- 417 The No-Action Alternative would not meet the Project's Purpose and Need. It would not adequately
418 support current and future long-term growth in rail service and operational needs; fail to achieve full
419 compliance with the ADA; and cause a deterioration in customer experience rather than facilitate
420 intermodal travel.

²⁶ Including 1,050,000 square feet of residential uses; 2,160,000 square feet of office uses; 120,000 square feet of retail uses; and 410,000 square feet of hotel uses. These assumptions were developed based on information provided by the private air rights developer in a letter to FRA dated May 31, 2016.

4 Affected Environment

421 No additions or changes are made to this chapter.²⁷

²⁷ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 4, *Affected Environment*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-4-affected-environment>.

5 Environmental Consequences

5.1 Introduction

This chapter supplements the *Impact Analysis* portions of Sections 5.2 through 5.18 of Chapter 5, *Environmental Consequences*, of the 2020 Draft Environmental Impact Statement (2020 DEIS).²⁸

Section 5.2 through **Section 5.18** describe the direct, indirect, and construction impacts of the Preferred Alternative on each of the resource category considered in the 2020 DEIS. The descriptions summarize the more detailed analyses presented in **Appendix C3S**, *Supplemental Environmental Consequences Technical Report*. Indirect impacts include the impacts that would result from transferring and developing the Federally owned air rights that would not be needed to construct the Project.

The impact analysis for each resource considers the Project Area (**Figure 5-1**) as well as a Local and, if applicable, a Regional Study Area representing the radius within which the alternatives have the potential to result in permanent or temporary impacts. While the Preferred Alternative required a small modification of the Project Area to incorporate the new proposed access ramps to the below-ground facility, Local and Regional Study Areas did not change from those presented in the 2020 DEIS. Similarly, the methodologies used to evaluate impacts are generally the same as used in the 2020 DEIS.²⁹

Impacts are assessed relative to the No-Action Alternative. The impacts of the No-Action Alternative are described in Chapter 5 and Appendix C3 of the 2020 DEIS. Brief assessments of the impacts of the Preferred Alternative compared to existing conditions can be found for each resource in **Appendix C3S**.

As in the 2020 DEIS, impacts can be adverse or beneficial, and are assessed on the following scale:

- Context and Intensity:
 - Negligible impacts would occur at the lowest level of detection.
 - Minor impacts would be noticeable but would not affect the function or integrity of the resource.
 - Moderate impacts would be readily apparent and would influence the function or integrity of the resource.
 - Major impacts would be substantial and would result in severely adverse or exceptionally beneficial changes to the resource.

²⁸ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 5, *Environmental Consequences*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-5-environmental-consequences>.

²⁹ As detailed in **Appendix C3S**, where applicable, methodologies were updated to reflect regulatory changes or the availability of new relevant data since 2020.

Figure 5-1. Project Area



■ Outcome:

- Beneficial impacts would result in positive outcomes to the natural or human environment.
- Adverse impacts would result in unfavorable or undesirable outcomes to the natural or human environment.

Impacts are first summarized in bold lettering followed by a supporting description and analysis. Measures that the Federal Railroad Administration (FRA) is proposing to adopt to avoid, minimize, or mitigate impacts are listed in **Chapter 7, Table 7-1. Chapter 7, Table 7-2**, identifies permitting requirements potentially applicable to the Preferred Alternative. Effects from the potential transfer and development of the Federal air rights are described as indirect impacts.

5.2 Natural Ecological Systems

This section describes and characterizes the potential impacts of the Preferred Alternative on natural ecological systems. Natural ecological systems include resources such as vegetation, common and protected wildlife, wetlands, and floodplains.

5.2.1 Direct Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have no direct operational impacts on natural ecological systems.

The Local and Regional Study Areas are fully developed with transportation infrastructure and buildings. They contain no natural ecological systems. Therefore, the Preferred Alternative would have no direct operational impacts on natural ecological systems.

5.2.2 Indirect Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have no indirect operational impacts on natural ecological systems.

For the same reasons as stated above, the Preferred Alternative would have no indirect operational impacts on natural ecological systems.

5.2.3 Construction Impacts

Construction of the Preferred Alternative would result in minor adverse impacts on natural ecological systems.

There are approximately 26 ornamental Japanese zelkova trees (*Zelkova serrata*) on the east sidewalk of First Street NE between G and K Streets. Based on field observation, these trees are between approximately 6 and 10 inches in diameter. Construction activities along the western edge of the Project Area and the east side of First Street NE would require the removal of those trees. The construction of

pick-up and drop-off spaces on the west side of Second Street NE, south of the H Street Bridge, would likely require removing a few of the approximately ten trees currently present on the sidewalk. These would be minor adverse impacts, as the trees are non-native, ornamental street trees that do not form part of a larger natural system. Tree removal would require coordination with and a permit from the District Department of Transportation (DDOT) Urban Forestry Ward Arborist.

Construction activities throughout the Project Area would likely disturb and displace any urban-dwelling birds or mammals that may be present. Such disturbance is common in urban areas and would only affect birds that can easily relocate to adjacent areas or nuisance species such as rats. This would not amount to an impact on natural ecological systems.

5.2.4 Summary of Impacts

Table 5-1 summarizes the impacts of the Preferred Alternative on natural ecological systems.

Table 5-1. Summary of Preferred Alternative Impacts on Natural Ecological Systems

Type of Impact	Preferred Alternative
Direct Operational	No impact
Indirect Operational	No impact
Construction	Minor adverse impact

5.3 Water Resources and Water Quality

This section describes and characterizes the potential impacts of the Preferred Alternative on surface waters, groundwater, stormwater, wastewater, and drinking water supply.

5.3.1 Direct Operational Impacts

5.3.1.1 Surface Waters

Relative to the No-Action Alternative, the Preferred Alternative would have no direct operational impacts on surface waterbodies.

There are no bodies of surface water in or adjacent to the Project Area. Therefore, the Preferred Alternative has no potential to directly affect surface waters or water quality.

5.3.1.2 Groundwater

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate adverse direct operational impact on groundwater.

There are no public groundwater supplies or wellhead protection areas within the Project Area and the Preferred Alternative would have no impacts on those resources. The Project Area is almost fully impervious and is a negligible source of groundwater recharge. This would remain the case in the Preferred Alternative. The Preferred Alternative would have moderate direct operational impacts on

groundwater levels. The Preferred Alternative would require excavating most of the rail terminal to a depth of approximately 3 feet above sea level. This would be below current groundwater elevations at the site. The construction of a slurry wall down to the Potomac Clay layer underlying the Project Area around the perimeter of the excavation, and the installation of concrete pressure slabs at the bottom of the excavation would minimize any long-term groundwater seepage, but it may not eliminate it entirely.

Preliminary modeling conducted for the 2020 DEIS Action Alternatives indicated that long-term dewatering rates for 2020 DEIS Alternative C, which featured a one-level below-ground facility like the Preferred Alternative, would range from 20 to 30 gallons per minute. This equates to 28,800 to 43,200 daily gallons, which would have to be pumped and disposed of, after treatment if required. Because the Preferred Alternative would involve the same depth of excavation as 2020 DEIS Alternative C, the same long-term dewatering rates are anticipated. This would be within the threshold for a District Significant Non-Categorical Industrial User Wastewater Discharge Permit (25,000 gpd or more).³⁰ Groundwater withdrawal may increase the risk of soil settlement, as described in **Section 5.3.3.2, Groundwater**.

5.3.1.3 Stormwater

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate direct beneficial impact on stormwater infrastructure and stormwater flows.

Because the Project Area would be entirely impervious in the No-Action Alternative and would remain so in the Preferred Alternative, the Preferred Alternative would cause no change in impervious cover. However, modifications to the Project Area's drainage infrastructure, including roof drains, catch basins, and drainage pipes, would be necessary to accommodate the Preferred Alternative under current District stormwater management laws and regulations.³¹

The stormwater management practices currently in the Project Area were put in place before the District adopted its more stringent current stormwater regulations. Under current regulations, the Preferred Alternative would be a Major Land Disturbing Activity.³² As such, it would require additional stormwater management to treat any Storm Water Retention volume (SWRv) not treated under the No-Action Alternative. The Preferred Alternative would also comply with Section 438 of the Energy Independence and Security Act (EISA) of 2007. The resulting upgrades would decrease runoff volume, peak flow rate, and pollutant loading from the Project Area, which would be a beneficial impact.

In the No-Action Alternative, the private air rights development, which would cover most of the Project Area, would be subject to the current District regulations. Therefore, the area that would be upgraded to current stormwater treatment regulations in the Preferred Alternative would be limited to the footprint of the Project within the Federally owned air rights and the edges of the historic station

³⁰ The permit is for disposal through the District's wastewater system. This requirement is not indicative of the intensity of impacts on groundwater.

³¹ Department of Energy and Environment. *2020 Stormwater Management Guidebook*. Accessed from <https://doee.dc.gov/swguidebook>. Accessed on November 10, 2022.

³² Major Land Disturbing Activity is considered to be any land disturbance greater than or equal to 5,000 square feet.

building. For this reason, the beneficial impact of the Preferred Alternative relative to the No-Action Alternative would be moderate.

5.3.1.4 Wastewater

Relative to the No-Action Alternative, the Preferred Alternative would have minor adverse direct operational impacts on wastewater infrastructure and wastewater flows.

The Preferred Alternative would likely require modifications to sewer laterals to serve the expanded station. At the current, early stage of Project design, no information is available on the location and extent of these modifications, but they would likely overlap with those that would occur in the No-Action Alternative for the private air rights development as both projects would occur within the boundaries of the WUS terminal. Relative to the No-Action Alternative, adverse impacts would be minor.

Table 5-2 shows estimated additional wastewater flows from the Project Area in the Preferred Alternative relative to the No-Action Alternative. WUS-related generation would increase in proportion to the number of additional passengers relative to the No-Action Alternative. Because the Preferred Alternative would use some of the private air rights area, the private air rights development would be smaller than in the No-Action Alternative, as noted in **Section 3.3, Description of Alternative F**. The quantity of wastewater the private air rights development would produce relative to the No-Action Alternative would be correspondingly smaller. Altogether, after rounding, the net total additional daily flow in the Preferred Alternative would be approximately 29,000 gallons per day.

Table 5-2 Estimated Changes in Wastewater Generation (Average Daily Flow)

Location	Use	Unit Flow Rate (Gallons per Days)	Total Unit (2040)	Estimated Average Daily Flow (Gallons per Day) ⁵
WUS	Rail and Bus ¹	1.7/ passenger ²	+50,900 passengers	+86,530
	Retail	0.05 square foot ³	+64,000 square feet	+3,200
Sub-total				+89,730
Private Air Rights Development ⁵	Residential	60/resident	-160 residents ⁴	-9,600
	Office	0.09/square foot	-1,100,000 square feet	-99,000
	Retail	0.05/square foot	-35,000 square feet	-1,750
	Hotel	0.25/square foot	+198,600 square feet	+49,650
Sub-total				-60,700
Total				+29,030

1. Amtrak + Maryland Area Regional Commuter (MARC) + Virginia Railway Express (VRE) + Intercity bus ridership.

2. Per-passenger unit rate calculated for existing conditions based on 2017 station water usage.

3. Rates based on Maryland Design Guidelines for Wastewater Facilities unless otherwise noted.

4. Assumes 2.1 residents per unit.

5. Negative numbers reflect the smaller size of the private air rights development in the Preferred Alternative.

This estimate does not include the increase due to any needed long-term groundwater disposal, which would be up to approximately 43,200 gallons per day of groundwater from long-term (see **Section 5.3.1.2, Groundwater**, including the permitting requirement triggered by long-term groundwater disposal), for a total of approximately 72,200 gallons per day that would be discharged to the sewer conveyance system. This would be a 13 percent increase relative to the No-Action Alternative (547,700 gallons per day). The net increase in flows from the Project Area is not likely to result in more frequent combined sewer overflows. In normal conditions, wastewater from the Project Area would continue to be conveyed to the Blue Plains Advanced Wastewater Treatment Plant (Blue Plains), which has the capacity to treat an average of 384 million gallons per day and treats approximately 300 million gallons on an average day.³³ The increase due to the Preferred Alternative would represent approximately 0.02 percent of Blue Plains' average daily capacity and 0.08 percent of the average unused daily capacity. The impact would be minor.

5.3.1.5 Drinking Water

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse direct operational impact on drinking water infrastructure and demand.

The Preferred Alternative would likely require modifications to the water distribution infrastructure to serve the expanded station. At the current, early stage of Project design, there is no information on the location and extent of the needed modifications, but they would likely overlap with those that would occur in the No-Action Alternative for the private air rights development. Relative to the No-Action Alternative, adverse impacts would be minor.

Additional water demand from the Project Area in the Preferred Alternative, based on wastewater generation with an added factor of 10 percent to account for consumption, system losses, and other use, would be 31,930 gallons per day, a 5 percent increase relative to the No-Action Alternative (602,470 gallons per day). Drinking water would continue to be distributed by DC Water and supplied by the Washington Aqueduct. The Aqueduct produces an average of 135 million gallons per day in the two treatment plants located in the District.³⁴ The increase in demand relative to the No-Action Alternative would represent about 0.02 percent of this capacity. This would be a minor adverse impact.

³³ DC Water. *Blue Plains Advanced Wastewater Treatment Plant*. Accessed from https://www.dcwater.com/sites/default/files/documents/blue_plains_plant_brochure_2020_final_0.pdf. Accessed on October 14, 2022. DC Water. *The Largest Advanced Wastewater Treatment Plant in the World*. Accessed from <https://www.dcwater.com/blue-plains>. accessed on January 10, 2023.

³⁴ U.S. Army Corps of Engineers. *Washington Aqueduct*. Accessed from <https://www.nab.usace.army.mil/Missions/Washington-Aqueduct/>. Accessed on October 14, 2022.

5.3.2 Indirect Operational Impacts

5.3.2.1 Surface Waters

577 **Relative to the No-Action Alternative, the Preferred Alternative would result in a negligible adverse**
578 **indirect operational impact to surface waterbodies, including the Anacostia River, Potomac River, and**
579 **Chesapeake Bay.**

580 Relative to the No-Action Alternative, the Preferred Alternative would have a beneficial impact on the
581 quantity and quality of the stormwater generated in the Project Area and a minor adverse impact on the
582 quantity of wastewater produced there. As noted above, the net increase in flows from the Project Area
583 is not likely to result in more frequent combined sewer overflows. In normal conditions, wastewater
584 flowing from the Project Area would be treated at Blue Plains. Adverse impacts on the quantity and
585 quality of water in the Anacostia River or Potomac River, and beyond, in the Chesapeake Bay, would be
586 negligible, given the small size of the Project Area and the small amount of effluent it would generate
587 compared to the drainage basins of those waterbodies (176 square miles for the Anacostia River alone).

5.3.2.2 Groundwater

588 **Relative to the No-Action Alternative, the Preferred Alternative would have no indirect operational**
589 **impacts on groundwater.**

590 Construction of the Federal air rights development on a structural deck above the rail terminal would
591 involve no excavation. It would require no temporary or long-term pumping and disposal of
592 groundwater. Therefore, the Preferred Alternative would have no indirect impacts on groundwater in
593 addition to its direct impacts.

5.3.2.3 Stormwater

594 **Relative to the No-Action Alternative, the Preferred Alternative would have a moderate beneficial**
595 **indirect operational impact on stormwater.**

596 The potential development of the Federal air rights would lead to upgrades to the existing infrastructure
597 in compliance with current requirements. As explained in **Section 5.3.1.3, Stormwater**, current
598 stormwater treatment regulations are more stringent than those in place when the existing and No-
599 Action use of the area (parking garage) was constructed, resulting in a beneficial impact relative to No-
600 Action Alternative conditions. Because of the limited size of the affected area, this beneficial impact
601 would be moderate.

5.3.2.4 Wastewater

602 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse indirect**
603 **operational impact on wastewater.**

604 As explained in **Section 3.3, Description of Alternative F**, in the Preferred Alternative, the potential
605 Federal air rights development is assumed to consist of approximately 175,000 square feet of residential

uses; 310,000 square feet of office uses; and 15,000 square feet of retail uses. Using the same unit flow rates as used in **Table 5-2**, this would generate approximately 51,810 gallons per day of additional wastewater, or an increase of 9 percent relative to the No-Action Alternative (see summary in **Table 5-4** below).

Wastewater would continue to be collected and conveyed via DC Water combined sewer lines to Blue Plains. The additional production of 51,810 gallons per day is not likely to increase the frequency of combined sewer overflows. It would represent about 0.013 percent of Blue Plains' average daily capacity (384 million gallons per day) and about 0.06 percent of the average unused daily capacity (84 million gallons per day).

5.3.2.5 Drinking Water

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse indirect operational impact on drinking water.

In the Preferred Alternative, the potential development of the Federal air rights would increase drinking water demand. The Federal air rights development, consisting of a mix of residential, office, and retail space as described above, would approximately generate an additional 56,991 gallons per day of water demand, calculated as wastewater demand plus 10 percent to account for consumption, system losses, and other uses (see **Table 5-4** below). This would represent an increase of 9 percent relative to the No-Action Alternative.

Drinking water would continue to be distributed by DC Water and supplied by the Washington Aqueduct. The Aqueduct produces an average of 135 million gallons per day. The increase in demand from the Federal air rights development would represent 0.04 percent of this capacity, a minor adverse impact.

5.3.3 Construction Impacts

5.3.3.1 Surface Waters

Construction of the Preferred Alternative would have no impacts on surface waterbodies.

No surface waterbodies lie within or adjacent to the Project Area. Therefore, the construction activities associated with the Preferred Alternative would not affect surface waterbodies.

5.3.3.2 Groundwater

Construction of the Preferred Alternative would have moderate adverse impacts on groundwater.

Because of the depth of the excavation required in the Preferred Alternative, groundwater seepage would occur during construction and require dewatering. Preliminary modeling conducted for 2020 DEIS Alternative C (see **Section 5.3.1.2, Groundwater**, above) estimated a short-term dewatering rate ranging from approximately 220 gallons per minute (316,800 gallons per day) to 280 gallons per minute (403,200 gallons per day). This would be above the minimum threshold for, and thus require, a

Significant Non-Categorical Industrial User Wastewater Discharge Permit (25,000 gpd).³⁵ Dewatering would have to be conducted in compliance with National Pollutant Discharge Elimination System (NPDES) construction general permit dewatering requirement, as well as the District's Department of Energy and Environment (DOEE) and DC Water requirement for treatment and metering of pumped groundwater.

Groundwater withdrawal has the potential to cause soil settlement in the vicinity of the withdrawal. Until geotechnical studies are conducted, and existing dewatering operations are identified, the level and extent of potential soil settlement cannot be determined. Based on preliminary modeling, it can be anticipated that the greatest risk of subsidence would occur immediately adjacent to the cut-off wall, where groundwater drawdown would be greatest, and that it would decrease with increasing distance from the wall. The features at greatest risk for drawdown-induced settlement would likely be shallow utility infrastructure such as sewer lines, gas lines, or water lines in the Project Area or adjacent public roadways; the WUS Metrorail station; and adjoining buildings supported by shallow foundation systems. Most of the larger buildings adjacent to WUS likely sit on deep foundations and are unlikely to experience settlement. Any impacts would be moderate.

5.3.3.3 Stormwater

Construction of the Preferred Alternative would have minor adverse impacts on stormwater flows.

Ground-disturbing activities associated with the construction of the Preferred Alternative could result in increased erosion and sedimentation, which would affect the quality of stormwater runoff from the Project Area. Increased sediment loadings in stormwater conveyed by drainage systems can also result in lost conveyance capacity. These risks would be minimized because the Project would be required to include erosion and sediment controls in compliance with NPDES construction general permit and DOEE's *Erosion and Sediment Control Manual*. Erosion and sediment control practices would prevent the transport of significant amounts of sediment from the construction site to city streets, drainage systems, and waterbodies. Adverse impacts would be minor.

5.3.3.4 Wastewater

Wastewater flows from construction-related dewatering in the Preferred Alternative would cause a minor adverse impact on wastewater.

Groundwater pumped out of the Project Area during construction would be discharged to the wastewater conveyance system after being treated on site if required. As explained above, the maximum modeled amount of discharged groundwater would be approximately 403,200 gallons a day. This would require a Significant Non-Categorical Industrial User Wastewater Discharge Permit, as noted in **Section 5.3.3.2, Groundwater**. Wastewater would be conveyed via DC Water sewer lines to Blue Plains. Given Blue Plains' total and unused capacity (an average of 384 million gallons per day and 84

³⁵ The permit is for disposal through the District's wastewater system and this requirement is not indicative of the intensity of impacts on groundwater.

million gallons a day, respectively), the additional amount from the Preferred Alternative construction would represent a minor impact (0.1 percent of total capacity and 0.5 percent of unused capacity).

5.3.3.5 Drinking Water

Water demand during construction of the Preferred Alternative would result in a negligible adverse impact on drinking water.

Water would be used during construction activities for dust control, equipment washing, and construction worker sanitation and consumption. DC Water would likely provide the water. Although the amount of water that would be used cannot be estimated, it would be typical of a large-scale construction project in the District and is not likely to exceed the Washington Aqueduct capacity. Impacts would be negligible.

5.3.4 Summary of Impacts

Table 5-3 and Table 5-4 summarize the impacts of the Preferred Alternative on water resources and water quality.

Table 5-3. Summary of Preferred Alternative Impacts on Water Resources and Water Quality

Impact Category	Type of Impact	Preferred Alternative
Surface Waters	Direct Operational	No impact
	Indirect Operational	Negligible adverse impact
	Construction	No impact
Groundwater	Direct Operational	Moderate adverse impact
	Indirect Operational	No impact
	Construction	Moderate adverse impact
Stormwater	Direct Operational	Moderate beneficial impact
	Indirect Operational	Moderate beneficial impact
	Construction	Minor adverse impact
Wastewater	Direct Operational	Minor adverse impact
	Indirect Operational	Minor adverse impact
	Construction	Minor adverse impact
Drinking Water	Direct Operational	Minor adverse impact

Impact Category	Type of Impact	Preferred Alternative
	Indirect Operational	Minor adverse impact
	Construction	Negligible adverse impact

Table 5-4. Quantitative Estimates of Direct and Indirect Impacts on Water Resources and Water Quality

Impact Category	Parameter	Source of Impact	Additional	Total
Construction-phase dewatering	Dewatering rate (gpm)	Project Area	220 to 280	220 to 280
Long-term Dewatering	Dewatering rate (gpm)	Project Area	20 to 30	20 to 30
Wastewater	Demand (gpd)	WUS	+132,930	248,730
		Private Air Rights Development	-60,700	371,200
		Potential Federal Air Rights Development	+51,810	51,810
		Total	+124,040 (+23%)	671,740
Water	Demand (gpd)	WUS	+98,703	226,083
		Private Air Rights Development	-66,770	408,320
		Potential Federal Air Rights Development	+56,991	56,991
		Total	+88,924 (+15%)	691,394

Abbreviations: gpm = gallons per minute; gpd = gallons per day

5.4 Solid Waste Disposal and Hazardous Materials

This section describes and characterizes the potential impacts of the Preferred Alternative on solid waste production and disposal and on the use and disposal of hazardous materials. In the case of WUS and the Project, solid waste consists primarily of municipal waste (trash or garbage). Hazardous materials are any substances or chemicals that are a “health hazard” or “physical hazard” as defined by 29 Code of Federal Regulations (CFR) 1910.1200.

5.4.1 Direct Operational Impacts

5.4.1.1 Municipal Solid Waste

Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial direct operational impact on solid waste generation.

Table 5-5 shows the approximate net change in the amount of municipal waste that WUS would generate in the Preferred Alternative.

Table 5-5. Change in Solid Waste Generation at WUS in the Preferred Alternative

	Difference Between No-Action and Preferred Alternative	Waste generation Rate (Pounds/Day) ²	Waste Generation Estimate (Tons/Year)
WUS			
Station	-	-	2,020 ¹
Retail	64,000 square feet	5.5/100 square feet	642
Total WUS	-	-	2,662

1. Proportional to increase in passengers.

2. Rate based on waste generation rates provided by District Department of Public Works, Office of Waste Diversion (January 2019) and volume-to-weight conversion factors obtained from U.S. Environmental Protection Agency (https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf).

Increased activity and ridership at WUS in the Preferred Alternative would generate an increase in the amount of municipal solid waste produced by the station. An order-of-magnitude estimate of the increase can be calculated based on the assumption that it would be approximately proportional to the increase in ridership. In 2040, daily WUS ridership (Amtrak, VRE, MARC, and intercity buses) would increase by around 65 percent relative to the No-Action Alternative. No-Action ridership would produce approximately 3,105 tons of municipal waste annually. An increase in solid waste proportional to the increase in ridership in the Preferred Alternative would result in approximately 2,020 more tons of municipal waste per year.

The Preferred Alternative would also add 64,000 square feet of retail at WUS. This would contribute approximately 642 tons of additional waste per year, bringing the total increase in WUS-generated waste in the Preferred Alternative to approximately 2,662 tons per year.

Consistent with the District's Zero Waste vision, part of the solid waste generated in the Project Area would be recycled or composted.³⁶ Non-recycled waste would be sent to landfill facilities in Virginia or

³⁶ Zero Waste is defined as diverting 80% or more of the city's solid waste stream away from landfills and waste-to-energy facilities. (District of Columbia. *About Zero Waste DC*. Accessed from <https://zerowaste.dc.gov/about-zero-waste-dc>. Accessed on January 13, 2023). In 2018, the citywide waste diversion rate was estimated to be 16.11% (Department of Public Works. *Washington DC Solid Waste Diversion Annual Report. Calendar Year 2018*. Accessed from <https://zerowaste.dc.gov/sites/default/files/dc/sites/zerowaste/CY%2018%20Diversion%20Report%20Final%203%2010%2021.pdf>. Accessed on January 13, 2023).

Maryland (the District has no landfill). In Virginia alone, total sanitary landfill capacity at the end of 2020 was approximately 248.3 million tons spread across 50 landfills, which had an average remaining permitted life of 21.3 years. Additional solid waste from WUS in the Preferred Alternative is unlikely to cause capacity issues.

Because the Preferred Alternative would make use of part of the private air rights area, the private air rights development in this alternative would be smaller than in the No-Action Alternative, as noted in **Section 3.3, Description of Alternative F. Table 5-6** shows the difference in assumed square footage for each use and the resulting change in projected solid waste generation. The private air rights development would generate approximately 5,076 fewer tons of waste in the Preferred Alternative than in the No-Action Alternative.

Table 5-6. Change in Private Air Rights Solid Waste Generation in the Preferred Alternative

	Difference Between No-Action and Preferred Alternative	Waste generation Rate (Pounds/Day) ¹	Waste Generation Estimate (Tons/Year)
Residential	-75 units ²	4.75/unit	-65
Office	-1,100,000 square feet	2.75/100 square feet	-5,521
Retail	-35,000 square feet	5.5/100 square feet	-351
Hotel	+236 rooms	20/room	+861
Total	-	-	-5,076

1. Rate based on waste generation rates provided by District Department of Public Works, Office of Waste Diversion (January 2019) and volume-to-weight conversion factors obtained from U.S. Environmental Protection Agency (https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memoirandum_04192016_508fnl.pdf).
2. Assuming 950 feet per unit.

Altogether, the Project Area in the No-Action Alternative would produce a total of around 17,585 tons of municipal waste per year. In the Preferred Alternative, because of the smaller size of the private air rights development, the Project Area would produce a total of 15,171 tons,³⁷ a reduction of approximately 14 percent relative to the No-Action Alternative. This reduction would be small in the context of District-wide waste production: it would represent about 0.2 percent of the 1,139,846 tons of waste produced in the District during 2018, the most recent year for which data are available. While beneficial, the impact would be minor.

5.4.1.2 Hazardous Materials and Waste

Relative to the No-Action Alternative, the Preferred Alternative would have negligible adverse direct operational impacts pertaining to hazardous materials and waste.

Train operations involve the storage and use of fuel, oils, lubricants, and other hazardous or regulated materials for operation or maintenance of stationary or mobile equipment. There would be an increase in rail operations at WUS in the Preferred Alternative relative to the No-Action Alternative. However, the

³⁷ An increase of 2,662 tons at WUS and reduction of 5,076 tons at the private air rights development.

nature of operations would remain similar to what it is currently. The same type of hazardous materials would continue to be used, though in greater quantities. The storage, utilization, and disposal of these materials would continue to be performed in compliance with applicable laws, regulations, and policies.

Increased activities at WUS may slightly increase the risk of accidental spills and release of fuel or hazardous materials. All releases of hazardous materials would continue to be reported to the applicable regulatory authority in accordance with the Emergency Planning and Community Right-to-Know Act (EPCRA) or Oil Pollution Act (OPA). In the District, this authority is the Homeland Security and Emergency Management Agency. Actions to be taken in the event of a spill would be specified in the station's Spill Prevention, Control, and Countermeasure (SPCC) Plan in the Preferred Alternative as in the No-Action Alternative. Union Station Redevelopment Corporation (USRC), the Project Sponsor, would update the existing SPCC Plan to reflect any major changes to on-site petroleum product or liquid hazardous waste storage.

5.4.2 Indirect Operational Impacts

5.4.2.1 Municipal Solid Waste

Relative to the No-Action Alternative, in the Preferred Alternative, the potential development of the Federal air rights would result in a minor adverse indirect operational impact on solid waste generation.

In the Preferred Alternative, the potential Federal air rights development would consist of approximately 175,000 square feet of residential uses; 310,000 square feet of office uses; and 15,000 square feet of retail uses. Using the generation rates used in **Table 5-6**, the potential Federal air rights development would generate approximately 1,865 tons per year of additional solid waste.

The impact would be minor, representing about 0.16 percent of the 1,139,846 tons of waste produced in the District during 2018. A part of it would be recycled, in keeping with the policies in place to achieve the District's Zero Waste goals. Non-recycled waste would be sent to landfills in Maryland and Virginia. As noted above, in Virginia alone, as of the end of 2020, sanitary landfill capacity was approximately 248.3 million tons spread across 50 landfills. These landfills had an average remaining permitted life of 21.3 years. The additional solid waste generated by the potential Federal air rights development in the Preferred Alternative is not likely to cause capacity issues.

5.4.2.2 Hazardous Materials and Waste

Relative to the No-Action Alternative, in the Preferred Alternative, the potential development of the Federal air rights would result in a negligible indirect operational adverse impact on hazardous material and waste.

Development of the Federal air rights into mixed uses space would not involve the storage and use of hazardous materials beyond products typically found in mixed-use buildings. In addition to common batteries, solvents, paints, or detergents, these may include fuel for emergency generators and

Uninterruptable Power Supply batteries. The storage, utilization, and disposal of these materials would be performed in compliance with applicable laws, regulations, and policies. Impacts would be negligible.

5.4.3 Construction Impacts

Construction of the Preferred Alternative would result in minor adverse impacts from the storage and use of hazardous materials and the generation and disposal of hazardous and non-hazardous waste and debris. It would have potential minor beneficial impacts from the removal of contaminated materials or media from the Project Area.

Construction of the Preferred Alternative would require the storage, use and disposal of petroleum products and hazardous materials. Examples include fuel, lubricants, antifreeze, fire retardants, brake fluid, adhesives, or solvents for the operation and maintenance of construction equipment and vehicles. This would create a risk of spill or release into the environment. Compliance with the requirements of EPCRA, OPA, the Resource Conservation and Recovery Act (RCRA), and other applicable Federal and local laws and regulations would minimize these risks. These laws and regulations are intended to minimize the release of harmful substances in the environment. The implementation of standard best management practices by the construction contractor, including spill prevention plans and the construction and maintenance of containment systems, would contribute to minimizing the risk of spills. Adverse impacts would be minor.

The Preferred Alternative would require excavating the rail terminal to approximately 3 feet above sea level. It would also involve demolishing existing infrastructure such as tracks, platforms, and catenaries as well as the Claytor Concourse and the existing parking garage. Construction of the access ramps on G Street NE, First Street NE, and the east side of WUS would also involve excavation and disposal of soil. This would generate a substantial quantity of spoils and debris—approximately 1.5 million cubic yards—that would need to be transported and disposed of offsite over the entire construction period (13 years). However, excavation and associated disposal needs would not occur all at once. Instead, it would occur in four separate steps, as each construction phase would include a period of excavation early in the phase. The amount of spoil produced in each phase would vary, from a total of approximately 141,000 cubic yards during Phase 1 to a total of approximately 753,000 cubic yards during Phase 4. Appropriate transport methods and disposal locations would be identified during construction planning.

Limited sampling in the Project Area suggests that soil and groundwater below the rail terminal contain contaminants in low concentrations. Some soil concentrations exceeded regulatory screening levels for total petroleum hydrocarbons, diesel range organics (TPH-DRO), Polychlorinated Biphenyls (PCBs), and arsenic. The presence of diesel-based hydrocarbons and some PCBs is expected in a historic railyard within a dense urban environment. Arsenic concentrations in soil are consistent with regional background concentrations and are likely not the result of site-related activities. Shallow groundwater samples from beneath the former H Street Tunnel contained some metal concentrations in excess of regulatory levels.

Construction contractors would be required to handle and dispose of spoil materials and groundwater in accordance with applicable laws and regulations, including RCRA and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This would likely involve further characterizing the

environmental condition of those materials and treating them in accordance with the type of contamination present, if any. Contaminated soils would be transported in accordance with U.S. Department of Transportation regulations and disposed of at facilities permitted to receive them. Contaminated groundwater may be treated on site before being discharged to the municipal sewer system.

Construction debris would include platforms and railroad tracks. Used wooden railroad ties are typically coated with chemical preservatives including creosote, which contains semi-volatile organic compounds. Materials would have to be characterized, managed, and disposed of in accordance with RCRA and other applicable regulations. This would also be the case of debris that, based on age, may contain asbestos or lead-based paint. All such waste would be disposed of at facilities permitted for this type of material.

Spoil generated under each phase by excavation activities would be disposed of at regional disposal facilities based on the type of waste, facility capacity, and waste characterization requirements. Receiving facilities may include solid waste landfills; soil reclamation areas; soil recycling facilities; asbestos receiving landfills; hazardous waste landfills; hazardous waste incinerators; and Toxic Substances Control Act (TSCA) incinerators. The appropriate transport methods and disposal locations would be identified as part of construction planning.

The removal of contaminated media materials from the Project Area would constitute a minor beneficial impact. The impact would be minor because of the likely limited level of contamination that would be encountered and removed. All fill used during construction would be certified-clean material.

5.4.4 Summary of Impacts

Table 5-7 and **Table 5-8** summarize the impacts of the No-Action Alternative and the Preferred Alternative.

Table 5-7. Summary of Preferred Alternative Impacts on Waste and Hazardous Materials

Impact Category	Type of Impact	Preferred Alternative
Municipal Solid Waste	Direct operational	Minor beneficial impact
	Indirect operational	Minor adverse impact
	Construction	Minor adverse impact
Hazardous Materials and Waste	Direct operational	Negligible adverse impact
	Indirect operational	Negligible adverse impact
	Construction	Minor adverse / minor beneficial impact

Table 5-8. Quantitative Estimates of Impacts on Municipal Waste

Source	Additional	Total
Operational		
WUS	+2,662 tpy (+86%)	5,767 tpy
Private Air Rights Development	-5,076 tpy (-35%)	9,404 tpy
Potential Federal Air Rights Development	+1,865 tpy	1,865 tpy
Total	-549 tpy (-3.1%)	17,036 tpy
Construction Spoils and Debris		
Construction Spoils and Debris	1,507,102 cy	

tpy = tons per year; cy = cubic yards

5.5 Transportation

This section describes the impacts of the Preferred Alternative on the multiple transportation modes (modes) in and around WUS. These include railroad (Amtrak, VRE, and MARC Train); intercity, tour/charter, and sightseeing buses (including hop-on/hop-off buses and daily sightseeing coaches); private vehicles; for-hire vehicles;³⁸ bicycles; transit (Metrorail, DC Streetcar, and Metrobus); and pedestrians. This section also addresses parking and rental cars.

5.5.1 Direct Operational Impacts

5.5.1.1 Commuter and Intercity Railroads

Relative to the No-Action Alternative, the Preferred Alternative would have a major beneficial direct operational impact on commuter and intercity railroad service, as it would support increased service with the ability to accommodate substantially more passengers than the No-Action Alternative.

The reconstruction of the tracks and platforms included in the Preferred Alternative would allow for a substantial expansion of rail capacity at WUS. The new tracks, platforms, and supporting infrastructure would support simultaneous boarding of trains, quicker turnaround times for trains, and potential double berthing.³⁹ The Preferred Alternative would make these procedures possible by providing wider platforms that can safely accommodate more passengers; longer usable platform edges that would increase the amount of space that can be effectively used for passenger activity;⁴⁰ and greater

³⁸ In the District and in this SDEIS, "for-hire vehicles" refers to all vehicles where the passenger pays for a ride, including taxis, livery/car services, and transportation networking companies (TNCs) such as Uber and Lyft.

³⁹ "Double berthing" is when two trains are lined up, one in front of the other, on the same track. The incorporation of double berthing into the track and platform plan is described in Appendix B of the 2020 DEIS.

⁴⁰ While some platforms may retain the same total lengths as today, they would differ greatly in how much of that length is actively used. Portions of platforms are currently unused due to lack of accessibility, insufficient width, and other issues.

redundancy in the track system through the redesign of critical interlockings. These changes would allow for longer and more frequent trains because trains could unload and load passengers more quickly.⁴¹

Alongside the resulting additional capacity, Amtrak developed an operating plan that would accommodate the growth in Amtrak, MARC, and VRE ridership estimated by FRA's *Northeast Corridor (NEC) FUTURE* modeling. Relative to pre-pandemic conditions, Amtrak ridership would grow by approximately 95 percent, MARC ridership would grow by approximately 150 percent, and VRE ridership would grow by approximately 250 percent. The future projected volumes are shown in **Table 5-9** below. The operating plan would allow for two new services: a new low-cost intercity service called the "Metropolitan," and MARC through-running trains to Virginia, in addition to the existing Amtrak Acela, Amtrak Northeast Regional, Amtrak Long Distance, and MARC and VRE commuter rail services.

The Metropolitan service, introduced in the *NEC FUTURE* Final Environmental Impact Statement, is a proposed unreserved intercity service between Washington, DC, and Boston. This service would be less expensive than most Northeast Regional service and would make more frequent intermediate stops. As planned, it would provide intercity service to new markets and attract riders who might otherwise drive or take the bus, potentially reducing vehicular traffic along the Northeast Corridor. It would also provide some commuter service for longer distance commuters.

MARC Through-Running would provide regional commuter rail service between Washington, DC, Maryland, and Virginia, with trains connecting from the MARC Penn Line to the VRE Fredericksburg and Manassas lines. For the purposes of this SDEIS, this new service is labeled as "MARC Through-Running;" however, MARC and VRE have not yet reached an agreement on how this service would be operated.

Table 5-9 shows anticipated daily train volumes for intercity and commuter train services in the Preferred Alternative. No-Action Alternative data are also provided for comparison.

Table 5-9. Daily Intercity and Commuter Train Volumes

Service	Preferred Alternative	No-Action Alternative
Amtrak Trains (All Services)	288	144
Amtrak Total Ridership	32,000	21,800
MARC Trains (All Services)	250	106
MARC Total Ridership	70,700	37,900
VRE Trains (All Services)	92	34
VRE Total Ridership	13,600	4,900

Train volumes would increase substantially relative to the No-Action Alternative. Daily intercity train volumes would increase by 100 percent, MARC Trains by 136 percent, and VRE trains by 171 percent. In contrast to the No-Action Alternative, where increased train volumes would further stress WUS's

⁴¹ These improvements to the tracks and platforms would be combined with the new concourse spaces and new vertical circulation elements to provide improved overall passenger circulation throughout WUS.

existing, constrained infrastructure, in the Preferred Alternative, the proposed improvements to platforms and concourses would adequately accommodate these volumes.

Private Train Cars

Relative to the No-Action Alternative, the Preferred Alternative would have no direct operational impact on private train car operations.

Currently, Amtrak allows private train cars to be stored at WUS. Under the reconfiguration of the rail terminal in the Preferred Alternative, Amtrak has identified space for eight private train cars to be stored at a time. Therefore, private car storage could continue.

5.5.1.2 Washington Metropolitan Area Transit Authority (WMATA) Metrorail

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse direct operational impact on Metrorail operations because of increased demand that would aggravate train overcapacity and station circulation issues at the WMATA platform level. This impact would be minor because the congestion would be expected to dissipate in the system's core.

Increased train service and ridership in the Preferred Alternative, as well as the reduction in parking capacity and new retail uses, would generate increased demand for Metrorail at WUS. **Table 5-10** shows modeled activity in the AM peak and PM peak, respectively, along with corresponding data for existing conditions. When the projected volume/capacity (V/C) ratio would exceed 100 percent, measures would be needed to address overcrowding.

By 2040, volumes in the Preferred Alternative would exceed capacity in the Shady Grove direction during the AM peak (departing WUS) and in the Glenmont direction during the PM peak (arriving at WUS).

Relative to the No-Action Alternative, in the AM peak, the Preferred Alternative would cause the V/C ratio leaving WUS toward Shady Grove to reach 103 percent, compared to 86 percent in the No-Action Alternative, reflecting an estimated excess demand of 484 passengers. Based on the geographic distribution of WMATA peak ridership demand, overcapacity conditions are anticipated to dissipate within the Red Line core.⁴²

⁴² The Red Line core, as defined by WMATA, consists of the line segment between Dupont Circle and WUS. On the other side of those stations, average ridership volumes noticeably decrease.

Table 5-10. Peak-hour WUS-related Metrorail Activity

	Preferred Alternative		No-Action Alternative	
	Shady Grove	Glenmont	Shady Grove	Glenmont
AM Peak Hour				
Passengers Arriving at WUS	14,328	4,837	13,651	4,250
V/C Arriving at WUS	84%	28%	80%	25%
WUS Boardings	8,405	1,680	5,202	1,010
WUS Alightings	5,106	3,541	4,128	2,803
Through Ridership	9,222	1,296	9,523	1,447
Ridership Departing WUS	17,627	2,976	14,725	2,457
V/C Departing WUS	103%	17%	86%	14%
Excess Demand	484	0	0	0
PM Peak Hour				
Passengers Arriving at WUS	3,324	18,226	3,107	16,848
V/C Arriving at WUS	21%	116%	20%	107%
WUS Boardings	3,248	4,603	2,559	3,661
WUS Alightings	1,677	8,385	1,154	6,126
Through Ridership	1,647	9,841	1,953	10,722
Ridership Departing WUS	4,895	14,444	4,512	14,383
V/C Departing WUS	31%	92%	29%	91%
Excess Demand	0	2,488	0	1,110

In the PM peak, capacity exceedance toward Glenmont (116 percent arriving) would be greater in the Preferred Alternative than in the No-Action Alternative (107 percent). The Preferred Alternative would aggravate the level of crowding, generating an additional excess demand of approximately 1,378 passengers, for a total excess demand of around 2,488.

Relative to the No-Action Alternative, the increase in Metrorail ridership at WUS in the Preferred Alternative would further adversely affect passenger circulation at the WMATA platform level. The construction of the First Street Concourse and the reconfiguration of Metrorail access to the rail platform level of Concourse A in the Preferred Alternative would improve circulation between the WMATA mezzanine and WUS rail platform levels. However, vertical circulation between the WMATA platform and the WMATA mezzanine would remain as in the No-Action Alternative. This connection would be a constraint on circulation in the No-Action Alternative and would remain one in the Preferred Alternative. It is likely that in the Preferred Alternative, circulation conditions on the WMATA platform for passengers seeking to access the North Mezzanine would further degrade compared to the No-Action Alternative as a result of increased volumes.

5.5.1.3 DC Streetcar⁴³

Relative to the No-Action Alternative, the Preferred Alternative would result in a minor beneficial direct operational impact on DC Streetcar operations. The benefits that increased ridership would generate would be partially offset by greater operational delays.

The Preferred Alternative would not cause capacity to be exceeded on the DC Streetcar. Relative to the No-Action Alternative, passenger volumes departing WUS would increase by 361 in the westbound direction and 96 in the eastbound direction in the AM peak. In the PM peak, passenger volumes would increase by 44 in the westbound direction and 148 in the eastbound direction.

The Preferred Alternative would result in greater use of the DC Streetcar than the No-Action Alternative while leaving sufficient room for further growth, a beneficial impact. This beneficial impact would be minor because greater traffic congestion on H Street (see **Section 5.5.1.12, Vehicular Traffic**) may create operational delays that would partially offset the benefits of increased ridership.

5.5.1.4 Intercity, Tour/Charter, and Sightseeing Buses

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate beneficial direct operational impact on intercity, tour/charter, and daily sightseeing buses because of the improved passenger facilities and ability to accommodate future growth to services. The Preferred Alternative would have a moderate adverse direct operational impact on hop-on/hop-off sightseeing buses, which would no longer be able to use the front of WUS.

In the Preferred Alternative, intercity buses, tour/charter buses, and daily sightseeing buses,⁴⁴ would be accommodated in a new, purpose-built facility adjacent to the WUS train hall. This facility would be integrated into the overbuild deck and directly open onto the train hall's lower mezzanine, where waiting areas, information displays, and other bus passenger amenities would be located. Through the train hall, bus passengers would have direct access to the multimodal connections available at WUS, including rail, Metrorail, and the pick-up and drop-off facility. This would result in a substantial improvement in passenger experience relative to the No-Action Alternative, which would maintain the existing bus facility.

Intercity buses, tour/charter buses, and daily sightseeing buses would reach the new facility via the new east intersection on H Street NE. Exit would be via the new west intersection. Buses would be able to enter and exit the facility from either the eastbound or westbound side of H Street.

Based on the assumptions presented in **Appendix S1, Multimodal Refinement Report**, in 2040, the Preferred Alternative would generate an estimated 41 AM and 79 PM peak-hour intercity, tour/charter

⁴³ The impact analysis for impacts to DC Streetcar operations assumes an extension of the existing line in both the eastbound and the westbound directions. Although the District has indefinitely postponed extending the Streetcar line to the west, it is assumed that by 2040, an equivalent transit line would be in place between WUS and Georgetown. References to a westbound Streetcar direction are to this equivalent line.

⁴⁴ Daily sightseeing buses are coach-style buses that provide scheduled tours of Washington-area sites and currently depart from the existing WUS bus facility.

and daily sightseeing bus movements. Relative to the No-Action Alternative, this would be an increase of 46 percent (13 trips) in the AM peak and a doubling (40 trips) in the PM peak.

All intercity and tour/charter buses that serve WUS would use the facility. The 38-39 slip facility would be able to accommodate all regular demand and all peak intercity demand during holidays or other times of high bus activity. During such periods, however, tour/charter bus activity may cause the facility's capacity to be exceeded. In these circumstances, buses could make use of the pick-up and drop-off area on the H Street deck level, next to the train hall. Approximately 15 buses could be accommodated in this area. It is expected that this spillover area would be used no more than approximately 5 to 10 days a year.

The capacity of the new bus facility would be optimized through a "dynamic management" approach.⁴⁵ This approach would allow for sharing of slips across different carriers during peak periods, increasing the functional capacity of the slips.⁴⁶ The dynamic management approach would introduce a complexity to the use of the bus facility that bus operators would need to adapt to and manage. This consideration makes the anticipated beneficial impact moderate.

In the Preferred Alternative, hop-on/hop-off sightseeing buses would no longer be accommodated at the front of WUS, and they could not be accommodated in the bus facility. This loss of service at the front of WUS would be an adverse impact on hop-on/hop-off sightseeing buses operations. This impact would be moderate because hop-on/hop-off sightseeing buses frequently operate on city curbsides, and, as such, have multiple potential options for relocation. USRC, the Project Sponsor, would identify an alternative location in coordination with DDOT before the existing location becomes unavailable.

5.5.1.5 Loading

Relative to the No-Action Alternative, the Preferred Alternative would have no adverse direct operational impacts on loading space availability at WUS. Demand would increase but it would be met through continued use of the existing docks and the provision of a new dock on Second Street NE.

In the Preferred Alternative, use of the existing east and west loading docks would continue. A new loading dock (north dock) between Second Street and K Street NE with access from Second Street NE would be constructed. Relative to the No-Action Alternative, the demand for loading dock slips at WUS would increase an estimated 75 percent because of the greater amount of retail and the increase in multimodal operations. Between the existing loading docks and the new north dock, there would be sufficient capacity to accommodate the expected volume of vehicles and materials. Trucks serving this dock would comply with District law, which prohibits backing up in the public right-of-way, and the District Design and Engineering Manual.⁴⁷

⁴⁵ As noted above, the 2020 DEIS referred to this approach as "active management." The currently preferred industry terminology is "dynamic management," which is the term used in this document.

⁴⁶ See **Appendix S1, Multimodal Refinement Report** for more discussion of the dynamic management approach.

⁴⁷ DDOT. 2019. *Design and Engineering Manual*. Accessed from <https://ddot.dc.gov/page/design-and-engineering-manual>. Accessed on March 11, 2023.

5.5.1.6 Pedestrians

Relative to the No-Action Alternative, the Preferred Alternative would have a major beneficial direct operational impact on pedestrian circulation inside WUS. Additional access points to WUS would disperse pedestrian traffic and make access to WUS easier. Outside of WUS, the Preferred Alternative would have a minor adverse direct operational impact on pedestrian circulation because of increased queueing at certain crossings near the station.

As shown in Table 5-11, interior passenger volumes at WUS would increase in the Preferred Alternative relative to the No-Action Alternative. In both the AM and PM peaks, volumes would be approximately 50 percent greater. The largest generator of internal pedestrian trips would be passengers transferring between commuter rail and Metrorail. Outside WUS, pedestrian volumes would increase as well, by about 61 percent in the AM peak and 55 percent in the PM peak.

Table 5-11. Interior Pedestrian Volumes

	Preferred Alternative		No-Action Alternative	
	AM Peak	PM Peak	AM Peak	PM Peak
Interior Volumes				
Total	71,734	92,356	47,703	61,416
Exterior Volumes				
Total	17,938	16,766	11,123	10,819

By providing new concourse space and access points, widened concourse areas and platforms, more vertical circulation elements from platforms and between station levels, and a new concourse and expanded gates from which to access trains, the Preferred Alternative would facilitate the movement of passengers and visitors through and in and out of WUS, avoiding the congestion and conflicts that would occur in the No-Action Alternative, where existing, already congested circulation spaces and entry points would have to accommodate a growing number of people. For this reason, despite the increase in pedestrian volumes relative to the No-Action Alternative, the Preferred Alternative would result in a major beneficial impact on pedestrian conditions in WUS.

Outside, projected queues at nearby crossings from passengers accessing their destinations on foot in the Preferred Alternative would be longer than they would be in the No-Action Alternative. However, queues would remain manageable, as they could remain contained within the available sidewalk space at these locations. Anticipated increases in vehicular traffic near WUS, including pick-up and drop-off activities, along with increases in pedestrian volumes, may result in more conflicts between pedestrians and vehicles. The following locations would be most affected: G Street NE between North Capitol Street and First Street NE; First Street NE between G Street NE and K Street NE; H Street NE between the west intersection and east intersection; and Second Street NE between F Street NE and K Street NE.

The Preferred Alternative would improve pedestrian connectivity outside the station by providing a pedestrian ramp (shared with bicycles) along the west side of WUS, which would connect the front of the station and First Street NE to the deck-level development and H Street. This ramp would be

consistent with the potential construction of a “greenway” from H Street to the Metropolitan Branch Trail as part of future public or private projects. There would also be shared pedestrian-bicycle access from the east side of WUS to the new bus facility along the east side of the station. When the normal WUS vehicular circulation system is disrupted (for instance during major maintenance activities), the west ramp and the east ramp may be used by pick-up and drop-off vehicles or buses, respectively. During those times, on the west ramp, pedestrian circulation would be maintained alongside vehicle travel. On the east ramp, pedestrian access would be suspended; access via the interior of WUS would remain available.

Considering the pedestrian improvements associated with the Preferred Alternative, adverse impacts from crowding and potential conflicts would be minor.

5.5.1.7 Bicycle Activity

Relative to the No-Action Alternative, the Preferred Alternative would result in a major beneficial direct operational impact on bicycle activity. Anticipated demand for private bicycle parking and storage would be accommodated by the provision of about 100 Bikeshare spaces and up to 900 bicycle storage spots. However, this benefit would be partially offset by increased conflicts with pedestrians and vehicles.

In the Preferred Alternative, it is projected that WUS would generate a total of 638 peak-hour bicycle trips, with 309 trips in the AM peak and 329 trips in the PM peak (Table 5-12).⁴⁸ These volumes would represent an increase of 102 AM trips (49 percent) and 88 PM trips (37 percent) over the No-Action Alternative.

Table 5-12. Peak-hour Bicycle Trips

	Preferred Alternative		No-Action Alternative	
	AM Peak	PM Peak	AM Peak	PM Peak
Total	309	329	207	241

The Preferred Alternative would provide approximately 100 Bikeshare spaces and up to 900 bicycle storage spaces. New bicycle storage facilities would be established adjacent to the H Street Concourse entrances at First and Second Streets NE and in the undercroft of the west and east ramps. With the new bicycle facilities, the Preferred Alternative would fully accommodate the increased volumes in bicycle trips and would make possible future growth in station-bicycle connections. This would not occur in the No-Action Alternative.

The Preferred Alternative would also improve bicycle connectivity near WUS by providing a bicycle ramp (shared with pedestrians) along the west side of WUS, which would connect the front of the station and First Street NE to the deck-level development and H Street. This ramp would be consistent with the potential construction of a “greenway” from H Street to the Metropolitan Branch Trail as part of future

⁴⁸ These trips include trips taken on e-bicycles or e-scooters.

public or private projects and would not preclude that facility from being constructed in the future. There would also be shared bicycle-pedestrian access from the east side of WUS to the new bus facility along the east side of the station.

When the normal WUS vehicular circulation system is disrupted (for instance during major maintenance activities), the west ramp and the east ramp may be used by pick-up and drop-off vehicle or buses, respectively. During those times, on the west ramp, bicycle circulation would be maintained alongside vehicle travel. On the east ramp, bicycle access would be suspended.

Greater vehicular, pedestrian, and bicycle volumes in the Preferred Alternative would increase the risk of conflicts between bicycles and vehicles. The access for the new First Street ramp into WUS, which would be signalized, would introduce a new conflict to the First Street cycle track. Bicycle facility improvements planned by DDOT (on Louisiana Avenue NE and K Street NE, for instance) would improve safety. However, increased vehicular and pedestrian activity from pick-ups and drop-offs as well as from the new pedestrian entrances at H Street on First and Second Streets NE would increase the risk of conflicts. Altogether, the improvements that would result from the Preferred Alternative would amount to a major beneficial direct operational impact on bicycle access and activity relative to the No-Action Alternative.

5.5.1.8 City and Commuter Buses

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse direct operational impact on city and commuter buses, including the DC Circulator. Increases in WUS-generated ridership would incrementally contribute to the overcrowding of some city buses and increases in traffic congestion would incrementally contribute to delays experienced by all city and commuter buses. These impacts would be partially offset by the Preferred Alternative's relocation of some city bus routes to the front of WUS and planned bus priority projects in the District.

The Preferred Alternative would increase usage of city and commuter buses (including DC Circulator Metrobus, Maryland Transit Authority, and Loudoun County Transit buses) that serve WUS, as shown in **Table 5-13.**

Table 5-13. Combined Peak-hour City and Commuter Bus Ridership

	Preferred Alternative		No-Action Alternative	
	AM Peak	PM Peak	AM Peak	PM Peak
Capacity	7,837	7,471	7,837	7,471
Volume Prior to WUS	4,298	4,516	3,887	3,863
V/C Arriving	55%	60%	50%	52%
Alightings for WUS	887	1,507	476	854
Through Volume	3,411	3,009	3,411	3,009
Boardings from WUS	1,721	1,042	829	612
Total Volume	5,132	4,051	4,240	3,621
V/C Departing	65%	54%	54%	48%

Compared to the No-Action Alternative, there would be an additional 411 alightings (86 percent) and 892 boardings (108 percent) at WUS in the AM peak from and on city and commuter buses. There would be an additional 653 alightings (76 percent) and 430 boardings (70 percent) in the PM peak. However, considered collectively, city and commuter buses would continue to operate under capacity in both peaks.

At the route level, the Metrobus routes that would be over capacity in at least one direction during at least one peak time in the No-Action Alternative would also be over capacity in the Preferred Alternative. These routes include 80, 96, D4, D6, P6, X1, X2, and X9. Because of the increase in ridership, the overcrowding would be worse, but the Preferred Alternative would not cause more Metrobus or DC Circulator lines to run above capacity than would the No-Action Alternative.

Increases in vehicle delay and queueing on street near WUS would likely affect bus reliability and speeds due to the overall degradation in traffic operations. Bus routes that pass through at least two intersections that would degrade to level of service F relative to the No-Action Alternative (see **Section 5.5.1.12, Vehicular Traffic**) may experience slightly greater delays than in the No-Action Alternative. However, these traffic-related delays may be reduced due to ongoing DDOT planning efforts as part of the Bus Priority Program.⁴⁹ Bus priority treatments, which may include dedicated lanes or other measures to improve bus speed and reliability, are planned for North Capitol Street, H Street NE/NW, and Massachusetts Avenue NE/NW.⁵⁰ Additionally, the inclusion of transit buses in the front of WUS would also reduce impacts from congestion, as loading and unloading activities would be on a dedicated curbside off District streets. Conflicts with drop-off traffic in the outer lanes at the front of WUS would need to be managed, however.

Combined, increased overcrowding and delays on some bus lines would amount to a minor adverse direct operational impact on city and commuter buses.

In the Preferred Alternative, the new bus facility would not accommodate the Georgetown – Union Station (GT-US) DC Circulator or the Gallaudet University shuttle that make use of the existing facility. In existing conditions, the DC Circulator has four slips for operations. Based on observations conducted for the Project, typically only two slips are occupied: one for active loading and unloading and one for bus staging. The DC Circulator would need to find a new stop location near WUS.

The shuttle serving Gallaudet University would be relocated to the H Street deck pick-up and drop-off area, adjacent to the train hall. Riders could wait for the shuttle in the train hall. In the rare instances when that area is used for temporary special event charter bus operations, the shuttle would be temporarily relocated to other roads on the H Street deck or H Street itself, with adequate wayfinding and signage provided. Because of the short dwell time and limited number of trips, no impact to traffic operations would occur because of this relocation.

⁴⁹ DDOT. *Bus Priority*. Accessed from <https://ddot.dc.gov/page/bus-priority>. Accessed on January 22, 2023.

⁵⁰ DDOT. *Corridor Map*. Accessed from <https://ddot.dc.gov/node/1499316>. Accessed on January 22, 2023.

5.5.1.9 Vehicular Parking and Rental Cars

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate adverse direct operational impact on parking at WUS because of a reduction in parking capacity. There would be a minor adverse direct operational impact on rental car operations.

In the Preferred Alternative, all parking and rental car activity would be in a new below-ground parking facility with access via G Street NE and First Street NE. The new facility would have a capacity of up to 550 spaces, approximately 1,900 fewer spaces (a 77 percent reduction) than the existing parking garage, which would continue to be used in the No-Action Alternative. The new facility would provide Electric Vehicle (EV) charging capacity for parked vehicles. The number of charging spots would be determined during design.

The new parking facility would not fully accommodate projected future demand as estimated by FRA.⁵¹ As such, it would amount to an adverse impact. It is anticipated the limitation of parking supply would create an incentive for WUS users to use different modes to reach the station. In some cases, they could also drive to a different station, such as New Carrollton, Maryland. Furthermore, based on regional modeling estimates and recent District planning, it can be anticipated that proportionately fewer passengers or visitors would be driving to and parking at WUS by 2040.⁵² Therefore, the adverse impact would be moderate.

Because of the reduction in parking capacity, WUS activity in the Preferred Alternative would generate fewer peak-hour parking trips than in the No-Action Alternative, as shown in **Table 5-14 and Table 5-15** below. In the AM peak, the reduction between the No-Action Alternative and the Preferred Alternative would be 117 trips (62 percent reduction). In the PM peak, it would be 215 trips (72 percent reduction).

Increased WUS activity would generate more rental car trips relative to the No-Action Alternative, as shown in **Table 5-14 and Table 5-15**. In both the AM and PM peak hours, the number of car-rental trips would more than double relative to the No-Action Alternative (105 against 46 in the AM peak and 92 against 45 in the PM peak). This substantial change would be due to the large increase in intercity train volumes concentrated in the peak hours.

In the Preferred Alternative, the below-ground parking facility would include space for rental cars. However, because the size of the space (room for approximately 100 cars) would be less than the demand estimate (approximately 230 cars), there would be an adverse impact on rental car operations. This adverse impact would be minor, as the facility operates in a constrained condition today and would continue to do so in the No-Action Alternative. Facility operators have experience with strategies to manage vehicle storage and use in those conditions.

⁵¹ **Appendix S1, Multimodal Refinement Report.**

⁵² The Metropolitan Washington Council of Government (MWCOC) Transportation Planning Board (TPB) Regional Model estimates a 10 percent reduction in single-occupancy vehicle trips in the WUS area to 2040, based on the 2040 Cooperative Forecast developed for the 2040 Constrained Long-Range Plan. At the same time, DDOT's *Move DC* plan calls for a 13 percent reduction in automobile trips in the District relative to a projected future 2040 baseline.

5.5.1.10 For-hire Vehicles⁵³

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate beneficial direct operational impact on for-hire vehicle activity because of the provision of new locations for pick-ups and drop-offs. These locations would adequately accommodate the anticipated growth in for-hire trips, manage congestion at the front of the historic station building, and provide new capacity to manage queueing.

The following five pick-up and drop-off locations would be provided in the Preferred Alternative:

- **Front of WUS:** For-hire vehicles would have two means of access depending on trip purpose: from Columbus Circle for all for-hire vehicles (drop-off only) and, for taxis, from the below-ground facility up the east ramp, via the entrances at G Street and First Street (pick-up only). Egress from the front of WUS would continue to occur at the intersection of Massachusetts Avenue, E Street NE, and First Street NE.
- **Adjacent to the north-south train hall on the deck level:** For-hire vehicles would access this location via the new west intersection on H Street NE, with egress via the east intersection to H Street NE.
- **New H Street Concourse entrance on First Street NE:** This location would serve the new WUS entrance on First Street NE and consist of a curbside pick-up and drop-off area on the west side of the street, north of H Street NE. For-hire vehicles would reach it via southbound First Street NE.
- **New H Street Concourse entrance on Second Street NE:** This location would serve the new WUS entrance on Second Street NE. It would consist of space for curbside pick-up and drop-off on both sides of the street. The west side location would be reached via southbound Second Street NE. Vehicles would reach the east side location via northbound Second Street NE.
- **Below-ground Facility:** This facility would provide a below-ground space incorporating queueing, staging, and pick-up and drop-off spaces for for-hire vehicles. This facility could include unique staging and pick-up and drop-off areas for both taxis and Transportation Networking Companies (TNCs) to meet their different operational needs. This facility would have ingress and egress at First Street NE, G Street NE, and egress only at the east ramp to the front of WUS. The ability to accommodate EV charging for vehicles would be evaluated in future design.

⁵³ In the District and in this SDEIS, “for-hire vehicles” refers to all vehicles where the passenger pays for a ride, including taxis, livery/car services, and TNCs, such as Uber and Lyft.

The provision of these additional locations would have a beneficial impact on for-hire vehicle operations, as it would provide more room and flexibility for both drivers and passengers. Because volumes associated with for-hire as well as private pick-up and drop-off activity on the deck level and in front of WUS could create queueing and congestion, this beneficial impact would remain moderate.

Table 5-14 and Table 5-15 below show the anticipated number of WUS-related for-hire trips in the Preferred Alternative.⁵⁴ Relative to the No-Action Alternative, the Preferred Alternative would generate an estimated 632 additional peak-hour for-hire trips in the AM peak hour (121 percent increase) and 374 in the PM peak hour (43 percent increase). The principal source of additional peak-hour for-hire trips would be the increase in intercity rail activity. The projected distribution of these trips across the five above locations is shown in **Table 5-16** below.

5.5.1.11 Private Pick-up and Drop-off⁵⁵

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate beneficial direct operational impact on private pick-up and drop-off activities because of the provision of new locations for these activities. These locations would adequately accommodate the anticipated growth in private pick-up and drop-off trips.

The same five locations used by for-hire vehicles would be available for private pick-up and drop-off activity for individuals to pick up WUS passengers that they know. However, private vehicles would not be allowed to use the east ramp to access the front of WUS from the below-ground facility and only drop-offs would be permitted in front of the station.

The provision of additional locations for private pick-up and drop-off would result in a beneficial impact, as it would provide more room and flexibility for both drivers and passengers. Because volumes associated with private pick-up and drop-off as well as for-hire activity on the deck level and in front of WUS could create queueing and congestion, this beneficial impact would remain moderate.

Table 5-14 and Table 5-15 show the anticipated number of WUS-related peak-hour private pick-up and drop-off trips in the Preferred Alternative.⁵⁶ Relative to the No-Action Alternative, the Preferred Alternative would generate an estimated 678 additional AM peak-hour trips (78 percent) and 480 additional PM peak hour trips (51 percent). The principal source of increased peak-hour private pick-up/drop-off trips would be the increase in intercity rail activity. The projected distribution of these trips across the five above locations is shown in **Table 5-16** below.

⁵⁴ A single for-hire pick-up or drop-off operation creates both an in and an out trip as the vehicle arrives and then departs WUS. A single for-hire vehicle pick-up or drop-off is assumed to generate 1.5 trips to reflect the linking of trips in the WUS circulation network.

⁵⁵ "Private pick-up and drop-off" refers to pick-up and drop-off happening at WUS where the WUS passenger is in the car of a friend, family member, or acquaintance and has not paid for the ride.

⁵⁶ A single private pick-up or drop-off vehicle generates two trips: one in and one out as the vehicle arrives and then departs WUS.

5.5.1.12 Vehicular Traffic

Relative to the No-Action Alternative, the Preferred Alternative would have major adverse direct operational impacts on traffic operations at several intersections near WUS due to increased traffic volumes. During at least one of the peak periods, out of 35 intersections in the Local Study Area, six intersections would degrade to Level of Service (LOS) F; 18 would experience an increase in queue length of more than 150 feet; and 18 would experience an increase in average delay of more than 5 seconds.

Trips Generation and Circulation

Table 5-14 and Table 5-15 show the number of AM and PM peak WUS-related trips in the Preferred Alternative, along with the corresponding information for the No-Action Alternative. Compared to the No-Action Alternative, the Preferred Alternative would generate 1,252 additional AM peak trips (77 percent increase) and 686 additional PM peak trips (32 percent increase).

Table 5-14. AM Peak-hour Traffic Volumes

	Preferred Alternative			No-Action Alternative		
	Total Trips	In	Out	Total Trips	In	Out
Parking	72	52	20	189	127	62
Private Pick-Up/Drop-Off	1,550	775	775	872	436	436
For-hire Vehicles	1,156	578	578	524	262	262
Car Rental	105	57	48	46	28	18
Total Trips	2,883	1,462	1,421	1,631	853	778

Table 5-15. PM Peak-hour Traffic Volumes

	Preferred Alternative			No-Action Alternative		
	Total Trips	In	Out	Total Trips	In	Out
Parking	84	22	62	299	102	197
Private Pick-Up/Drop-Off	1,428	714	714	948	474	474
For-hire Vehicles	1,236	618	618	862	431	431
Car Rental	92	37	55	45	17	28
Total Trips	2,840	1,391	1,449	2,154	1,024	1,130

WUS-related vehicular activity in the Preferred Alternative would be primarily distributed across six locations: the pick-up/drop-off area at the front of WUS; the new bus facility and deck-level pick-up/drop-off location, accessed from H Street NE; the new curbside drop-off location on First Street NE (serving the new H Street Concourse); the new curbside drop-off location on Second Street NE (serving

the new H Street Concourse); the ingress and egress ramp to the below-ground facility on G Street NE; and the ingress and egress ramp to the below-ground facility on First Street NE.

Parking and rental car activity would converge on G Street and First Street to access the below-ground facility. Private and for-hire pick-up and drop-off activity would be spread across all locations. **Table 5-16** shows the anticipated distribution of WUS-related vehicular trips by access point and type of trip in the Preferred Alternative. Approximately 70 percent of WUS-related traffic is expected to travel to and from points west of WUS and 30 percent traveling to and from points east.

Table 5-16. Trip Distribution by Access Point and Trip Type in the Preferred Alternative

	First Street	Second Street	Front of WUS	H Street	Below-ground Facility
For-hire Pick-up/Drop-off	5%	3%	35% (AM) 32% (PM)	19% (AM) 21% (PM)	38% (AM) 39% (PM)
Private Pick-up/Drop-off	5%	3%	18% (AM) 19% (PM)	32% (AM) 31% (PM)	42% (AM) 42% (PM)
Parking	0%	0%	0%	0%	100%
Rental Cars	0%	0%	0%	0%	100%

During the occasional periods when the WUS circulation system is disrupted (for instance during major maintenance activities), the east and west ramps would be used by buses and pick-up and drop-off vehicles, respectively. Buses would descend down the east ramp into the circulation area at the front of WUS; they would make use of the middle lanes to exit the station. Pick-up and drop-off vehicles would go down the west ramp and stop alongside the colonnade, as occurs today during periods of construction; they would exit WUS via Columbus Circle. WUS operational personnel would direct and manage the pick-up and drop-off activities as needed.

Curbside Analysis

The anticipated vehicular volumes associated with for-hire and private pick-up and drop-off activities on the deck level and on First and Second Streets NE may create conflicts and could lead to queues. At deck level, queueing analysis indicates that the approximately 550 feet of curbside space adjacent to the east-west train hall would accommodate for-hire vehicles and private pick-up and drop-off without spill-back onto H Street NE.

No queues would form at the First Street or Second Street pick-up and drop-off areas. On First Street NE, there would be an estimated 135 pick-ups and drop-offs in the AM peak and 133 in the PM peak. On Second Street NE, there would be 81 pick-up and drop-offs in the AM peak and 80 in the PM peak. The available pick-up and drop-off areas provided in the Preferred Alternative along these corridors would be sufficient to accommodate these volumes. In the below-ground facility accessed from G Street and First Street, 1,090 pick-up and drop-offs would occur in the AM peak and 1,081 would occur in the PM peak. This facility is designed to accommodate an adequate amount of queueing and circulation space to operate effectively with these volumes.

Intersection Analysis

1210 The impacts of the Preferred Alternative on traffic operations were assessed through Synchro modeling.
1211 Three indicators were used to assess the impacts of the Preferred Alternative on traffic operations at
1212 each intersection:

- 1213 ■ Degradation of intersection LOS to F from a better LOS due to vehicle trips generated by the
1214 Project;
- 1215 ■ Increase in average vehicle delay of more than 5 seconds; and
- 1216 ■ Increase in 95th-percentile queue lengths of more than 150 feet for any lane group at an
1217 intersection.

1218 The peak hour LOS of each intersection for the Preferred Alternative are shown in **Figure 5-2**.

1219 As shown in **Table 5-17**, in the Preferred Alternative, relative to the No-Action Alternative, six
1220 intersections would degrade to LOS F in at least one peak hour. Three of the intersections that would
1221 operate at LOS F in the No-Action Alternative would improve to a better LOS in at least one peak hour.

1222 Eighteen intersections out of 35 would experience an increase in queue length of more than 150 feet for
1223 one or more lane groups relative to the No-Action Alternative (**Table 5-17**). Of those 18 intersections,
1224 nine would experience such a queue increase in both peak hours.

1225 Finally, in the Preferred Alternative, 18 of the 35 study intersections would experience an increase in
1226 average delay of more than 5 seconds for at least one peak hour relative to the No-Action Alternative
1227 (**Table 5-17**).

5.5.2 Indirect Operational Impacts

1228 **The Preferred Alternative would have minor adverse indirect operational impacts on traffic because of**
1229 **the trips generated by the potential Federal air rights development.**

1230 In the Preferred Alternative, the Federal air rights above the rail terminal not used for the Project would
1231 be available for potential transfer and mixed-use development. For the purposes of impact analysis, this
1232 potential development is assumed to include 310,000 square feet of office, 175,000 square feet of
1233 residential development, and 15,000 square feet of retail. These uses would generate additional trips to
1234 the Project Area for all modes. For vehicular trips, the increase would be about 5 percent; it would be
1235 smaller for other modes. These indirect trips were incorporated into the above analyses in **Section 5.5.1**,
1236 *Direct Operational Impacts*, as applicable, for a comprehensive assessment.

Figure 5-2. Preferred Alternative Levels of Service at Peak Hour

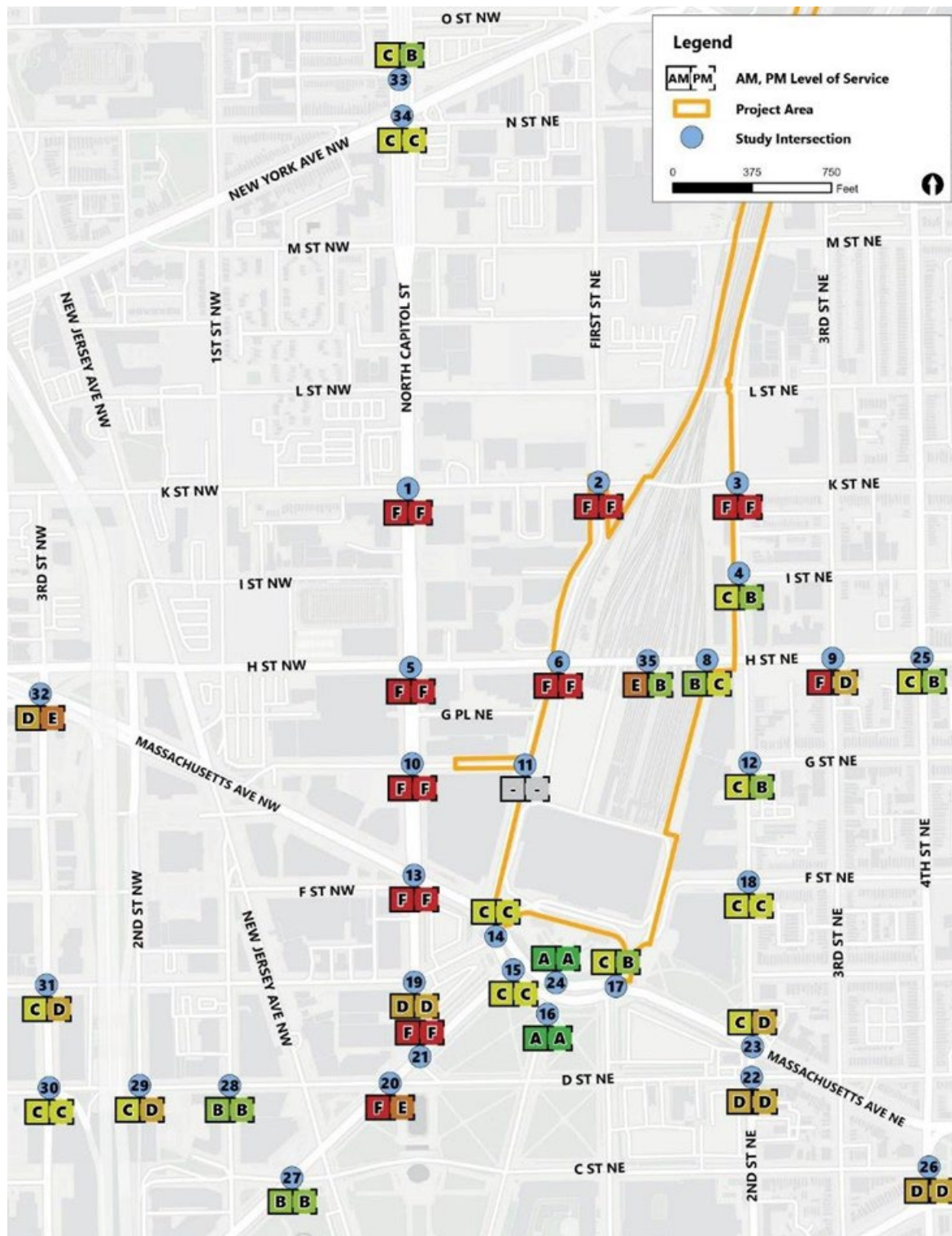


Table 5-17. Summary of Preferred Alternative Traffic Impacts

Int. No.	Intersection Name	Impact		
		LOS	Queuing	Delay
1	North Capitol Street / K Street			
2	First Street / K Street NE			
3	Second Street / K Street NE			
5	North Capitol Street / H Street			
6	WUS West Intersection / H Street NE			
8	WUS East Intersection / H Street NE	*		
9	3rd Street / H Street NE			
10	North Capitol Street / G Street			
13	North Capitol Street / Massachusetts Avenue			
14	Massachusetts Avenue/ E Street / First Street NE	*		
15	Louisiana Avenue / Massachusetts Avenue NE			
17	First Street / Massachusetts Avenue NE	*		
19	North Capitol Street / E Street			
20	Louisiana Avenue / D Street NW			
21	Louisiana Avenue / North Capitol Street			
22	Second Street / D Street NE			
25	4th Street / H Street NE	*		
26	Massachusetts Avenue / C Street / 4th Street NE			
27	Louisiana Avenue / C Street NW			
30	3rd Street / I-395 On-ramp / D Street NW			
31	3rd Street / E Street NW			
32	3rd Street / Massachusetts Avenue/ H Street NW	*		
34	North Capitol Street (NB Ramp) / New York Avenue			
35	WUS Central Intersection / H Street NE			

A gray cell indicates a major adverse impact to LOS, queuing, or delay as described in *Intersection Analysis* above. Asterisk (*) indicates an improvement in LOS for at least one peak hour.

5.5.3 Construction Impacts

Construction of the Preferred Alternative would take place over approximately 13 years. The following sections characterize the potential impacts of the construction of the Preferred Alternative on the various transportation modes at and near WUS. The discussion focuses on Phase 4 of construction. Phase 4 would have the greatest impacts on transportation because of the demolition of the existing parking garage and bus facility that would occur during this phase and because of the concentration of construction activities on the west side of WUS, adjacent to Metrorail's Red Line. In the Preferred Alternative, Phase 4 would begin approximately 8 years and 9 months after the start of construction and last for approximately 4 years and 3 months.

5.5.3.1 Commuter and Intercity Railroads

Construction of the Preferred Alternative would cause a moderate adverse impact to Intercity and Commuter rail operations. Limited train delays and cancellations may occur during the entire construction period.

Each phase of construction would involve taking a set of tracks out of service, thus reducing the number of tracks and platforms available for train service. The provision of temporary tracks and connections would largely make up for this temporary loss. A construction-period operating plan designed to maximize use of the available infrastructure would be put in place. However, railroad operations would be affected, as certain trips would be affected by planned cancellations and rescheduling. Anticipated schedule impacts by service by construction phase are shown in **Table 5-18**.

Table 5-18. Daily Train Planned Cancellations and Alterations during Construction of the Preferred Alternative

Service	Construction			
	Phase 1 & Intermediate Phase	Phase 2	Phase 3	Phase 4
Amtrak Trains Altered (out of 144 Daily)	0	2	0	1
MARC Canceled (out of 106 Daily)	0	4	0	4
VRE Canceled (out of 34 Daily)	2	2	0	0

In all phases, anticipated service cancellations would represent at most approximately 3 percent of the overall service levels at WUS. While moderate and manageable, this would reduce flexibility and increase delays. Phase 4 of construction would see an average delay to train operations of 6 minutes and 12 seconds.⁵⁷ Phase 2 would see larger delays and greater disruptions to train operations. During this phase, a total of 8 trains would be canceled daily. The average train delay would be 18 minutes and 36 seconds. These delays and cancellations would cause disruptions for passengers, most notably VRE passengers, as 6 percent of VRE trains would be canceled.

5.5.3.2 WMATA Metrorail

Construction of the Preferred Alternative would have moderate adverse impacts on WMATA Metrorail Red Line operations due to intermittent stoppages or single-tracking events.

Metrorail's Red Line runs along the western side of the Project Area. Therefore, it would be most affected during Phase 4 of construction period, which is when the First Street Concourse, the First Street entrance to the H Street Concourse, and the First Street and G Street vehicle ramps would be constructed. Additionally, in Phase 4, the existing parking garage would be demolished.

⁵⁷ This is the average delay that a scheduled train would experience due to the construction. This metric does not include canceled trains.

These construction activities may require schedule adjustments for safety purposes. Intermittent stoppages, single-tracking, or shutdowns may occur on weekdays, weeknights, or weekends. Such impacts would occur throughout Phase 4 and their exact frequency or duration are not known at this stage of planning. No extended shutdowns or periods of single-tracking are anticipated.

During the same period, the unavailability of parking between the demolition of the existing garage and the completion of the new parking facility would generate additional daily Metrorail trips when the station is open. This would not cause noticeable overcrowding as those trips would be distributed over the entire day.

5.5.3.3 DC Streetcar

Construction of the Preferred Alternative would have moderate adverse impacts on DC Streetcar operations due to temporary disruptions to direct access between the WUS Streetcar station and WUS.

DC Streetcar operations would be affected during Project construction if the H Street Bridge were to be closed for safety reasons. Such closures are not likely, and if they did occur, they would be rare and brief. Construction of the Project elements and demolition of the existing parking garage may result in a loss of direct access between the WUS Streetcar station and WUS, including the Metrorail Station, during certain times. Such adverse impacts would be moderate because of their limited duration.

5.5.3.4 Intercity, Tour/Charter, and Sightseeing Buses

Construction of Preferred Alternative would have moderate adverse impacts on bus operations and bus passenger accommodations.

Impacts on intercity, tour/charter, and daily sightseeing bus operations would be concentrated in Phases 3 and 4 of construction. During Phase 3, which would last for approximately 2 years and 8.5 months, the relocation of the facility within the existing parking structure would create some disruptions, but operations would generally be able to continue. At the beginning of Phase 4, the entire existing bus facility and parking garage would be demolished. The new bus facility would not be operational until the completion of Phase 4.

Therefore, as explained in **Appendix S2, Description of Alternative F**, Section S.11.7.2, *Bus*, during Phase 3 if needed and during Phase 4, a temporary bus facility or temporary bus loading zones would be established on the completed portion of the structural deck. These temporary facilities would be of sufficient size to maintain an adequate level of operations. They would likely be small during Phase 3 and established only on an as-needed basis, depending on conditions in the remaining part of the existing parking garage and bus facility. During Phase 4, which would last for approximately 4 years and 3 months, the temporary facilities would have to accommodate all intercity and charter bus service. Some or all of the temporary facilities would have to be established on the completed portion of the private air rights deck through an agreement with the private air rights developer. FRA confirmed with the private air rights developer that this approach is feasible.

Such interim bus facilities would be sufficient to maintain adequate intercity and charter bus service at WUS until the new facility is operational. They would not provide the same amenities as the new facility and, depending on their location, they may increase the distance to the front of the station. Bus carriers would have to adapt their operations to a changing environment during a few years. This would be a moderate adverse impact. Service would continue and intermodal connections would remain available throughout the construction period. USRC would work with the private air rights developer and the bus carriers to ensure that the temporary facilities are sited and designed in a manner that provides users with the highest reasonably achievable level of comfort.

5.5.3.5 Loading

Construction of the Preferred Alternative would have a major adverse impact on loading operations and facilities.

The east loading facility, which is accessed from H Street NE, would remain open for operation during the majority of the Preferred Alternative construction period. However, the west loading dock would be closed in Phase 4 when construction activities would occur nearby. The new loading dock at Second and K Streets NE would not be operational until the end of the construction period because of the need to use the area for material laydown and storage.

Because of these constraints, large truck loading on-site would be limited. Small trucks would have to be used instead. A facility to transfer and screen large loads to smaller trucks would be needed. At this stage of planning, the location of this temporary facility has not been determined.

5.5.3.6 Pedestrians

Construction of the Preferred Alternative would have moderate adverse impacts on pedestrian traffic.

Throughout the construction period, circulation within WUS would be affected as tracks and platforms are replaced; sections of the station are closed to allow for column removal in the First Street Tunnel; and new concourses and access points are built. The intensity of the impacts would vary with the phase but would be greatest during Phases 1 and 2, including the column removal work, and during Phase 4, because of interior construction activities on the west side of the site. Access to the Metrorail station from within WUS may also be affected.

Externally, throughout the construction period, street and sidewalk segments around WUS would be subject to temporary closures. The affected areas would include the front of the historic station building during the upgrade of the pick-up and drop-off lanes; and First Street NE, G Street, NE, and Second Street NE, as multimodal facilities and ramps are constructed there. Construction traffic (up to 120 trucks a day during periods of excavation) may also make pedestrian movements more challenging and generate conflicts along truck routes, especially Second Street NE.

5.5.3.7 Bicycles

Construction of the Preferred Alternative would have a moderate adverse impact on bicycle circulation during the construction of the First Street pick-up and drop-off facilities, the H Street Concourse, and entrance to the below-ground facility.

During parts of Phase 4 of construction, portions of First Street NE near the H Street Concourse would be rebuilt; an entrance to the H Street Concourse and the access ramps to the below-ground facility would be built. The cycle track along First Street NE may be closed during the construction of these elements. Truck use of the existing H Street Tunnel may also create conflicts during construction. While this work is being performed, it may not be possible to maintain a bicycle accommodation along the First Street corridor. During portions of Phase 4, it is expected that bicyclists would be rerouted to the Second Street shared-use path portion of the Metropolitan Branch Trail. How long disruption of the cycle track would last is not known at this time, but it would likely be less than the full duration of Phase 4. Temporary road closures around WUS would also disrupt bicycle circulation, as described above for pedestrians.

5.5.3.8 City and Commuter Buses

Construction of the Preferred Alternative would have negligible adverse impacts on city and commuter bus operations, as there would only be intermittent disruptions.

Construction activities would not significantly affect commuter bus activities. Most commuter bus service in the area serves North Capitol Street and the Columbus Circle area, where the larger transportation network would absorb the construction truck traffic and where there would be no direct access to the construction site.

City bus operations, including the DC Circulator and WMATA Metrobus, could be disrupted if H Street NE were to be closed for safety reasons. Specific information on the frequency and duration of these possible closures is not available at this time but long-term disruptions to H Street NE are not anticipated.

Operation of the Gallaudet University shuttle out of the existing bus facility would have to stop in Phase 4, when the facility would be demolished. As explained in **Section 5.5.1.8, *City and Commuter Buses***, this would become a permanent condition since the new bus facility could not accommodate the shuttle. During Phase 4 of construction, the shuttle would be accommodated in the interim bus facility (see **Section 5.5.3.4, *Intercity, Tour/Charter, and Sightseeing Buses***).

5.5.3.9 Vehicular Parking and Rental Cars

Construction of the Preferred Alternative would have a major adverse impact on parking and rental cars in the period between the demolition of the existing parking garage and the completion of the below-ground facility in Phase 4 of construction.

Major impacts to parking and rental car operations would occur in Phase 4 of construction, when demolition of the existing parking garage would occur. Parking, including rental car parking, would be

unavailable at WUS during Phase 4 until the new below-ground facility is completed, resulting in a major adverse impact on parking. The loss of parking capacity would require WUS visitors or passengers to use alternative modes of transportation. Given the overall daily volumes of these modes, it is anticipated that the added trips would be manageable. Some drivers may look for alternative parking and commercial parking may accommodate some of this demand. Street parking near WUS is in very limited supply, as most streets within a quarter mile of the station are residential parking permit areas, two-hour parking areas, or monitored parking areas on Architect of the Capitol property. Therefore, no WUS passengers or visitors are likely to be able to use street parking for long-term parking. During Phase 4, the lack of parking at WUS may make the station unusable by anyone who would lack other options to reach it.

5.5.3.10 For-hire Vehicles

Construction of the Preferred Alternative would have a major adverse impact on for-hire vehicle operations because of extended queueing.

Passenger pick-up and drop-off in front of the historic station building by for-hire vehicles would remain available during most of the construction period, although some disruption would occur when the taxi and private pick-up and drop-off lanes would be improved. The existing loop road along the back of the station building would be unavailable during the entire period of construction. Therefore, the east ramp currently used by taxis to reach the front of the station would stop being accessible from the start of construction. Taxis would have to queue along the west ramp as they do today when the east ramp is not available. During Phase 4, the west ramp would be closed, and taxis would have to queue along the new southeast road on the deck level and the new east ramp from the bus facility (both available after completion of Phases 1 and 2). The east ramp would be used for the entirety of Phase 4. The loss of parking likely would result in an uptick in for-hire operations, which would contribute to the adverse impact on these operations during Phase 4.

5.5.3.11 Private Pick-up and Drop-off

Construction of the Preferred Alternative would have a moderate adverse impact on private pick-up and drop-off operations.

Private pick-up and drop-off would remain available in front of WUS during the construction period. The reconstruction of traffic lanes in front of the station would require the temporary closure of parts of the pick-up and drop-off area, although some spaces would remain available at all times. Therefore, this adverse impact would be moderate. As noted above, the loss of parking likely would result in an uptick in private pick-up and drop-off operations, which would contribute to the adverse impact on these operations during Phase 4 of construction.

5.5.3.12 Vehicular Traffic

Construction of the Preferred Alternative would have a major adverse impact on vehicular traffic operations because of roadway closures and construction vehicle traffic.

In the Preferred Alternative, construction activities at WUS would generate traffic to and from the site throughout the day during the entire construction period, although the volume and nature of this traffic would vary depending on the phase and type of activities being conducted. It would be minimal when only column-removal work would be performed (intermediate phase between Phases 1 and 2). It would be greatest during excavation, when up to 120 trucks per 20-hour day could be traveling to and from the site. This is a maximum, conservative estimate that assumes that no work trains would be used to haul spoils away. Use of two work trains a day would eliminate most of this truck traffic. Additionally, while each construction phase (excluding the Intermediate Phase) would include a period of excavation and associated truck traffic, that period would be substantially shorter than the phase itself.

The longest period of excavation (approximately 2 years and 1 month) would occur during Phase 4, on the west side of the Project Area. During that time, most truck traffic would travel on First Street NE to connect to designated District truck routes along the North Capitol Street and New York Avenue corridors. Phase 1, on the east side of the Project Area, would have the shortest excavation period (approximately 5 months). During that period, trucks would likely travel along portions of Second Street NE before connecting to a designated truck route. No trucks would circulate along residential streets, or any other streets not designated as a truck route by the District.

As WUS would remain operational throughout the construction period, construction traffic would add to the traffic generated by users of the station. By the time of Phase 4, WUS would generate similar levels of vehicular traffic to that expected in the No-Action Alternative. Although construction traffic would add to total traffic volumes on major WUS access routes, it would be spread out across the entire day, reducing its impact on local traffic operations.

At different times during the construction period, temporary roadway closures would be required, especially along G Street NE between North Capitol Street and First Street NE; First Street NE, between Columbus Circle and K Street; and Second Street NE, between Massachusetts Avenue and K Street, to accommodate construction traffic in and out of the construction site. Road closures would generally last from 5 to 6 minutes on average and no more than 20 minutes. During those times, traffic may temporarily move to other streets such as H Street, K Street, 4th Street NE, and North Capitol Street.

5.5.4 Summary of Impacts

Table 5-19 summarizes the transportation impacts of the Preferred Alternative by mode.

Table 5-19. Summary of Preferred Alternative Impacts on Transportation

Mode	Type of Impact	Preferred Alternative
Commuter and Intercity Railroads	Direct Operational	Major beneficial impact
	Construction	Moderate adverse impact
WMATA Metrorail	Direct Operational	Minor adverse impact
	Construction	Moderate adverse impact
DC Streetcar	Direct Operational	Minor beneficial impact
	Construction	Moderate adverse impact
Intercity, Tour/Charter, and Sightseeing Buses	Direct Operational	Moderate adverse (hop-on/hop-off buses) or moderate beneficial impact (all others)
	Construction	Moderate adverse impact
Loading	Direct Operational	No adverse impact
	Construction	Major adverse impact
Pedestrians	Direct Operational	Major beneficial impact (inside WUS) and minor adverse impact (outside WUS)
	Construction	Moderate adverse impact
Bicycle Activity	Direct Operational	Major beneficial impact
	Construction	Moderate adverse impact
City and Commuter Buses	Direct Operational	No impact (university shuttle) or minor adverse impact (all others)
	Construction	Negligible adverse impact
Vehicular Parking	Direct Operational	Moderate adverse impact
	Construction	Major adverse impact
Rental Cars	Direct Operational	Minor adverse impact
	Construction	Major adverse impact
For-hire Vehicles	Direct Operational	Moderate beneficial impact
	Construction	Major adverse impact
Private Pick-up/drop-off	Direct Operational	Moderate beneficial impact
	Construction	Moderate adverse impact
Vehicular Traffic	Direct Operational	Major adverse impact
	Construction	Major adverse impact
All Modes	Indirect Operational	Minor adverse impact

5.6 Air Quality

This section addresses the potential impacts of the Preferred Alternative on air quality, including the potential Federal air rights development. Air quality is the condition of ambient air determined through the measurement of air pollution. Ambient air is the portion of the atmosphere to which the general public has access outside of buildings. Air pollution is the presence of potentially harmful gases or particles (pollutants) in ambient air. Urban air pollution is the result of emissions from mobile sources (such as automobiles, trains, or trucks) or stationary sources (such as boilers, generators, and ventilation equipment).

This section also addresses the requirements of the General Conformity Rule. Established under the Clean Air Act, the General Conformity Rule helps states and tribes improve air quality in those areas that do not meet National Ambient Air Quality Standards (NAAQS). The U.S. Environmental Protection Agency (EPA) has established NAAQS for carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone (O₃), particulate matter sized 10 micrometers or less (PM₁₀), and 2.5 micrometers or less (PM_{2.5}), and lead. These pollutants are known as criteria pollutants. EPA designates areas that do not meet the NAAQS for one or more criteria pollutants as non-attainment or maintenance areas for those pollutants. The District is a moderate nonattainment area for O₃.

The General Conformity Rule applies to any Federal action in a non-attainment area. It is designed to ensure that Federal actions do not interfere with a state's or tribe's ability to attain and maintain the NAAQS. If the total direct and indirect emissions from the Federal action are below the applicable *de minimis* threshold rates, the emissions are exempt from the provisions of the General Conformity regulations. If a project's emissions of a criteria pollutant exceed the applicable *de minimis*, a Conformity Determination must be performed. Because the District is classified as moderate non-attainment for O₃, and is located within an O₃ transport region, the *de minimis* thresholds for the O₃ precursors nitrogen oxides (NO_x) and volatile organic compounds (VOCs) are 100 tons per year and 50 tons per years, respectively.⁵⁸ NO_x and VOC combine to generate O₃.

The District is in attainment of the CO and particulate matter NAAQSSs, and General Conformity does not apply for those pollutants. Estimates of CO, PM₁₀, and PM_{2.5} emissions associated with the Preferred Alternative are presented in this section for information purposes only.

5.6.1 Direct Operational Impacts

Relative to the No-Action Alternative, stationary source emissions in the Preferred Alternative would have negligible adverse direct operational impacts on air quality.

Direct impacts for the purposes of this analysis are impacts from stationary sources located in the Project Area. The design of mechanical systems for the expanded WUS is highly conceptual at this early stage of design. As WUS receives heating and cooling from District energy sources, there is a limited

⁵⁸ EPA. *De Minimis Tables*. Accessed from <https://www.epa.gov/general-conformity/de-minimis-tables>. Accessed on February 11, 2023.

need for heating, ventilation, and air conditioning equipment with direct (on-site) pollutant emissions. The only Project-related stationary source equipment with direct emissions would be cooling towers and emergency generators.

Cooling towers would be on the roof of one of the planned air rights buildings, on the east side of the Project Area, next to the northern end of the Railway Express Agency (REA) Building. Cooling towers do not directly emit pollutants through a combustion process and are a small source of particulate matter emissions. Such emissions would occur on the roofs on building, far from any areas where people are routinely present. Impacts to ambient air quality would be negligible.

Unlike cooling towers, emergency generators are direct sources of air pollutant emissions from combustion. Emergency generators would be installed on the east and west sides of WUS, between G Place and H Street NE, on the roofs of the planned air rights buildings. The operation of emergency generators is limited to a maximum of 500 hours per year.⁵⁹ Such generators can only be operated during emergency situations and for periodic testing and require an air quality permit from DOEE before installation and operation. During the permitting process, the applicant must demonstrate that the generators would not cause an adverse impact on air quality. Therefore, impacts to ambient air quality from the installation and operation of emergency generators in the Preferred Alternative are anticipated to be negligible.

Ventilation fans would be used to exhaust air from the tracks and platforms and the below-ground facility and maintain good ambient air quality in those areas. Eight fan plants would be installed on the roofs of the air rights buildings (two between G Street and G Place NE; two between G Place and H Street NE; two north of H Street NE; and two just south of K Street NE). Because the fan plants would be ventilating pollutants from mobile sources, their emissions are accounted for in the mesoscale analysis of indirect impacts. Because of their location on the roofs of buildings, direct impacts on ambient air quality would be negligible.⁶⁰

5.6.2 Indirect Operational Impacts

5.6.2.1 Mesoscale Analysis

In the Preferred Alternative, the net increase in emission of O₃ precursors (NO_x and VOC) attributable to the Preferred Alternative relative to the No-Action Alternative would be below the General

⁵⁹ District Department of Energy and Environment. *Application For Source Category Permit Approval to Construct and/or Operate a Natural Gas Fired Emergency Engine Subject to NSPS Subpart JJJJ*. Accessed from https://doee.dc.gov/sites/default/files/dc/sites/ddoe/release_content/attachments/Source%20Category%20Application%20Form%20for%20NSPS%20Nat%20Gas%20Emergency%20Engines.pdf. Accessed on January 13, 2023.

⁶⁰ In the Preferred Alternative, the private air rights development would be smaller than in the No-Action Alternative (approximately 2.7 million square feet of mixed uses against approximately 3.8 million square feet). Therefore, direct stationary source emissions associated with the private air rights development (for instance emissions from boilers) would be reduced in the Preferred Alternative relative to the No-Action Alternative, partially offsetting increases associated with the Project.

Conformity *de minimis* thresholds applicable in the District. Therefore, adverse indirect impacts on air quality would be minor.

For the purposes of this analysis, indirect impacts on air quality are those that result from pollutant emissions by mobile sources on a regional scale. Such regional emissions are evaluated through mesoscale analysis. This section presents the results of the mesoscale air quality analysis for the Preferred Alternative.

The mesoscale analysis considered the increases in VOC, NO_x, CO, and PM₁₀ and PM_{2.5} emissions from motor vehicles and locomotives anticipated to occur by 2040 with implementation of the Preferred Alternative. The analysis used data (volumes, delays, and speeds) from the Preferred Alternative traffic analysis for on-road emissions sources. Locomotive emissions were modeled based on future rail operations, accounting for locomotive propulsion and idling, and conservatively assumed the use of diesel locomotives.

Table 5-20 shows the results of the Preferred Alternative mesoscale analysis for NO_x and VOC emissions and the *de minimis* thresholds that apply in the District. The table shows total emissions in the Preferred Alternative and the No-Action Alternative. The net emissions attributable to the Preferred Alternative, calculated by subtracting the No-Action Alternative emissions from the total Preferred Alternative emissions, represent the impact of the Preferred Alternative.

Emissions of NO_x and VOC would increase relative to the No-Action Alternative. The net change in emissions attributable to the Preferred Alternative is the appropriate metric for review against the applicable *de minimis* thresholds because it reflects the net change in emissions caused by the Preferred Alternative. Other quantities shown in the table incorporate existing and No-Action Alternative emissions that are not associated with the Preferred Alternative.

Table 5-20. Mesoscale Inventory of NO_x and VOC Emissions

Source	NO _x (tons per year)	VOC (tons per year)
Motor Vehicle Emissions	4.4	34.8
Locomotive Emissions	61.4	2.0
Total Preferred Alternative Emissions	65.8	36.8
No-Action Emissions	30.6	35.4
Net Change in Emissions Attributable to the Preferred Alternative¹	35.2	1.4
<i>De Minimis</i> Threshold	100	50

1. The "Net Change in Emissions attributable to the Preferred Alternative" is the difference between total emissions in the Preferred Alternative and No-Action Alternative emissions.

For both criteria pollutants, the net increase attributable to the Preferred Alternative (35.2 tons per year [tpy] of NO_x and 1.4 tpy of VOC) is below the applicable *de minimis* threshold (100 tpy and 50 tpy, respectively), indicating that the proposed Federal activity would not cause new violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone. Therefore, adverse indirect impacts on ambient air quality would be minor.

The mesoscale analysis also estimated operational emissions of CO, PM₁₀, and PM_{2.5}. In the District, there are no applicable regulatory thresholds for these pollutants because the region is in attainment for each of them. Therefore, the estimates in **Table 5-21** are provided for information only.

Table 5-21. Mesoscale Inventory of CO and PM Emissions

Source	CO (tons per year)	PM ₁₀ (tons per year)	PM _{2.5} (tons per year)
Motor Vehicle Emissions	67.7	4.5	0.9
Locomotive Emissions	29.8	1.0	1.0
Total Preferred Alternative Emissions	97.5	5.6	1.9
No-Action Emissions	78.4	5.1	1.3
Net Change in Emissions Attributable to the Preferred Alternative¹	19.1	0.5	0.6

1. The "Net Change in Emissions Attributable to the Preferred Alternative" is the difference between total emissions in the Preferred Alternative and No-Action Alternative emissions.

5.6.2.2 Mobile Source Air Toxics Analysis

Relative to the No-Action Alternative, the Preferred Alternative may result in localized, higher levels of mobile source air toxics (MSAT) emissions in the Local Study Area. Information to quantitatively assess these impacts is not available; based on existing information, they are anticipated to be minor.

The amount of MSAT emitted in the Preferred Alternative would be proportional to the amount of bus vehicle miles travel (VMT) and railroad activity, assuming other variables (such as travel not associated with WUS) remain the same. Most Project-generated motor vehicle traffic would be light-duty vehicles, which are not a substantial source of MSAT. Although the capacity of the new bus facility with implementation of the Preferred Alternative would be less than the capacity under the No-Action Alternative, an increase in peak-hour bus activity to accommodate an increased number of passengers could occur. Due to increased capacity and ridership expected from the WUS expansion, on-road VMT and railroad activity would be greater under the Preferred Alternative.

The increase in bus VMT and rail activity would lead to higher diesel particulate matter emissions (a component of MSAT) near WUS. The increase in emissions could be partly offset by two factors: the decrease in regional traffic due to greater use of commuter rail and increased speeds on area highways due to the decrease in commuter traffic. As noted in **Section 5.5.1.1, *Commuter and Intercity Railroads***, the Preferred Alternative would provide intercity service to new markets and attract riders who might

otherwise drive or take the bus, as well as provide some commuter service for longer distance commuters. Though this would likely primarily remove from regional traffic light-duty vehicles, which are not a substantial source of MSAT, the removal of these vehicles would lead to reduced congestion and emissions for the entire existing vehicle fleet mix, which includes diesel vehicles. Taking light-duty vehicles off regional roadways would improve operations for diesel vehicle traffic, including a reduction in idling time, and MSAT emissions would be reduced.

A portion of the increase in railroad activity would be associated with electric locomotives, which do not generate MSAT emissions. An increase in diesel locomotive activity would increase diesel emissions near homes, schools, and businesses in WUS's vicinity. As a result, there may be areas where local ambient concentrations of MSAT would be higher in the Preferred Alternative than in the No-Action Alternative. The magnitude and duration of these potential impacts cannot be reliably quantified due to incomplete or unavailable information.

On a regional basis, EPA's vehicle and fuel regulations coupled with the progressive replacement of older vehicles by newer ones and increased use of electric vehicles (EV), is anticipated to result in substantial reductions in MSAT emissions over time and in overall lower MSAT levels in 2040. Indeed, EPA's national control programs are projected to result in annual reductions of MSAT emissions of over 90 percent between 2010 and 2050. Local conditions within the Regional Study Area, such as fleet mix and turnover, VMT growth rates, and local control measures may differ from national conditions. Therefore, the actual level of local MSAT reductions may differ from national assumptions. However, EPA's projected national reductions are so substantial (even after accounting for VMT growth) that MSAT emissions in the Regional Study Area are likely to be lower by 2040.

5.6.3 Construction Impacts

Emissions of O₃ precursors (NO_x and VOC) during the construction of the Preferred Alternative would be below the General Conformity *de minimis* criteria applicable in the District. Therefore, air quality impacts from construction would be minor.

Construction activities in the Preferred Alternative would cause air pollutant emissions in amounts that would vary across the entire construction period, estimated to last approximately 13 years. The primary sources of emissions would be construction equipment, including dump trucks, and heavy machinery exhaust, along with ground-disturbing activities and the operation of construction vehicles on unpaved roadways, which would generate fugitive dust.

Excavation and the loading and transport of excavated soil and other materials would be the most emission-intensive part of the construction process, requiring the use of large diesel-fueled equipment such as excavators and dump trucks. Two scenarios were analyzed for the removal of excavation spoils from the Project site: one scenario assumed removal only by trucks (120 trucks a day: All Truck Scenario) and the other assumed spoil removal by work trains (two work trains a day: Work Train Scenario).

As explained in **Section 3.3, Description of Alternative F**, and in more detail in **Appendix S2, Description of Alternative F**, Section S.11.1, *Construction Phasing and Sequence*, construction would take place in

four main phases, with a one-year intermediate phase between Phase 1 and Phase 2, during which only column removal work would occur. **Table 3-2** above shows the duration of each phase.

Construction-related air quality impacts were estimated for each phase, including the Intermediate Phase, based on emissions associated with excavation; support of excavation construction; caisson drilling; foundation slab construction; overbuild deck construction; track demolition and reconstruction; terminal demolition; subbasement column removal; and construction for the G Street Ramp, First Street Ramp, and East Ramp. For each phase, emissions were annualized, conservatively assuming that all types of activity would take place during each year of the phase. This conservative assumption allows for comparison with EPA's *de minimis* criteria and a General Conformity applicability determination.

Table 5-22 shows estimated maximum annual emissions of NO_x and VOC for each phase for both the All Truck Scenario and the Work Train Scenario. In either scenario, emissions would be below the applicable *de minimis* threshold in all phases. Therefore, adverse impacts on ambient air quality would be minor.

Table 5-22 Construction Emissions of NO_x and VOC per Phase for the Preferred Alternative

Construction Phase	All Truck Scenario		Work Train Scenario	
	NO _x	VOC	NO _x	VOC
	tpy	tpy	tpy	tpy
Phase 1	62.7	7.7	60.5	6.8
Intermediate Phase	23.3	1.9	23.3	1.9
Phase 2	52.4	6.9	49.1	5.6
Phase 3	36.7	4.9	32.9	3.3
Phase 4	62.2	8.1	56.8	5.9
<i>De Minimis</i> Threshold	100	50	100	50

tpy = tons per year

In all phases, except the Intermediate Phase, the Work Train Scenario would result in less emissions of O₃ precursor pollutants than the All Truck Scenario. The Intermediate Phase would not include any excavation work or involve the transport of materials to or from the Project Area. Therefore, the scenarios make no difference for this phase.

Table 5-23 shows annual estimated CO and particulate matter emissions. As noted above, there are no applicable regulatory thresholds for these pollutants because the region is in attainment of the NAAQS for each of them. Therefore, the estimates in **Table 5-23** are provided for information only. The Work Train Scenario would result in less emissions of every pollutant in each phase except the Intermediate Phase, for the same reason as explained above.

Table 5-23. Annual Construction CO and PM Emissions per Phase for the Preferred Alternative

Construction Phase	All Truck Scenario			Work Train Scenario		
	CO	PM ₁₀	PM _{2.5}	CO	PM ₁₀	PM _{2.5}
	tpy	tpy	tpy	tpy	tpy	tpy
Phase 1	27.1	2.7	2.1	24.3	1.9	1.8
Intermediate Phase	6.2	0.4	0.4	6.2	0.4	0.4
Phase 2	23.0	2.6	1.8	18.8	1.4	1.3
Phase 3	17.0	2.3	1.4	12.2	0.9	0.9
Phase 4	29.1	3.7	2.4	22.2	1.7	1.6

tpy = tons per year

5.6.4 Combined Operational and Construction NO_x and VOC Emissions

To demonstrate that a General Conformity determination is not required, direct construction NO_x and VOC emissions were combined with the net change in indirect operational emissions attributable to the Preferred Alternative and compared to the applicable *de minimis* thresholds. For construction emissions, the phase and scenario with the highest annual emissions of NO_x (Phase 1 – All Truck Scenario) were used. Operational emissions are those that would occur after the Project is complete. However, during the entire construction period, operational activity at WUS (e.g., car and train traffic) would be well below this post-completion level of activity and achieved only after the Project is complete. Therefore, the estimates shown here are very conservative. Actual emission levels are anticipated to be substantially lower.

As shown in **Table 5-24**, combined emissions of NO_x and VOC associated with the Preferred Alternative would be below the applicable *de minimis* thresholds.

Table 5-24. Combined Operational and Construction Annual NO_x and VOC Emissions for the Preferred Alternative

Component	NO _x	VOC
	tpy	tpy
Construction Emissions	62.7	7.7
Maximum Net Change in Operational Emissions Attributable to the Preferred Alternative	< 35.2	< 1.4
Maximum Combined Preferred Alternative Operational and Construction Emissions	< 97.9	< 9.1
<i>De Minimis</i> Threshold	100	50

tpy = tons per year

5.6.5 Summary of Impacts

Table 5-25 summarizes the impacts of the Preferred Alternative.

Table 5-25. Summary of Preferred Alternative Impacts on Air Quality

Type of Impact	Preferred Alternative
Direct Operational	Negligible adverse impact
Indirect Operational – Mesoscale Analysis	Minor adverse impact
Indirect Operational – MSAT	Minor adverse impact
Construction	Minor adverse impact

5.7 Greenhouse Gas Emissions and Resilience

This section addresses the potential impacts of the Preferred Alternative on greenhouse gas (GHG) emissions and resilience. GHGs trap heat in the atmosphere and can affect air quality and climate change. Major GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases (such as hydrofluorocarbons and perfluorocarbons). The primary pollutant of concern from sources related to human activity is CO₂, which is the most abundant and influential GHG.

5.7.1 Direct Operational Impacts

The primary concern associated with GHG emissions is their effect on climate change. Such an effect is by definition long-term and global in extent. Therefore, all GHG impacts are addressed as indirect impacts⁶¹

5.7.2 Indirect Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would result in major adverse indirect operational impacts on CO₂ emissions from mobile and stationary sources.

5.7.2.1 Stationary Source Emissions—WUS⁶²

CO₂ emissions associated with the Preferred Alternative would result from the additional energy needed to operate the expanded WUS, including electricity, heat, and cooling. As estimated in **Section 5.8.1**,

⁶¹ Indirect impacts are impacts that result from the action and are later in time or farther removed in distance but are still reasonably foreseeable (Council on Environmental Quality. 1981. *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*. Accessed from <https://www.energy.gov/nepa/downloads/forty-most-asked-questions-concerning-ceqs-national-environmental-policy-act>. Accessed on November 17, 2022.)

⁶² Stationary sources include onsite energy-generating equipment, such as boilers, as well as offsite energy-generating plants. The stationary source emission estimates in this section were developed based on the estimates of energy consumption increases presented in **Section 5.8**, *Energy Resources*, and GHG emissions factors, not on a review of specific emission sources.

Direct Operational Impacts, the additional energy consumption would amount to approximately 72,904,000 kilo British thermal units (kBtUs) per year.⁶³ Based on the proportion of each energy source used at WUS under existing conditions, 44 percent of this energy would be electrical; 30 percent chilled water; and 18 percent steam.

The CO₂ emissions associated with this increase in energy consumption were estimated using U.S. Energy Information Administration (EIA)'s emission factors: 117 pounds of CO₂ per 1,000 kBtUs of natural gas energy and 1,177 pounds per megawatt-hour (MWh) for electric energy.⁶⁴ After application of the emissions factors, the estimated increase in energy consumption would potentially generate approximately 9,791 additional metric tons of CO₂ per year.⁶⁵

5.7.2.2 Stationary Sources Emissions—Private Air Rights Development

In the Preferred Alternative, the private air rights development would be smaller than in the No-Action Alternative as noted in **Section 3.3, Description of Alternative F**. As estimated in **Section 5.8.1, Direct Operational Impacts**, the difference would result in a reduction in energy consumption of approximately 51,693,900 kBtUs per year.

Based on Department of Energy (DOE)'s prototypical models for this type of development, it can be assumed that local natural gas consumption would account for approximately 23 percent of this total, or 11,889,600 kBtUs. Based on the EIA's emission factor of 117 pounds of CO₂ per 1,000 kBtUs of natural gas energy, this would result in a potential reduction in direct CO₂ emissions of approximately 631 metric tons per year. The reduction in electric energy use would be approximately 39,804,300 kBtUs (77 percent of the total reduction). Based on the 1,177 pounds per MWh factor for electric energy, this would potentially result in a reduction relative to the No-Action Alternative of approximately 6,228 metric tons of CO₂ per year. Altogether, the smaller private air rights development in the Preferred Alternative would potentially generate approximately 6,859 fewer metric tons of CO₂ per year than in the No-Action Alternative.⁶⁶

These estimates provide a rough-order-of-magnitude measure of **potential** GHG emissions. They do not incorporate measures to reduce energy consumption and associated emissions.

⁶³ A kBtU is one thousand British Thermal Units (BTU). A BTU is "a measure of the heat content of fuels or energy sources." Specifically, it is the quantity of heat required to raise the temperature of one pound of liquid water by 1-degree Fahrenheit at the temperature that water has its greatest density (approximately 39 degrees Fahrenheit).

⁶⁴ U.S. Energy Information Administration. *Carbon Dioxide Emissions Coefficients*. Accessed from https://www.eia.gov/environment/emissions/co2_vol_mass.php. Accessed on November 4, 2022. U.S. Energy Information Administration. *States Electricity Profiles. District of Columbia. 2020*. Accessed from <https://www.eia.gov/electricity/state/districtofcolumbia/>. Accessed on November 4, 2022. Energy from steam and electricity was converted to MWh prior to applying the factor.

⁶⁵ See **Appendix C3S**, Section 7.5.2.1, *Stationary Source Emissions-WUS*, Table 7-1, for more details.

⁶⁶ See **Appendix C3S**, Section 7.5.2.2, *Stationary Source Emissions-Private Air Rights Development*, Table 7-2.

5.7.2.3 Stationary Sources Emissions – Potential Federal Air Rights Development

In the preferred Alternative, the potential development of the Federal air rights area would increase annual energy consumption in the Project Area by 27,600,000 kBtUs (**Section 5.8.2.1, Potential Air Rights Development**). On the same assumptions as used for the private air rights development (23 percent natural gas, 77 percent electricity), this would generate an additional 3,661 metric tons of CO₂ per year.⁶⁷

5.7.2.4 Mobile Source Emissions⁶⁸

In the Preferred Alternative, vehicular and rail traffic would increase in the Study Area relative to the No-Action Alternative. This would generate additional CO₂ emissions at the regional level. A mesoscale (regional) analysis of emissions was performed using data from the traffic impact analysis. Locomotive emissions were estimated based on planned operations of diesel locomotives in the Project Area in the Preferred Alternative, including locomotive propulsion, idling, and generator activity as well as anticipated train consists and movements. The analysis estimated that annual mobile source emissions of GHG attributable to the Preferred Alternative would be 9,247 metric tons.⁶⁹ Modal shift from car to rail along the Northeast Corridor in the Preferred Alternative may result in a reduction of GHG emissions from automobiles. Additionally, in 2022, Amtrak adopted a Net Zero Strategy with a net-zero emissions goal for 2045, which can be anticipated to have reduced emissions from train operations by 2040.⁷⁰ Resulting reductions in GHG emissions would partially or wholly offset local GHG emissions associated with traffic at WUS.

5.7.2.5 Summary of CO₂ Emission Estimates

Table 5-26 shows the total potential annual emissions of CO₂ from stationary and mobile sources attributable to the Preferred Alternative. The total potential net increase in emissions would be approximately 15,840 metric tons, representing about 0.22 percent of the District's total 2019 CO₂-equivalent (CO₂-e) emission inventory and 0.34 percent of its 2032 emissions target.⁷¹ It would be approximately a 22 percent increase over emissions in the No-Action Alternative.

⁶⁷ See **Appendix C3S**, Section 7.5.2.3, *Stationary Source Emission - Potential Federal Air Rights Development Emissions*, Table 7-3, for more details.

⁶⁸ Mobile sources include train and motor vehicles operations associated with the Preferred Alternative.

⁶⁹ See **Appendix C3S**, Section 7.5.2.4, *Mobile Source Emission*, Table 7-4, for more details.

⁷⁰ Amtrak. *Net-Zero Strategy*. Accessed from <https://www.amtrak.com/net-zero#diesel>. Accessed on February 11, 2023.

⁷¹ The District's 2019 CO₂e emissions amounted to 7,170,450 metric tons of CO₂e. The District has set a target of 56 percent GHG reduction relative to 2006 emissions by 2032 and carbon neutrality by 2045. The 2032 benchmark is approximately 4,614,141 metric tons of CO₂e.

Table 5-26. Total Estimated Changes in Annual CO₂ Emissions in the Preferred Alternative

Source	CO ₂ Emissions (Metric Tons/Year)	Percentage of 2019 Total Inventory	Percentage of 2032 Target
Stationary Sources -WUS	+9,791	0.14%	0.21%
Stationary Sources – Private Air Rights Development	-6,859	0.1%	0.15%
Potential Federal Air Rights Development	+3,661	0.05%	0.08%
Mobile Sources	+9,247	0.13%	0.20%
Total Additional Emissions	+15,840	0.22%	0.34%
Total Emissions No-Action Alternative	70,846	0.99%	1.54%
Increase relative to No-Action Alternative	+22%	-	-

As previously noted, the estimates presented in this section are conservative and do not account for measures that would be taken to reduce energy consumption and related emissions (See **Table 7-1** below for measures being proposed). Additionally, as noted in **Section 5.5.1.1, *Commuter and Intercity Railroads***, the Preferred Alternative would provide intercity service to new markets and attract riders who might otherwise drive as well as provide some commuter service for longer distance commuters. This would reduce emissions from car traffic in the entire Northeast Corridor. However, the District as set a goal of carbon neutrality by 2045.⁷² In this context, any net increase in CO₂ emissions would be a major adverse impact.

5.7.3 Resilience

Relative to the No-Action Alternative, the Preferred Alternative would have a beneficial impact on WUS's resilience.⁷³

Climate change impacts are likely to increase resiliency challenges at WUS. The Preferred Alternative has the potential to result in a beneficial impact to the extent that it would provide an opportunity to improve the station's resilience. Features or measures designed to increase the resiliency of WUS could be incorporated into the design and operation of the Project to minimize the potential impacts of extreme weather events. Examples of potential resilience-enhancing measures are listed in **Appendix C3S, Section 7.7.1.2, *Resilience***. They include, but are not limited to, reducing dependency on

⁷² District of Columbia. *Clean Energy DC*. Accessed from <https://doee.dc.gov/cleanenergydc>. Accessed on November 9, 2022. *Carbon Free DC* (<https://storymaps.arcgis.com/stories/034104405ef9462f8e02a49f2bd84fd9>) is the District's strategy to become carbon neutral by 2045 and achieve the goals defined in *Clean Energy DC*.

⁷³ This beneficial impact is not assigned an intensity as it would largely depend on the as-yet undefined resiliency features that would be included in the Project's final design.

centralized power by installing renewable energy systems; considering the use of reflective roofs or green roofs to reduce urban heat island effect; and appropriate glazing for the train hall to control solar heat by season.⁷⁴

The Preferred Alternative would also support the transportation objectives of *Resilient DC*, the District strategy to meet the challenges of climate change.⁷⁵ *Resilient DC* specifically calls for greater integration, capacity, and frequency of regional transit systems at Union Station.

5.7.4 Construction Impacts

Construction of the Preferred Alternative would result in major adverse impacts on CO₂ emissions.

Construction of the Preferred Alternative would generate CO₂ emissions from construction equipment and heavy machinery exhaust. Excavation, including the loading, transportation, and disposal of surplus soil and other materials, would require the use of large diesel-fueled equipment (such as excavators and dump trailers). This would be the most CO₂ intensive part of the construction process. Support of excavation, caisson drilling, pressure slab, ramp, and overbuild deck construction would also generate substantial amounts of CO₂.

Construction emissions of CO₂ were estimated on an annual basis using the same approach as used for the analysis of air quality impacts (see **Section 5.6.3, Construction Impacts**). Construction would take place in four main phases, with a one-year intermediate phase between Phase 1 and Phase 2, during which only column removal work would occur. The emissions analysis considered two scenarios for excavation and spoil disposal: removal by trucks (All Truck Scenario, 120 trucks a day) or removal by work trains (Work Train Scenario, two work trains a day). The results of the analysis are shown in **Table 5-27**.

Table 5-27. Construction CO₂ Emissions (Metric Tons/Year) in the Preferred Alternative

Scenario	Phase 1	Intermediate	Phase 2	Phase 3	Phase 4
All Truck	20,415	6,314	18,462	12,423	20,807
Work Train	17,739	6,314	14,437	7,883	14,304

Emissions in the All Truck Scenario would be greater than in the Work Train Scenario in all phases, except the Intermediate Phase, during which no materials would be excavated and transported from the Project Area. Annual emissions would be greatest during Phase 4 for the All Truck Scenario and Phase 1 for the Work Train Scenario. The greatest annual construction emissions in the All Truck Scenario (20,807 metric tons) would constitute 0.29 percent of the District's total 2019 emissions and 0.45

⁷⁴ As noted above, the impact analysis presented in this section does not account for the effect of such measures, which will be finalized during Project design.

⁷⁵ *Resilient DC. A Strategy to Thrive in the Face of Change*. Accessed from <https://resilient.dc.gov/>. Accessed on October 31, 2022.

percent of its 2032 emission target.⁷⁶ The greatest estimated annual construction emissions in the Work Train Scenario (17,739 metric tons) would constitute 0.25 percent of the District's total 2019 emissions and 0.38 percent of its 2032 emission target. Additionally, the creation and transportation of materials used to construct the Project would also generate GHG emissions. These emissions cannot practically be quantified because the quantity, origin, and fabrication method of the construction materials are not known, but they are likely to be substantial given the size of the Project.

5.7.5 Summary of Impacts

Table 5-28 summarizes the impacts of the Preferred Alternative.

Table 5-28. Summary of Preferred Alternative Impacts on GHG and Resilience

Impact Category	Type of Impact	Preferred Alternative
GHG	Direct Operational	Not applicable
	Indirect Operational	Major adverse impact
	Construction	Major adverse impact
Resilience		Beneficial Impact

5.8 Energy Resources

This section addresses the potential impacts of the Preferred Alternative on the use of energy resources. The analysis focuses on the amount of energy that would be consumed by WUS and other land uses within the Project Area.

5.8.1 Direct Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse direct operational impact on energy resources.

Direct impacts are those that would occur because of additional energy consumption in the Project Area. They include changes in the energy needed to operate buildings and facilities; and changes associated with increases in rail operations.

⁷⁶ The District's 2019 CO₂e emissions amounted to 7,170,450 metric tons of CO₂e. The District's 2032 target is approximately 4,614,141 metric tons of CO₂e.

5.8.1.1 Buildings

WUS

1719 In the Preferred Alternative, relative to the No-Action Alternative, the expanded WUS would consume
1720 additional energy to operate the new or expanded station elements. **Table 5-29** provides high-level,
1721 order-of-magnitude estimates of the increases in site energy consumption that would result, based on
1722 approximate square footage changes and Energy Use Intensity (EUI) factors.⁷⁷ Altogether, the station
1723 expansion would result in an increase in energy consumption of approximately 72,904,000 kBTUs per
1724 year.⁷⁸

Private Air Right Development

1725 In the Preferred Alternative, the private air rights development would be smaller than in the No-Action
1726 Alternative as noted in **Section 3.3, Description of Alternative F.**⁷⁹ Therefore, the Preferred Alternative
1727 would result in a reduction in energy use by this development. **Table 5-29** below provides a high-level,
1728 order-of-magnitude estimate of this reduction, which would amount to approximately 51,693,900
1729 kBTUs per year.

Net Change

1730 The Preferred Alternative would result in a net increase in building-related energy consumption of
1731 approximately 21,210,100 kBTUs a year. This would be an increase of approximately 7 percent relative
1732 to Project Area's consumption in the No-Action Alternative (approximately 312,342,000 kBTUs) and
1733 would amount to approximately 0.015 percent of the District's total energy consumption in 2020 (144
1734 billion kBTUs).⁸⁰ Total estimated consumption in the Preferred Alternative (approximately 333,552,100
1735 kBTUs) would be around 0.2 percent of the District's 2020 consumption.

1736 The additional consumption is not likely to create capacity issues or to require the development of a
1737 dedicated energy source. The Project would likely require upgrades to local distribution and
1738 transmission energy systems (including electricity and steam). Such changes would be planned and
1739 designed in coordination with the affected utilities. These upgrades are not likely to be beyond what is
1740 commonly required by large-scale development projects in the District.

⁷⁷ Derived from Energy Star Portfolio Manager. April 2021. *Technical Reference. U.S. Energy Use Intensity by Property Type*. Accessed from <https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf> and Energy Star Portfolio Manager. August 2018. *Technical Reference. Parking and the Energy Star Score in the United States and Canada*. Accessed from https://www.energystar.gov/sites/default/files/tools/Parking_August_2018_EN_508.pdf. Accessed on October 25, 2022.

⁷⁸ As noted above, a kBTU is one thousand BTU. A BTU is "a measure of the heat content of fuels or energy sources." Specifically, it is the quantity of heat required to raise the temperature of one pound of liquid water by 1-degree Fahrenheit at the temperature that water has its greatest density (approximately 39 degrees Fahrenheit).

⁷⁹ Approximately 2.7 million square feet, against approximately 3.8 million square feet in the No-Action Alternative.

⁸⁰ U.S. Energy Information Administration. *District of Columbia Energy Profile*. Accessed from <https://www.eia.gov/state/print.php?sid=DC>. Accessed on October 25, 2022.

Table 5-29. Estimated Change in Annual Energy Use in the Preferred Alternative Compared to the No-Action Alternative

Location	Element	Approximate Additional Square Footage	EUI Category	EUI kBTUs/Square Foot/Year	Estimated Annual Use (kBTUs)
WUS	Retail	+64,000	Retail (Enclosed Mall)	65.7	+4,204,800
	Amtrak and other Support Space	+880,000	Transportation Terminal/Station	56.2	+49,456,000
	Train Hall/Concourse Space	+380,000	Transportation Terminal/Station	56.2	+21,356,000
	Parking	+586,000	Parking (enclosed)	11.4	+6,680,400
	Bus Facility	+122,000	Parking (partially enclosed)	8.9	+1,085,800
	Existing Parking	-1,110,000	Parking (partially enclosed)	8.9	-9,879,000
	Subtotal	+72,904,000			
Private Air Rights Development	Residential	-70,750	Multi-family Housing	59.6	-4,216,700
	Office	-1,100,000	Office	52.9	-58,190,000
	Retail	-35,000	Retail Store	51.4	-1,799,000
	Hotel	+198,600	Hotel	63	+12,511,800
	Subtotal	-51,693,900			
Total	+21,210,100				

1741 EUI = Energy Use Intensity; kBTU = kilo British Thermal Units

5.8.1.2 Rail Activity

1742 Relative to the No-Action Alternative, increases in rail activity would occur at WUS in the Preferred
 1743 Alternative. Based on the modeling of annual CO₂ emissions presented in **Section 5.7.2.4, Mobile Source**
 1744 *Emissions*, and a factor of 10.21 kg of CO₂ per gallon of diesel fuel, the associated additional energy
 1745 consumption from rail activity can be estimated to be approximately 600,881 gallons of diesel fuel per
 1746 year (**Table 5-30**).⁸¹

⁸¹ Factors for diesel and gasoline taken from U.S. Environmental Protect Agency. *Emission Factors for Greenhouse Gas Inventories*. Accessed from https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf. Accessed on January 21, 2023.

Table 5-30. Estimated Annual Diesel Consumption from Rail Operations

	CO ₂ Emissions (Metric Tons)	Diesel Fuel Consumption (Gallons) ¹
Preferred Alternative Total	10,361	1,014,789
No-Action Alternative Total	4,226	413,908
Increase Attributable to the Preferred Alternative	6,135	600,881

1747 This would represent an increase of 145 percent relative to the No-Action Alternative. In 2021, U.S.
1748 refineries produced more than 68 billion gallons of diesel fuel.⁸² The additional consumption associated
1749 with the Preferred Alternative is not likely to create shortages or supply issues. The impact would be
1750 minor.

5.8.2 Indirect Operational Impacts

1751 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse indirect**
1752 **operational impact on energy resources.**

Indirect impacts are those that would occur because of additional energy consumption from the potential development of the Federal air rights or from WUS-generated traffic, which would occur mostly outside the Project Area.

5.8.2.1 Potential Federal Air Rights Development

The potential development of the Federal air rights under the Preferred Alternative would result in a further increase in energy consumption in the Project Area. Using the same approach as used in **Table 5-29** and EUI factors, the potential Federal air rights development in the Preferred Alternative would increase energy consumption in the Project Area by approximately 27,600,000 kBtus. This would represent an increase of around 9 percent over the No-Action Alternative. It would amount to approximately 0.02 percent of the District's total energy consumption in 2020. As such, the impact would be minor.

5.8.2.2 Automobile Traffic

1753 Relative to the No-Action Alternative, increases in traffic around WUS would occur in the Preferred
1754 Alternative (see **Section 5.5.1.12, Vehicular Traffic**). Based on the modeling of annual CO₂ emissions
1755 presented in **Section 5.7.2.4, Mobile Source Emissions**, and a factor of 8.78 kg of CO₂ per gallon of

⁸² U.S. Energy Information Administration. *Diesel Fuel Explained. Where our Diesel Comes from*. Accessed from [https://www.eia.gov/energyexplained/diesel-fuel/where-our-diesel-comes-from.php#:~:text=In%202021%2C%20U.S.%20refineries%20produced,barrels%20\(59.82%20billion%20gallons\)](https://www.eia.gov/energyexplained/diesel-fuel/where-our-diesel-comes-from.php#:~:text=In%202021%2C%20U.S.%20refineries%20produced,barrels%20(59.82%20billion%20gallons).). Accessed on January 21, 2023.

gasoline fuel, the resulting additional energy consumption from WUS-related traffic can be estimated to be approximately 354,328 gallons of gasoline per year (Table 5-31).

Table 5-31. Estimated Annual Gasoline Consumption from WUS-Related Traffic

	CO ₂ Emissions (Metric Tons)	Gasoline Consumption (Gallons) ¹
Preferred Alternative Total	30,169	3,436,105
No-Action Alternative Total	27,058	3,081,777
Increase Attributable to the Preferred Alternative	3,111	354,328

It would be an increase of 11 percent relative to the No-Action Alternative. In 2021, the United States' consumption of gasoline was approximately 370,272,000 per day.⁸³ The additional consumption associated with the Preferred Alternative is not likely to create shortages or supply issues. The impact would be minor.

5.8.3 Construction Impacts

Construction of the Preferred Alternative would result in minor adverse impacts on energy resources.

Construction of the Preferred Alternative would consume energy, mostly in the form of diesel fuel used for construction vehicles and equipment. An order-of-magnitude estimate of construction fuel consumption can be derived from the estimates of CO₂ emissions presented in Section 5.7.4, *Construction Impacts*, using the same approach as for the train activity estimate presented in Section 5.8.1.2, *Rail Activity*, above. Results are shown in Table 5-32 for both the All Truck and the Work Train Scenarios for each construction phase.

Table 5-32. Estimated Annual Diesel Consumption per Construction Phase

	Phase 1	Intermediate phase	Phase 2	Phase 3	Phase 4
All Truck Scenario					
CO₂ Emissions (Metric Tons)	20,415	6,314	18,462	12,423	20,807
Diesel Fuel Consumption (Gallons)	1,999,510	618,413	1,808,227	1,216,748	2,037,904
Work Train Scenario					
CO₂ Emissions (Metric Tons)	17,739	6,314	14,437	7,883	14,304
Diesel Fuel Consumption (Gallons)	1,737,414	618,413	1,414,006	772,086	1,400,979

⁸³ U.S. Energy Information Administration. *U.S. Product Supplied of Finished Motor Gasoline*. Accessed from <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pets&s=mgfupus2&f=a>. Accessed on January 21, 2023.

Energy consumption in the All Truck Scenario would be greater than in the Work Train Scenario during all construction phases except the Intermediate Phase, during which no materials would need to be excavated and transported from the Project Area. Consumption would be greatest during Phase 4 for the All Truck Scenario (more than 2 million gallons) and Phase 1 for the Work Train Scenario (approximately 1.7 million gallons). As noted above, in 2021, U.S. refineries produced more than 68 billion gallons of diesel fuel. The additional consumption associated with the construction of the Preferred Alternative is not likely to create supply issues. Additionally, large-scale construction projects such as the Project are common in large urban areas like the District. While they require large amounts of energy, they do not create shortages or create capacity issues for suppliers or distributors. Impacts would be minor.

5.8.4 Summary of Impacts

Table 5-33 and **Table 5-34** summarize the energy resources impacts of the Preferred Alternative.

Table 5-33. Summary of Preferred Alternative Impacts on Energy

Type of Impact	Preferred Alternative
Direct Operational	Minor adverse impact
Indirect Operational	Minor adverse impact
Construction	Minor adverse impact

Table 5-34. Quantitative Estimates of Direct and Indirect Energy Impacts (kBTUs per Year) in the Preferred Alternative

Location	Additional Consumption Relative to the No-Action Alternative	Total Consumption
WUS	+72,904,000 (+70%)	176,404,000
Private Air Rights Development	-51,693,900 (-25%)	157,148,100
Potential Federal Air Rights Development	+27,600,000	27,600,000
Total	+48,810,100 (+16%)	361,152,100

5.9 Land Use, Land Planning, and Property

1776 This section addresses the potential impacts of the Preferred Alternative on land use and zoning, private
1777 property, and applicable local and regional plans and policies.

5.9.1 Direct Operational Impacts

5.9.1.1 Zoning, Land Use, and Development

1778 **Relative to the No-Action Alternative, the Preferred Alternative would have no direct operational**
1779 **impact on zoning. It would have a major beneficial direct operational impact on land use and**
1780 **development.**

1781 The Preferred Alternative would not affect zoning. Federal buildings and facilities, such as WUS, are not
1782 subject to local zoning. Federal development in the District is subject to review and approval by the
1783 National Capital Planning Commission (NCPC) as the zoning authority. The Preferred Alternative would
1784 be subject to review and approval by NCPC. Above-ground Project elements in the Preferred Alternative
1785 would be consistent with the height limits set by the Union Station North (USN) zoning designation,
1786 which applies to the adjacent private air rights and is anticipated to apply to the potential Federal air
1787 rights. In the Preferred Alternative, the tallest element would be the new train hall, with an elevation of
1788 55 feet above the high point H Street NE, approximately 40 feet lower than the historic station's roof
1789 vault. This height is also compatible with the Production, Distribution, and Repair (DPR)-3 zoning
1790 designation, currently applying to the Federal air rights parcel.

1791 The Preferred Alternative would have a major beneficial impact on land use by enhancing multimodal
1792 transportation uses and connectivity within the Project Area. The Preferred Alternative would provide a
1793 more accessible and modernized multimodal facility capable of accommodating more passengers and
1794 more train and bus service than in the No-Action Alternative. It would make efficient use of a highly
1795 constrained area by keeping all WUS-related uses close together south of the H Street Bridge. The
1796 Preferred Alternative would also benefit the surrounding neighborhoods by creating new connections
1797 between the areas on either side of the rail terminal. It would be compatible with the District's
1798 Comprehensive Plan's Future Land Use Map (FLUM).⁸⁴ The FLUM is the governing planning document
1799 for the long-range buildout of the District. It provides a generalized view of how the District intends to
1800 use its land. For the Project Area and its immediate surroundings, the FLUM shows a mix of Federal,
1801 High Density Commercial, and Medium to High Density residential.

1802 This beneficial impact on land use would translate into an improvement in WUS user experience relative
1803 to the No-Action Alternative. New access points from First, Second, and H Streets NE into the H Street
1804 Concourse would make it easier to enter WUS from the surrounding neighborhoods as well as provide
1805 connectivity and continuity from First Street to Second Street. Retail in the new concourses could
1806 potentially become a destination for local residents, as well as tourists. The historic station building

⁸⁴ District of Columbia Office of Planning. 2021. *Comprehensive Plan – Future Land Use Map*. Accessed from https://planning.dc.gov/sites/default/files/dc/sites/op/publication/attachments/LU_62821.pdf. Accessed on January 16, 2023.

would remain the heart of the station and its most visible and inviting entrance. The additional concourse space and access points would alleviate congestion, especially during peak travel times, making it easier for passengers and visitors to appreciate and enjoy the grand architecture of the historic station. The new train hall would be designed to be a monumental, compelling gateway space worthy of welcoming visitors and travelers to the nation's capital. Areas of architectural interest would extend past the historic station building to encompass part of the track and platform area. In combination with enhanced accessibility through wider platforms, full compliance with Americans with Disabilities Act (ADA) requirements, effective signage, more spacious waiting areas, and greater amounts of natural light, this would make boarding or alighting from trains at WUS a much easier and more enjoyable experience than would be the case in the No-Action Alternative.

Similarly, intercity bus passengers would enjoy the benefits of a contemporary, purpose-built facility with better amenities and a direct functional and visual integration with the remainder of the station, including the historic station building, via the train hall middle mezzanine. The Preferred Alternative would also provide bus passengers with a more direct and, for many passengers, shorter connection to the Metrorail Station, an important mode of access for WUS users, particularly tourists and travelers unfamiliar with the station. Also, the First Street, Central, and H Street Concourses, along with headhouses on H Street, would provide a more direct and welcoming connection for DC Streetcar users.

5.9.1.2 Property Ownership, Land Acquisitions, and Displacements

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse direct operational impact on property ownership, land acquisitions, and displacements.

The Preferred Alternative would have an adverse impact on property ownership because it would involve constructing a portion of the new train hall and other Project features within the private air rights above the rail terminal. All such impacts would be limited to the area south of H Street NE, with the exception of a small headhouse to be built on the northern side of the bridge. Altogether, the Project in the Preferred Alternative would require using approximately 125,823 square feet of private air rights property (approximately 2.9 acres).⁸⁵ This would represent approximately 20 percent of the 622,800-gross-square-foot footprint of the private air rights.⁸⁶ The adverse impact would be minor because the Preferred Alternative was developed in coordination with the private air rights developer, ensuring that, although sizable, the reduction would not preclude developing the remaining air rights.

The Preferred Alternative would also require a property transaction to construct the new H Street Concourse at the location of the existing H Street Tunnel. The tunnel is the former at-grade alignment of H Street NE between First and Second Streets NE, which passed under the rail terminal as K Street NE

⁸⁵ This estimate includes the Daylight Access Zone (approximately 17,647 square feet), only a portion of which would be used to install skylights opening unto the Central Concourse underneath. The method through which the needed private air rights would be made available to the Project has not yet been determined and may vary according to the element being accommodated.

⁸⁶ Total area as stated in Letter from Akridge to FRA dated May 31, 2016.

and still does. This section of H Street was closed off after the construction of the H Street Bridge. In the Preferred Alternative, the H Street Tunnel would be acquired and replaced with the new concourse.⁸⁷

5.9.1.3 Consistency with Local and Regional Plans

Relative to the No-Action Alternative, the Preferred Alternative would have a major beneficial direct operational impact on community planning through its consistency with the most relevant local and regional plans.

Unlike the No-Action Alternative, the Preferred Alternative would be consistent with relevant local and regional plans, as summarized below. As such, the Preferred Alternative would have a major beneficial impact on community planning.

Comprehensive Plan for the National Capital-Federal Elements.

The Preferred Alternative is consistent with and would advance the goals of the relevant portions of this plan. The bullets below summarize how the Preferred Alternative would support and advance them:⁸⁸

- **Transportation:** The Preferred Alternative would create an expanded and modern multimodal station that would accommodate the need of a growing number of commuter and intercity train as well as intercity bus passengers and promote the use of non-auto modes of transportation both locally and regionally.
- **Urban Design:** The Preferred Alternative would incorporate quality design features that would enhance WUS's role as a monumental gateway to the nation's capital. Enlarged circulation spaces and modern passenger facilities would create a welcoming environment for passengers and visitors.
- **Historic Preservation:** The Preferred Alternative would be designed in accordance with the Secretary of Interior's *Standards for the Treatment of Historic Properties*. New construction would be compatible with the historic station, which would continue to function as a grand and primary gateway to Washington, DC. Expanded circulation spaces would improve passenger and visitor experience of the historic building.
- **Visitors & Commemoration:** Through quality design respectful of the historic station; expanded circulation spaces; and improved, modern passenger facilities, the Preferred Alternative would create a positive and memorable experience for all visitors.

⁸⁷ The exact process through which the tunnel would be acquired has not yet been determined.

⁸⁸ Brief summaries of the relevant goals are provided in **Appendix C3S**, Section 9.5.1.3, *Consistency with Local and Regional Plans*.

Comprehensive Plan for the National Capital-District Elements.

The Preferred Alternative is also consistent with and would advance the goals of the relevant portions of this plan resulting in a major beneficial impact. The bullets below summarize the overarching goals of each relevant element and how the Preferred Alternative would support and advance them:

- **Transportation:** The Preferred Alternative would create an expanded and modern multimodal station that would accommodate the need of a growing number of commuter and intercity train as well as intercity bus passengers, including District residents and visitors. The Preferred Alternative would remedy WUS's existing deficiencies (such as antiquated platforms that are not ADA-compliant). The expanded station would contribute to supporting the local economy. By improving connections between the areas to the east and west of the station, it would enhance the quality of life of area residents.
- **Land Use:** The Preferred Alternative would make an efficient use of the space (below and above tracks) which is currently occupied by the rail terminal to expand the station in a manner that would enhance connections between the areas to the east and west of the station and contribute to knitting together neighborhoods currently divided by the rail terminal.
- **Central Washington:** WUS is located in the Central Washington planning area and provides a direct local, regional, and national connection to the area. By expanding and enhancing the station, the Preferred Alternative would facilitate multimodal access to the central area and foster its continued growth and development. High quality design respectful of the historic station would enhance WUS's role as a grand gateway into central Washington, DC.
- **Historic Preservation:** The Preferred Alternative would be designed in accordance with the Secretary of Interior's *Standards for the Treatment of Historic Properties*. New construction would be compatible with the historic station, which would continue to function as a grand and primary gateway to Washington, DC.

H Street Strategic Development Plan

The Preferred Alternative would help achieve the plan's connectivity goals by providing new connections between H Street NE and the front of WUS via the new concourses and entrances into the station from the H Street Bridge, Second Street NE, and First Street NE. The Preferred Alternative would also support the plan's transit goals by expanding and modernizing multimodal options at WUS.

North of Massachusetts Avenue (NoMA) Vision Plan and Development Strategy

The Preferred Alternative would support this strategy's goals. The Preferred Alternative would improve accessibility to transit by bringing the station elements into compliance with ADA and Life Safety requirements; provide new pedestrian entrances under the H Street Bridge at First and Second Streets NE as well as at the headhouses on H Street NE; and increase the capacity for bicycle storage. The new H Street Concourse would create a more pedestrian-friendly environment by connecting the neighborhoods to the east and west of WUS.

Northwest One Redevelopment Plan

1898 Although it would not alter K Street NE, the Preferred Alternative would contribute to achieving the
1899 general connectivity goals of the plan by providing new access points to WUS on and below the H Street
1900 Bridge on First and Second Streets NE. This would enhance the connection between the neighborhoods
1901 to the east and west of WUS.

Downtown East Re-urbanization Strategy

1902 The Preferred Alternative would advance the goals of this strategy by enhancing WUS both as a
1903 multimodal facility providing access to Downtown and as a local landmark that connects, rather than
1904 separates, neighborhoods. The Preferred Alternative would implement several recommendations of this
1905 strategy, including providing access to WUS from all sides; streamlining transfer between modes of
1906 transit; and supporting rail investment.

Move DC 2021

1907 The Preferred Alternative is generally supportive of, or consistent with, Move DC 2021. For instance, the
1908 provision of a pedestrian and bicycle ramp along the west side of WUS, which could potentially become
1909 part of a future greenway developed as part of a different project, is consistent with the policy to
1910 “integrate and expand the pedestrian and bicycle network to ensure safe, connected, and more
1911 equitable infrastructure for all users.” The inclusion in the Preferred Alternative of a below-ground pick-
1912 up and drop-off facility is consistent with the policy to “increase accessibility and efficient delivery of
1913 goods and movement of people through curbside management and roadway management.” More
1914 generally, the expansion of the station to accommodate more trains and passengers, and the reduction
1915 in parking capacity at the station, are supportive of the Move DC 2021 policy to “achieve 75% non-auto
1916 mode commute trips by 2032.”

Mount Vernon Triangle Action Agenda, Florida Avenue Market Small Area Plan, and Ward 5 Works

1917 The Preferred Alternative would generally support these plans through improvements in multimodal
1918 accessibility and connectivity.

5.9.2 Indirect Operational Impacts

5.9.2.1 Potential Federal Air Rights Development

1919 **Relative to the No-Action Alternative, the potential Federal air rights development in the Preferred**
1920 **Alternative would have a major beneficial indirect operational impact on land use. It would have no**
1921 **indirect operational impacts on zoning, or development; property ownership, land acquisitions, and**
1922 **displacement; or local and regional plans.**

1923 In the Preferred Alternative, the demolition of the existing WUS parking garage would make Federal air
1924 rights (currently occupied by the WUS parking garage) available for potential future transfer and
1925 development. FRA determined that it is reasonably foreseeable that the Federal air rights area would be

rezoned to match the District's USN zoning designation that applies to the adjacent private air rights. The USN zoning designation allows for a mix of uses, including residential, retail, and office.

The potential future Federal air rights transfer and development in the Preferred Alternative would be consistent with the USN zoning designation. For the purposes of this SDEIS, it is assumed to consist of 310,000 square feet of office; 175,000 square feet of residential uses; and 15,000 square feet of retail uses. While the mechanism to allow for this future transfer and development has not been determined, as an example, FRA could lease the air rights to USRC, which in turn could sublease the development rights to a private party. Other options include transferring the rights to a private party directly or as part of an exchange of property rights.

The potential future transfer and development of the Federal air rights would have a major beneficial impact on land use in the Project Area. It would replace an automobile-focused use with residential and commercial uses more consistent with their surroundings, including the private air rights development. As such, it would become part of a new vibrant neighborhood to the north of WUS, within which the expanded station would be seamlessly integrated.

5.9.2.2 Regional Study Area

Relative to the No-Action Alternative, the Preferred Alternative would have no adverse indirect operational impacts on zoning, land use, or development; property ownership, land acquisitions, and displacement; or local and regional plans.

The improved connectivity and activity at WUS that the Preferred Alternative would promote may accelerate medium- or high-density development near WUS. Such development already characterizes most of the Regional Study Area, such as Mount Vernon Triangle and NoMA. Indirect impacts from induced development may be more noticeable along and near the H Street Corridor, currently comprised of a high-activity street (H Street NE) surrounded by residential rowhouse neighborhoods, and across Capitol Hill.

However, the District's zoning regulations and applicable plans would continue to guide the density and character of potential future developments in all these areas. This would avoid the development of incompatible land uses and ensure that neighborhoods evolve in accordance with the District's vision for their future. Thus, The Preferred Alternative would have no adverse indirect operational impacts on zoning, land use, or development; property ownership, land acquisitions, and displacement; or local and regional plans.

5.9.3 Construction Impacts

Construction of the Preferred Alternative would have moderate adverse impacts on land use and development. It would have no impacts on zoning; property ownership, land acquisitions, and displacement; or local and regional plans.

Construction activities in the Preferred Alternative would largely be contained within WUS and the rail terminal. Construction would affect rail operations but the phased, east-to-west construction approach would minimize this impact and the resulting disruptions in service as much as possible. At various times

during the construction period (approximately 13 years), five areas may be used for access and staging: the West Rail Yard (between K Street and H Street); WUS east access ramp, First Street NE, Second Street NE, and the H Street Bridge curbs; the H Street Tunnel; the REA Parking Lot; and a train access area for potential material delivery and removal in the constricted “throat” of the rail terminal north of K Street NE.

Of these, the WUS east access ramp, First Street NE, and Second Street NE curbs are just outside the Project Area. They would be used as access points for personnel, minor equipment, short-term truck parking, and limited material deliveries, generally consistent with their existing use. The H Street Bridge, although within the Project Area, is a public right-of-way. In addition to the uses just listed, it could also be used to place equipment to hoist or pump materials into and out of the site. This would be a short-term use occurring multiple times over the entire period of construction. Close coordination with DDOT and Amtrak would ensure that disruptions to street and rail traffic do not occur or remain minimal.

Use of the West Rail Yard area and the REA Parking Lot for construction access and staging would involve a change in the current use of these areas, including demolitions of existing buildings and construction of access ramps. The West Rail Yard would be a major staging area during Phases 1 to 3 and part of Phase 4. Use of the REA Parking Lot likely would be mostly during Phase 1. Amtrak, one of the Project Proponents, controls those areas. Construction planning would include minimizing any impacts on the operation of the rail terminal.

The H Street Tunnel (former at-grade H Street right-of-way) would be used for east side access during Phase 1 but that end of the tunnel would be demolished during Phase 1 excavation. The west end of the tunnel would be used for access during Phases 2 through 4.

For the entire duration of the First Street Tunnel column removal work, overlapping Phase 1 and Phase 2 with an intermediate year between the two, part of the Retail and Ticketing Concourse would be closed to the public to allow for the removal of columns within the run-through track tunnel as part of the track reconstruction work. This would affect the uses currently accommodated in the eastern third of the concourse, including retail outlets, which would be displaced for up to approximately 2 years and 6 months. At the beginning of Phase 4 of construction, the existing bus facility and parking garage would be demolished. During all of Phase 4, a temporary bus facility or bus loading zones would be established on the completed portion of the structural deck (see **Section 5.5.3.4, Intercity, Tour/Charter, and Sightseeing Buses**, and **Section 5.5.3.9, Vehicular Parking and Rental Cars**, for further discussion of potential impacts on intercity buses and parking during Phase 4).

5.9.4 Summary of Impacts

1992 **Table 5-35** summarizes the impacts on land use, land planning, and property for the Preferred
1993 Alternative.

Table 5-35. Summary of Preferred Alternative Impacts on Land Use, Land Planning, and Property

Impact Category	Type of Impact	Preferred Alternative
Zoning	Direct Operational	No impact
	Indirect Operational	No impact
	Construction	No impact
Land Use	Direct Operational	Major beneficial impact due to enhanced multimodal uses and increased connectivity
	Indirect Operational	Major beneficial impact from potential Federal air rights development
	Construction	Moderate adverse impact
Property	Direct Operational	Minor adverse impact. Use of approximately 2.9 acres of private air rights south of H Street Bridge
	Indirect Operational	No impact
	Construction	No Impact
Local and Regional Plans	Direct Operational	Major beneficial impact. Supportive of or consistent with the goals and objectives of the relevant plans
	Indirect Operational	No impact
	Construction	No impact

5.10 Noise and Vibration

1994 This section addresses the potential noise and vibration impacts of the Preferred Alternative. Primary
1995 permanent noise and vibration sources near WUS include street and rail traffic. Construction activities
1996 are another common source of noise and vibration in urban environments.

5.10.1 Direct Operational Impacts

1997 **Relative to the No-Action Alternative, in the Preferred Alternative, increases in noise levels would**
1998 **result in moderate adverse operational direct impacts at 14 receptor locations. The Preferred**
1999 **Alternative would result in minor localized adverse direct operational impact on vibration near the**
2000 **throat of the rail terminal and negligible adverse operational direct elsewhere.**

5.10.1.1 Operational Noise

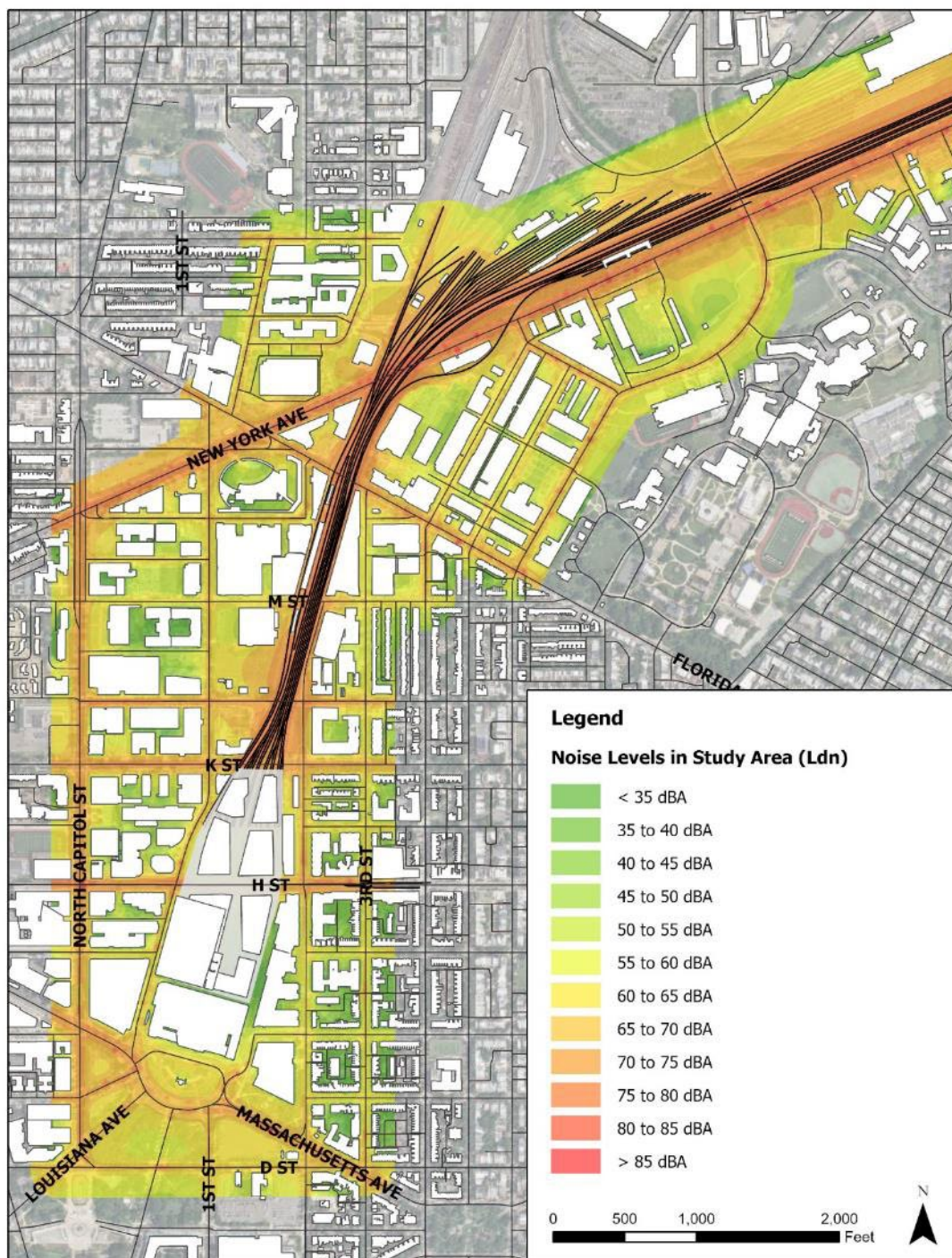
2001 FRA has adopted Federal Transit Administration (FTA)'s *Transit Noise and Vibration Impact Assessment*
2002 *Manual*.⁸⁹ The noise and vibration operational impact assessment presented in this section is consistent
2003 with the FTA manual. The manual defines "ambient based" criteria to evaluate the impact of changes in
2004 the noise environment from the introduction of new noise sources or modification of existing sources.
2005 Based on those criteria, operational noise assessment results are categorized as no impact, moderate
2006 impact, or severe impact. A severe impact means a significant percentage of people would be highly
2007 annoyed by a project's noise. A moderate impact means the change in noise level would be noticeable
2008 to most people but may not be sufficient to generate strong, adverse reactions. The criteria are a
2009 function of the baseline noise; therefore, the threshold between no impact and moderate impact, and
2010 moderate impact and severe impact, varies with the baseline noise level at the location being
2011 considered. The tables in **Appendix C3S**, Section 10.5.1.1, *Operational Noise*, provide both the modeled
2012 noise level and the applicable criteria for each location where a moderate or severe impact would occur.

2013 The modeling conducted to assess the operational noise impacts of the Preferred Alternative predicted
2014 ambient noise levels at 164 receptor locations in the vicinity of WUS.⁹⁰ The modeled operational noise
2015 levels incorporate background noise as well as noise caused by the Preferred Alternative. **Figure 5-3**
2016 shows modeled operational noise levels in the Preferred Alternative.

⁸⁹ Federal Transit Administration. September 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. Accessed from [Transit Noise and Vibration Impact Assessment Manual \(dot.gov\)](https://www.fra.dot.gov/FTA/Transit+Noise+and+Vibration+Impact+Assessment+Manual). Accessed on October 5, 2022.

⁹⁰ Receptors are land uses sensitive to noise and vibration. Consistent with the FTA manual, receptors fall into three categories: Category 1 includes receptors where quiet is an essential element of their use, such as amphitheatres, certain historic landmarks, or recording studios. Category 2 receptors include locations where people sleep, such as residences, hospitals, and hotels. Category 3 receptors include institutional uses accommodating activities that noise can disrupt, such as schools, places of worship, libraries, and museums.

Figure 5-3. Preferred Alternative Operational Noise Levels



At most locations, noise levels would range from 60 to 75 A-weighted decibels (dBA) day-night average sound level (Ldn).⁹¹ Such levels are typical of a dense urban setting. Predominant noise sources are the rail terminal and vehicular traffic on New York Avenue NE, Florida Avenue NE, K Street NE, and Massachusetts Avenue NE.

Figure 5-4 compares noise levels in the Preferred Alternative and the No-Action Alternative. In some locations closest to the rail terminal, the Preferred Alternative would have a beneficial impact on noise levels relative to existing conditions due to changes in structural design. Outside these areas, increases in train operations and traffic would cause noise levels to increase relative to the No-Action Alternative. In most cases, noise levels would increase by less than 3 dBA. Changes less than 3 dBA are generally not perceptible. At receptors south of K Street NE and west of WUS, and at receptors north of New York Avenue, noise would increase by less than 1 dBA (Ldn). At receptors in the New York Avenue Area, they would increase by less than 2 dBA (Ldn). At receptors north of K Street NE and south of New York Avenue, and at receptors south of K Street NE and east of WUS, noise levels would increase by up to 2 dBA (Ldn). At receptors south of Florida Avenue NE and north of K Street NE, they would increase by up to 3 dBA (Ldn). At one receptor in the Union Market Area (R181, 1255 Union Street NE), they would increase by up to 9 dBA (Ldn).

Anticipated increases in noise levels would result in negligible adverse noise impacts except at those locations where they would cause the applicable FTA thresholds to be exceeded. As shown in **Figure 5-5**, the Preferred Alternative would result in moderate impacts at 14 of the 164 receptor locations.⁹² Noise levels at these 14 locations would range from approximately 59 to 75 dBA (Ldn). Noise impacts occurring adjacent to the rail terminal would be due to the increase in train operations. Noise impacts occurring along New York Avenue would be the result of the projected growth in traffic volumes on this roadway.

5.10.1.2 Operational Vibration

Per the FTA manual, vibration impacts in a rail corridor such as WUS are assessed based on (1) whether vibration levels would exceed the applicable criteria and (2) whether there would be either a 3 vibration decibel (VdB) increase in vibration or at least a doubling of the number of train operations. The criteria vary according to affected land use and the frequency of vibration-generating events.

⁹¹ dBA is the standard metric to measure environmental noise. It is an expression of the relative loudness of sounds as perceived by the human ear. A-weighting gives more value to frequencies in the middle of human hearing and less value to frequencies at the edges. Ldn represents the sound energy averaged over a 24-hour period with a 10-decibel penalty applied to sound that occurs between 10:00 PM and 7:00 AM when people are more sensitive to noise. Ldn accounts for how loud events are, how long they last, how many times they occur, and whether they occur at night. Leq measures fluctuating noise; it represents the sound level having the same total sound energy as the fluctuating level measured.

⁹² Two of the modeled receptor locations are outside the map extent: both locations are near 1401 New York Avenue NE. See **Appendix C3S**, Section 10.5.1.1, *Operational Noise*, Table 10-1 for a list of the affected receptors, applicable thresholds, and projected noise levels.

Figure 5-4. Comparison of Preferred Alternative and No-Action Alternative Operational Noise Levels

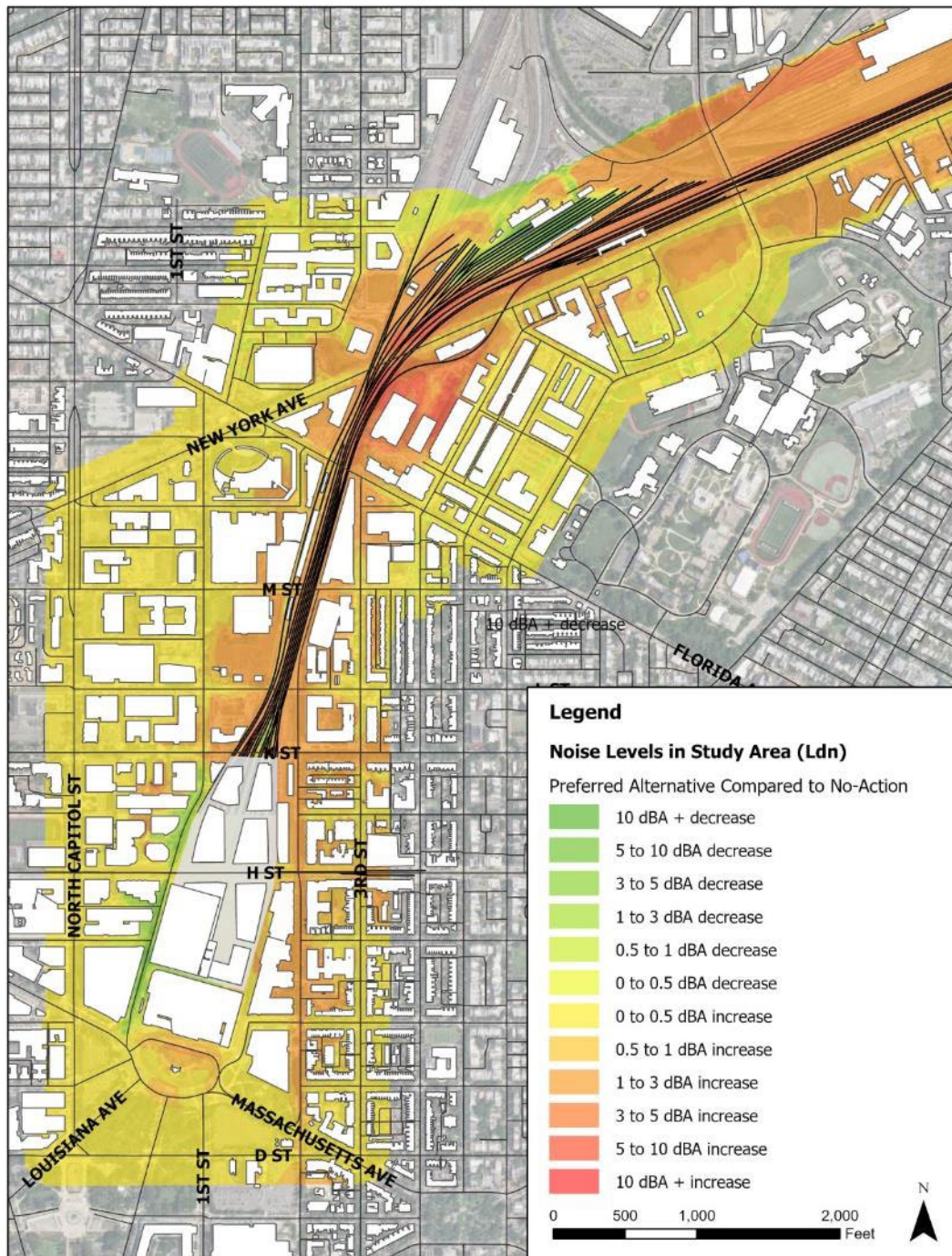
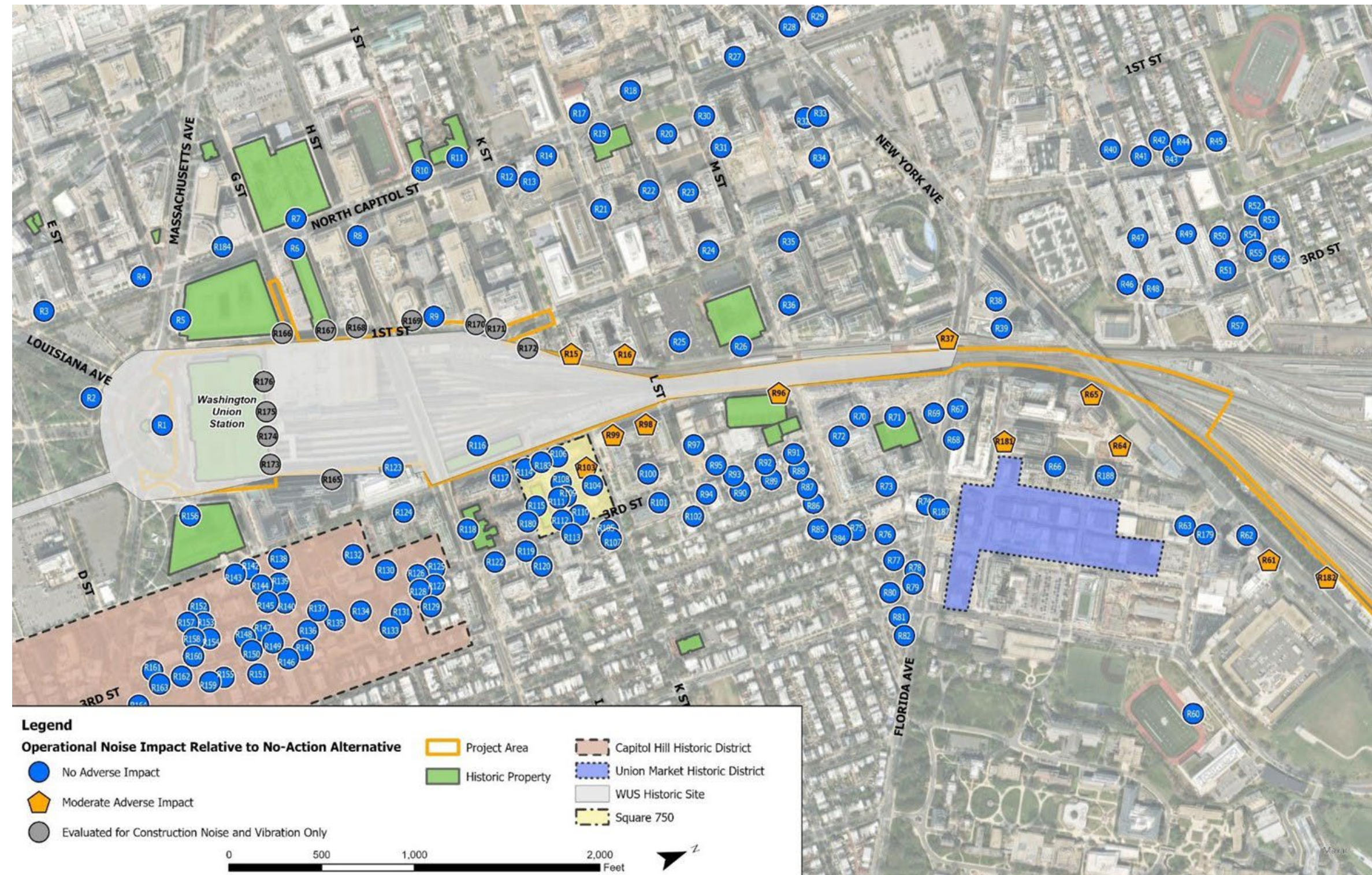


Figure 5-5. Operational Noise Impacts of Preferred Alternative



While, in the Preferred Alternative, the number of train operations would approximately triple relative to the No-Action Alternative, the applicable FTA criteria would not be exceeded. The Preferred Alternative includes improvements to the track infrastructure in the rail terminal and the throat (segment of tracks between K Street NE and New York Avenue NE) that would not affect the specific train types operating on each track or train speeds. Therefore, the level of vibration from train events would not be affected. Track reconstruction would generally help to improve rail conditions, including reducing rail roughness, minimizing potential for rail corrugation, and minimizing gaps in the rail running surface.

As a result, vibration levels in the Preferred Alternative would be similar to those in the No-Action Alternative, except at the closest receptors to Track 43 in the throat of the rail terminal, where they would be an increase in vibration of up to 2 VdB due to the realignment of the track. This would be a minor impact.

5.10.2 Indirect Operational Impacts

Relative to the No-Action Alternative, there would be no indirect noise or vibration operational impacts in the Preferred Alternative.

All noise and vibration impacts would take place at the same time as the Preferred Alternative. No impacts would occur beyond the Study Area.

5.10.3 Construction Impacts

Although the FTA manual defined construction noise impacts, because constructing the Preferred Alternative would take 13 years, construction noise impacts in the SDEIS were assessed as long-term construction noise using FTA's criteria for project noise. This is a conservative approach, as the project noise criteria are generally lower than the construction criteria. Like the noise increase criteria used to assess operational noise, these criteria vary with the baseline level. The tables in **Appendix C3S**, Section 10.5.3.1, *Construction Impacts*, provide both the modeled noise level and the applicable criterion for each location where a moderate or severe impact would occur.

5.10.3.1 Support of Excavation Noise

In the Preferred Alternative, Support of Excavation (SOE) construction activities would result in major adverse noise impacts at 32 receptor locations and moderate adverse noise impacts at eight receptor locations.

The Preferred Alternative SOE would include a 49-foot sheet pile wall as well as slurry walls with faces of 49 feet and 62 feet. Construction of the SOE structures would involve the use of cranes, drill rigs, dump trucks, concrete pump trucks, excavators, and vibratory sheet pile drivers that would generate noise while operating.

Figure 5-6 shows noise impacts from SOE construction.⁹³ The noise generated by SOE construction activities would exceed applicable FTA criteria at multiple receptors adjacent to WUS, along First, and on Second Street NE, resulting in major adverse impacts at 32 receptor locations and moderate adverse impacts at eight receptor locations.⁹⁴ Modeled noise levels at the impacted locations range from 56.6 dBA to 91.8 dBA (the highest levels would be in the rail terminal behind WUS). Noise levels at several locations would also exceed the 65 dBA (Lmax) District noise ordinance limit for nighttime construction. Construction would occur in two 10-hour shifts, for a total of 20 hours a day. Therefore, it would include night work for which a permit would be required.⁹⁵

Locations of severe adverse noise impacts due to SOE construction activities include: WUS at the south end of the rail terminal; the REA Building; the U.S. Securities and Exchange Commission building; the Thurgood Marshall Building and Columbus Circle near the location of the east ramp to the below-ground facility; the Kaiser Permanente Medical Center; as well as multiple residential and commercial building along First, Second, K, I (Eye), and Parker Streets NE.

5.10.3.2 Excavation Noise

In the Preferred Alternative, the rail terminal would be excavated down to the concourse and B1 level. Equipment used for excavation activities would include dump trucks, excavators, loaders, backhoes, bulldozers, and clam shovels. For the purposes of analyzing noise impacts, two scenarios were assumed: under one scenario, spoil removal would be wholly by truck (All Truck Scenario: 120 trucks a day); under the other, work trains would be used (Work Train Scenario: two trains a day). The method of spoil removal is undetermined at this time. It is anticipated that Amtrak will determine the feasibility of using work train during construction planning. The two scenarios represent both ends of the spectrum of possibilities and the range within which impacts may be expected to fall.

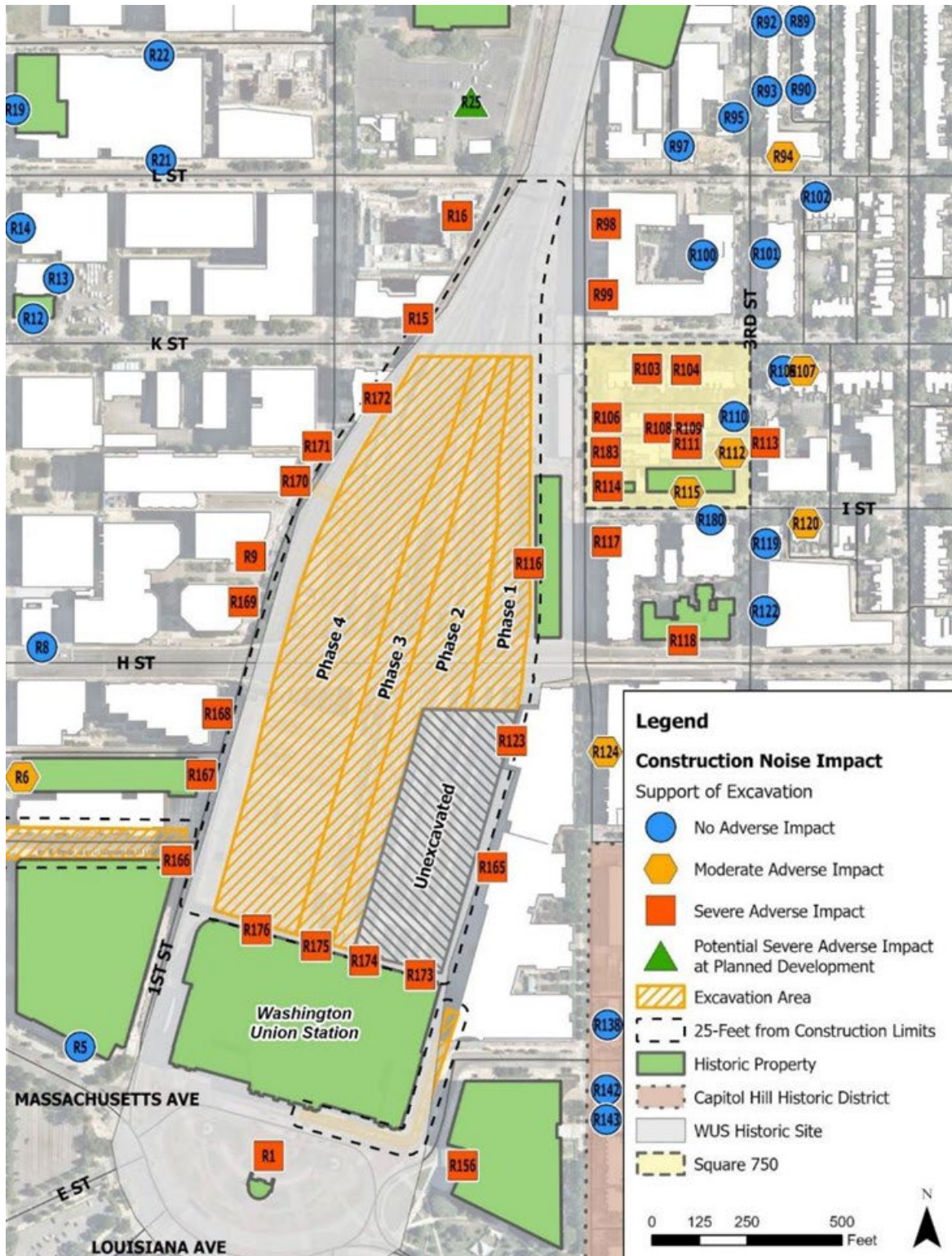
Regardless of the scenario, the modeled noise impacts presented in this section would not occur continuously during the entire 13-year construction period. At the most, they would be limited to the periods during which active excavation activities take place. Phase 1, along the east side of the station, would last approximately 2 years and 4 months, but excavation would only take place over a period of about 5 months. This would be followed by the one-year Intermediate Phase, during which there would be no excavation. Phases 2 and 3 would last approximately 2 years and 8.5 months each, but active excavation would occur only over approximately 10 months (Phase 2) or 11 months (Phase 3). Phase 4 would have the longest excavation period (2 years and 1 month out of 4 years and 3 months).

⁹³ See **Appendix C3S**, Section 10.5.3.1, *Support of Excavation Noise*, Table 10-2 for a list of the affected receptors, applicable thresholds, and modeled noise levels.

⁹⁴ Some locations include multiple modeled receptors.

⁹⁵ Lmax represents the highest sound level generated by a source. The District of Columbia noise ordinance (Municipal Regulations Chapter 20-27 and 20-28) prohibits construction sound levels above 80 dBA (Leq) (except for pile driving) as measured at a distance of 25 feet from the outermost limits of the construction site between 7:00 AM and 7:00 PM unless a variance is granted. From 7:00 PM to 7:00 AM, construction activities may be limited to 65 dBA (Lmax) at a distance of 25 feet from the outermost limits of the construction site for noise originating in an industrial zone. These criteria are intended to apply to stationary construction sources.

Figure 5-6. Support of Excavation Noise Impacts for the Preferred Alternative



Additionally, noise levels were modeled at the beginning of excavation and at the end of excavation. This is because, at the beginning, equipment is at grade, generating more noise. As excavation proceeds, equipment moves below grade and noise become attenuated by SOE structures.

Start of Excavation

In the Preferred Alternative, at the start of excavation, there would be major adverse noise impacts at 29 receptor locations (All Truck Scenario) or 26 receptor locations (Work Train Scenario). There would be moderate adverse noise impacts at 14 receptor locations (All Truck Scenario) or 10 receptor locations (Work Train Scenario).

Figure 5-7 and Figure 5-8 illustrate impacts at the start of excavation in the All Truck Scenario and the Work Train Scenario, respectively.⁹⁶

The noise levels generated by start of excavation activities vary according to the methods of spoil removal. In general, noise impacts would be greater in the All Truck Scenario than in the Work Train Scenario. While the highest levels would be similar in both scenarios (around 91 dBA in the All Truck Scenario and around 90 dBA in the Work Train Scenario), they would occur at locations in or immediately on the edge of the rail terminal (such as near the REA Building). Farther away, difference would be more much more noticeable, for instance at 701 Second Street NE (R124; 63.4 dBA in the All Truck Scenario but 59 dBA in the Work Train Scenario); 521-527 Second Street NE (R143; 61 dBA in the All Truck Scenario but 56.5 dBA in the Work Train Scenario); or 603-607 Second Street NE (R138; 61 dBA in the All Truck Scenario but 56.8 dBA in the Work Train Scenario). Other residential locations where the difference would be greater than 3 dBA include 203-219, 221-243, and 301-319 K Street NE (R103, R104, and R107); and 201 I (Eye) Street NE (R117).

Generally, construction noise levels would be approximately 2 dBA (Ldn) higher in the All Truck Scenario than in the Work Train Scenario. Noise level differences are primarily due to nighttime truck operations during over the assumed 20-hour construction day. However, the primary sources of noise during excavation are on-site dump trucks, clam shovels, and excavators. Noise exposure from these stationary sources would occur for longer durations than exposure from dump truck passbys.

At multiple locations and in both scenarios, noise levels would exceed the applicable FTA criteria for severe or moderate impacts. In the All Truck Scenario, the applicable FTA criteria for severe and moderate impacts would be exceeded at 29 receptor locations and 14 locations, respectively. In the Work Train Scenario, they would be exceeded at 26 and 10 locations, respectively.

⁹⁶ Five of the modeled receptor locations with moderate adverse impact are outside the Figure 5-7 map extent and two of the modeled receptor locations with moderate adverse impact are outside of the Figure 5-8 extent. See **Appendix C3S**, Section 10.5.3.2, *Excavation Noise*, Table 10-3 for a list of the affected receptors, applicable thresholds, and projected noise levels.

Figure 5-7. Start of Excavation Noise Impacts (All Truck Scenario)

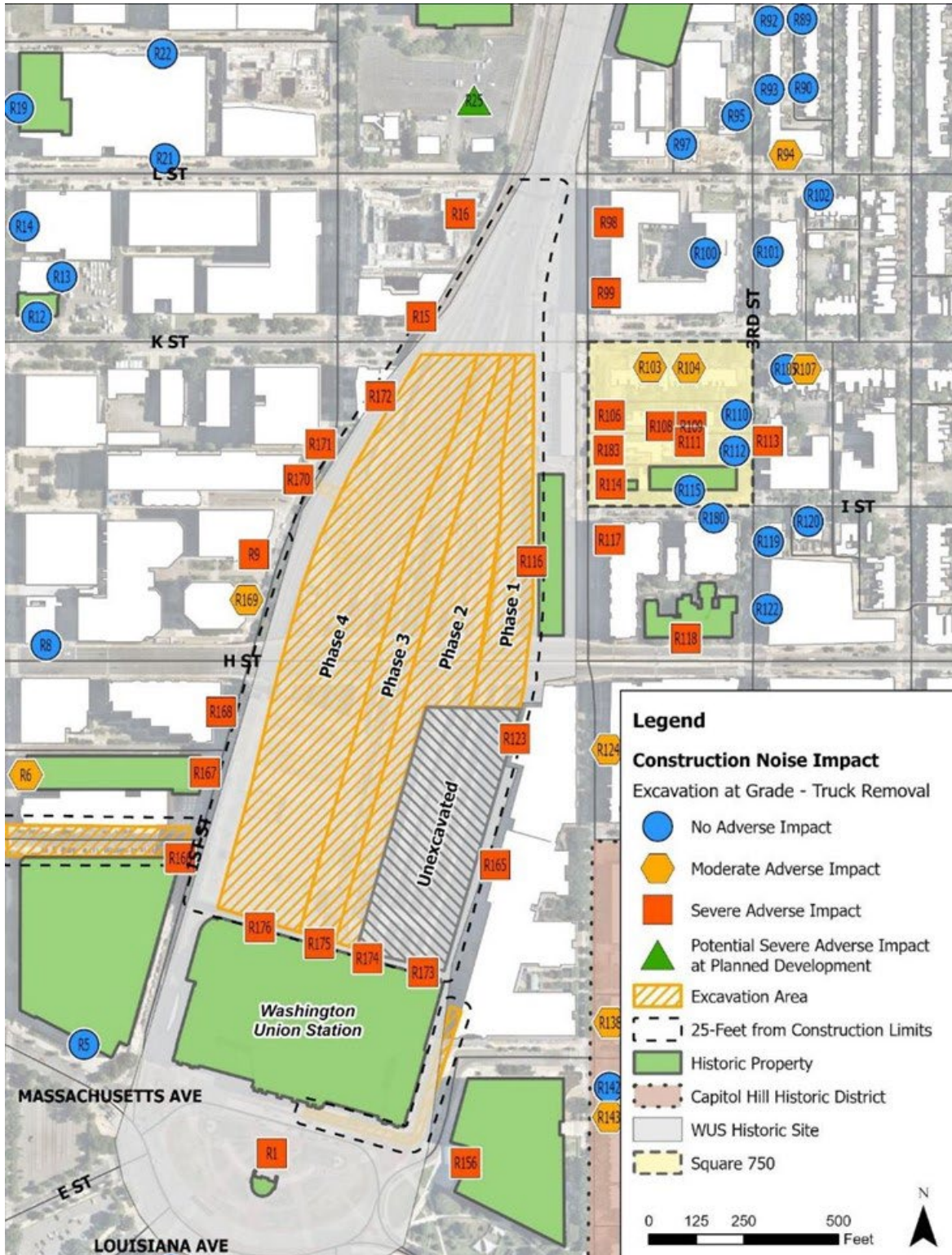
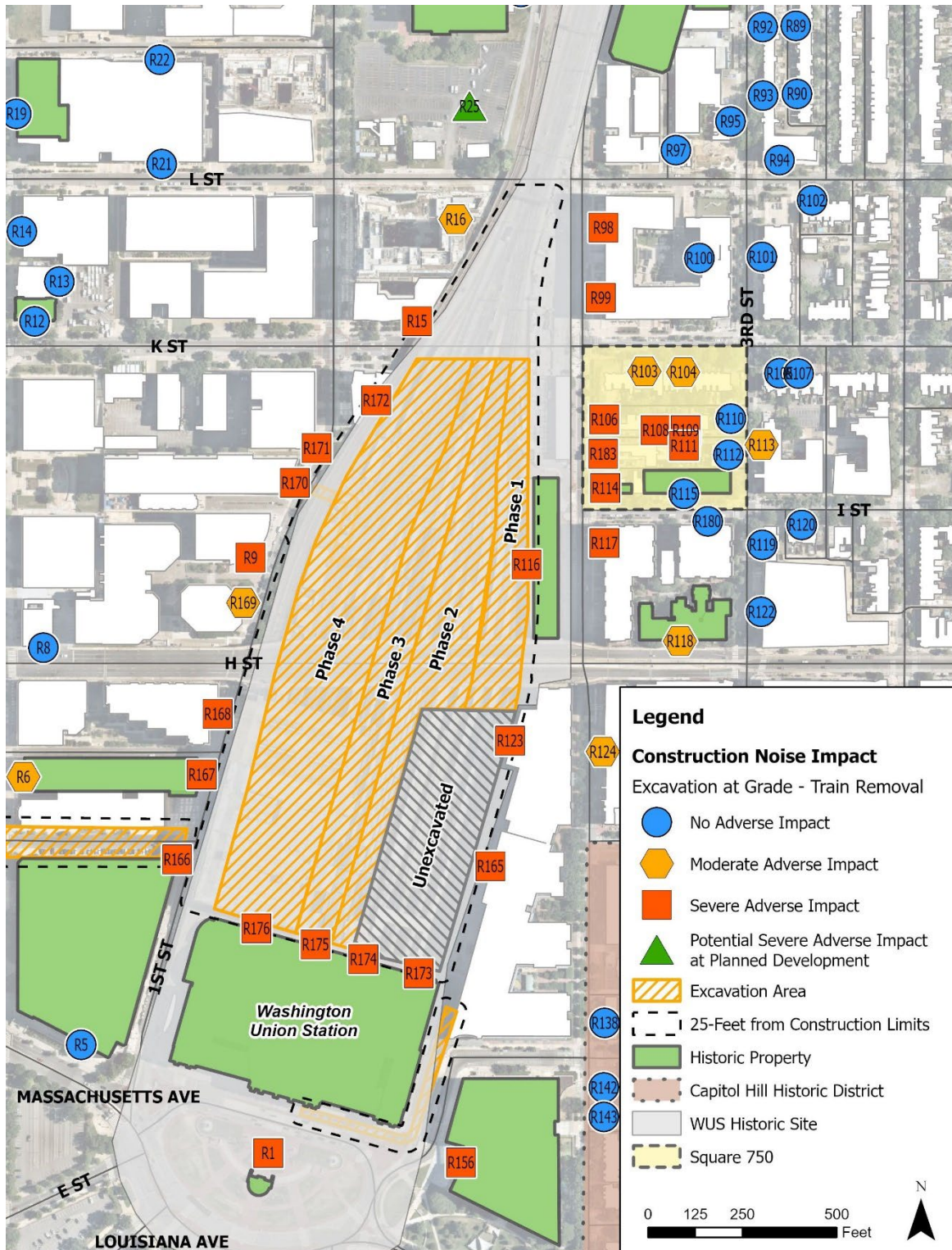


Figure 5-8. Start of Excavation Noise Impacts (Work Train Scenario)



Locations adjacent to the rail terminal, such as the north side of the historic station building, the REA Building, the U.S. Securities and Exchange Commission Building, the Kaiser Permanente Medical Center, as well as multiple commercial residential uses along K Street NE, First Street NE, Second Street NE north of H Street, and Parker Street NE, would experience major adverse impacts in both scenarios. Locations that would experience lesser impacts in the Work Train Scenario are located along truck routes to and from the Project Area: First Street NE, Second Street NE, and K Street NE. The most notable difference would be on Second Street NE south of H Street NE, where several locations that would experience moderate adverse impacts in the All Truck Scenario would drop below the threshold in the Work Train Scenario.

End of Excavation

In the Preferred Alternative, at the end of excavation, there would be major adverse noise impacts at four receptor locations (both scenarios). There would be moderate adverse noise impacts at 20 receptor locations (All Truck Scenario) or 12 receptor locations (Work Train Scenario).

As excavation proceeds, noisy equipment would shift below grade, resulting in greater sound attenuation from the SOE structures and surrounding buildings, and lower noise levels at nearby receptors. By the end of the excavation work, noise levels would be significantly lower than at the start. In the All Truck Scenario, noise levels would be up to 88 dBA (Ldn). In the Work Train Scenario, noise levels would be up to 86 dBA (Ldn). Noise levels would be approximately 2 dBA (Ldn) higher in the All Truck Scenario than in the Work Train Scenario. The greatest differences would occur at the same locations as described for noise levels at the start of excavation.

Figure 5-9 and Figure 5-10 illustrate impacts in the All Truck Scenario and in the Work Train Scenario, respectively.⁹⁷ Noise levels would exceed the long-term construction noise impact criteria for severe or moderate impacts at much fewer locations than at the start of excavation. There would be severe adverse impacts at only four receptors in either scenario. Moderate impacts would occur at 20 or 12 receptor locations depending on the scenario. The Work Train Scenario would result in substantially fewer impacts than the All Truck Scenario. Eight receptor locations that would experience moderate impacts in the latter would experience no impacts in the former, especially along Second Street NE south of H Street NE.

⁹⁷ See **Appendix C3S**, Section 10.5.3.2, *Excavation Noise*, Table 10-4 for a list of the affected receptors, applicable thresholds, and projected noise levels.

Figure 5-9. End of Excavation Noise Impacts (All Truck Scenario)

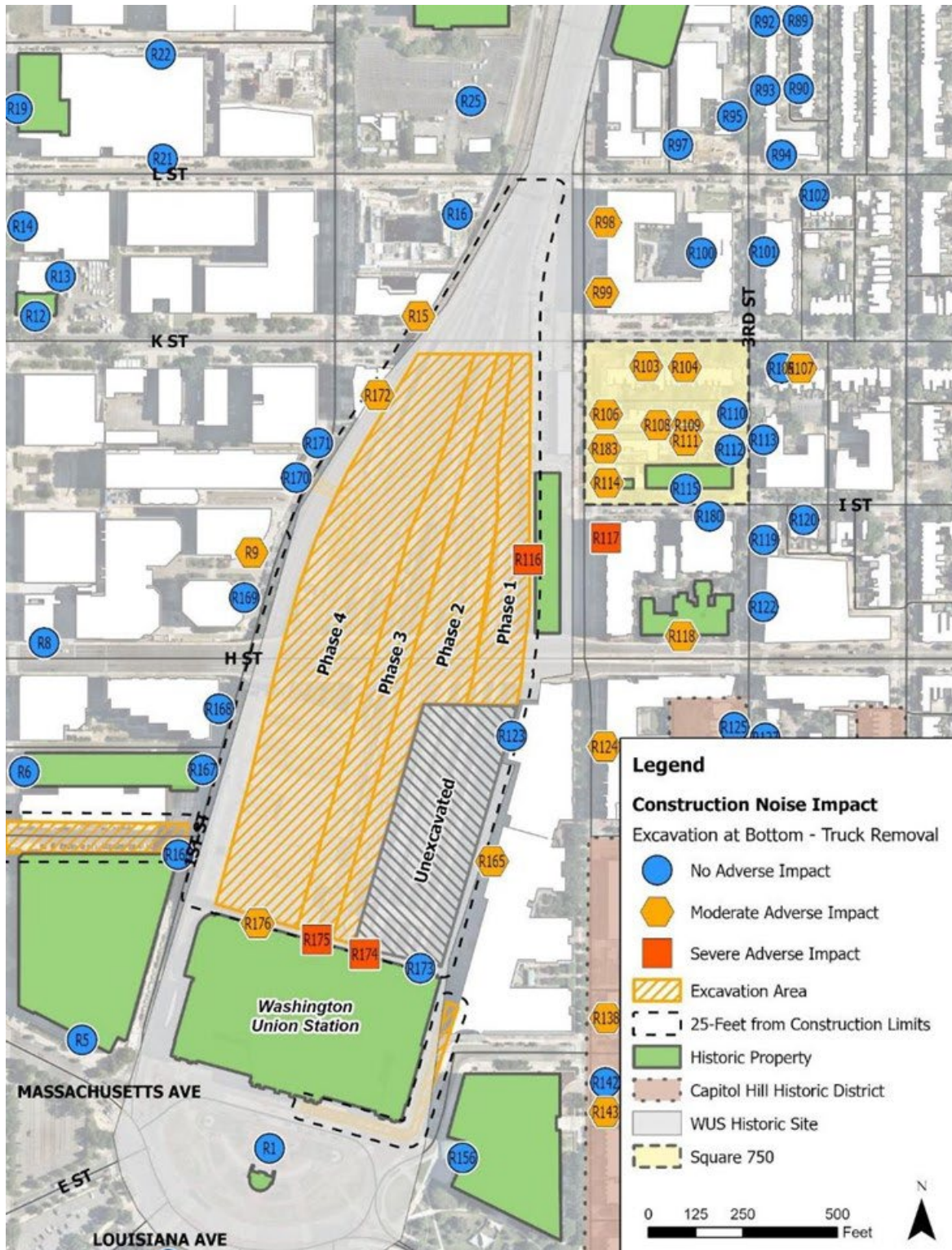
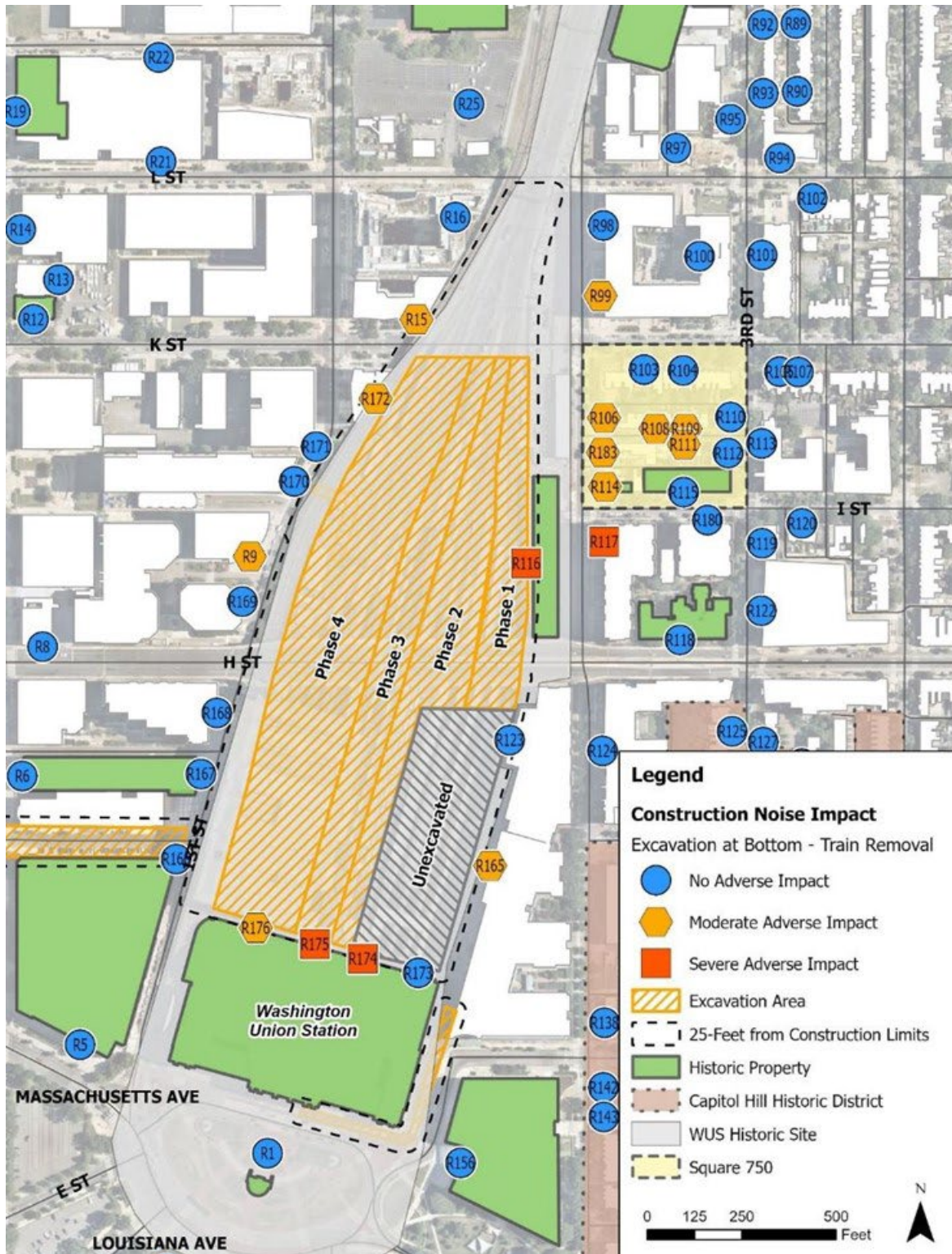


Figure 5-10. End of Excavation Noise Impacts (Work Train Scenario)



5.10.3.3 Construction Vibration

In the Preferred Alternative, there would be a major adverse impact from vibration during SOE construction on the REA Building, the Kaiser Permanente Medical Center, and the Union Station historic station building due to potential risk of structural damage. Another major adverse impact with potential risk of structural damage would occur at the City Post Office (Postal Museum) during construction of the G Street ramp. There would be moderate adverse impacts from truck-generated vibration at 14 locations due to annoyance.

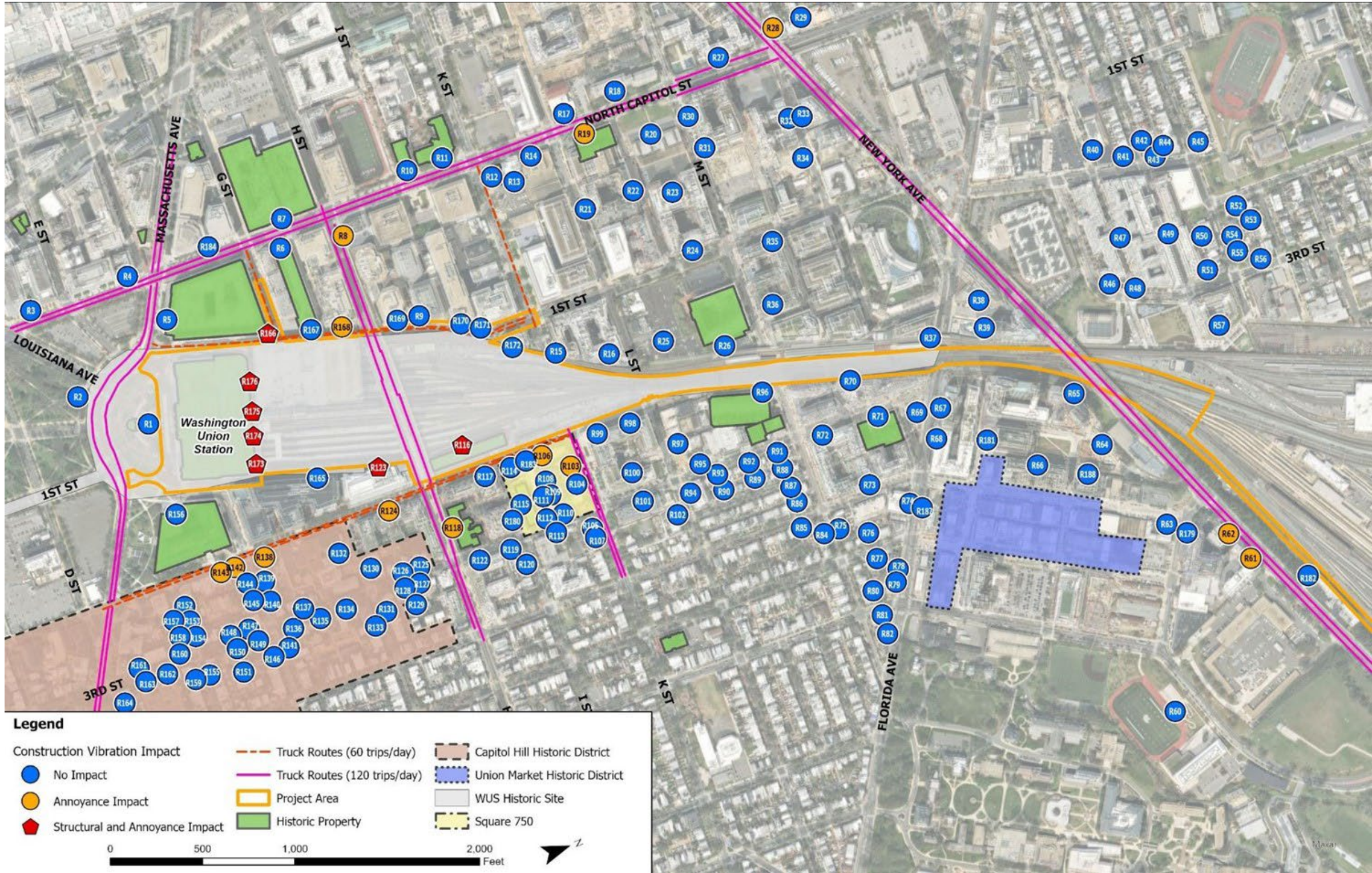
Vibration generated by construction equipment has the potential to cause structural damage to buildings close to the construction site and to annoy persons in nearby buildings. Activities that would generate vibration in the Preferred Alternative includes drilling during secant pile wall construction; vibratory sheet pile driving; dropping clam shovels and impact pile driving during slurry wall construction; use of hoe rams and jackhammers during concrete removal; use of excavators, back hoes, loaded trucks during excavation; mounted impact hammers during ramp construction; and use of vibratory rollers used for track re-construction.

Vibratory pile driving associated with the sheet pile wall SOE has the potential to cause structural damage within 31 feet of the most fragile buildings and within 13 feet of buildings with reinforced concrete, steel, or timber frames. Drilling associated with secant pile wall SOE has the potential to cause structural damage within 20 feet of the most fragile buildings and within 8 feet of buildings with reinforced concrete, steel, or timber frames.

Figure 5-11 illustrates the results of the construction equipment vibration assessment for the Preferred Alternative.⁹⁸ There would be major adverse impacts on the REA Building (R116, along the eastern edge of the rail terminal just north of H Street NE), the Kaiser Permanente Medical Center (R 123, along the eastern edge of the rail terminal just south of H Street NE), and the Washington Union Station historic station building (R173-176) because vibratory pile driving would occur within 10 to 16 feet of these structures, resulting in vibration levels of approximately 0.33 to 0.67 inches per second (in/s). Another major impact would occur at the City Post Office (Postal Museum) (on Massachusetts Avenue between First Street NE, G Street NE, and North Capitol Street), where mounted impact hammers could be used as close as 5 feet from the building, resulting in vibration levels of approximately 0.39 in/s. In its initial stages, the beginning of the column removal work may generate vibration impacts within the eastern part of the historic station building if jackhammers are to break the existing flooring and access girders and column from above. Such impacts would be of brief duration.

⁹⁸ One of the modeled receptor locations categorized as annoyance is outside the **Figure 5-11** map extent. **Table 10-5** in **Appendix C3S** provides a list of the affected locations.

Figure 5-11. Construction Vibration Impacts



Vibration levels at the four above buildings may exceed the criterion for increased risk of structural damage, but this would depend on building sensitivity, which in turn is a function of the type of construction. All four buildings were designed within the context of an active rail terminal and are all large masonry structures. Therefore, they can be expected to have low sensitivity, reducing the risk of structural impact. However, as historic structures, the REA Building, the City Post Office (Postal Museum), and the historic station building may warrant the application of a lower criterion than the one applicable to buildings of similar construction but more recent. The sensitivity of the buildings would have to be assessed.

Interior vibration conditions at the same four receptors may range from 80 to 90 VdB, which would exceed the threshold for human annoyance; however, these impacts would only occur when vibration-generating work is conducted near the buildings. Vibration annoyance typically would not occur beyond 50 feet of the vibration source.

Vibration from truck traffic would cause moderate adverse impacts by exceeding the threshold for annoyance at 14 other locations close to New York Avenue, North Capitol Street, Second Street NE, and First Street NE. These impacts would occur in the All Truck Scenario. Vibration in the Work Train Scenario would be much less noticeable.

5.10.4 Summary of Impacts

Table 5-36 summarizes the noise and vibration impacts of the Preferred Alternative.

Table 5-36. Summary of Preferred Alternative Impacts on Noise and Vibration

Type of Impact	Preferred Alternative
Direct Operational Noise	Moderate adverse impacts at 14 locations
SOE Construction Noise	Major adverse impacts at 32 locations and moderate adverse impacts at 8 locations
Start of Excavation Noise	All Truck Scenario: Major adverse impacts at 29 locations and moderate adverse impacts at 14 locations
	Work Train Scenario: Major adverse impacts at 26 locations and moderate adverse impacts at 10 locations
End of Excavation Noise	All Truck Scenario: Major adverse impacts at 4 locations and moderate adverse impacts at 20 locations
	Work Train Scenario: Major adverse impacts at 4 locations and moderate adverse impacts at 12 locations
Direct Operational Vibration Impacts	Minor adverse, localized vibration impacts.
Construction Vibration Impacts	Major Adverse impacts at 4 locations Moderate adverse impacts at 14 locations

5.11 Aesthetics and Visual Quality

This section addresses the potential impacts of the Preferred Alternative on aesthetics and visual quality. Because of its size and high visibility, the Project has the potential to affect the visual quality and character of the Project Area and surrounding views and vistas

Appendix C3aS, Aesthetics and Visual Quality: Supplemental Visual Assessment, presents a detailed evaluation of the visual impacts of the Preferred Alternative, including photo-simulations, for each of the 28 views and viewsheds included in the Study Area. The findings in this section are based on the analyses presented in **Appendix C3aS. Figure 5-12** shows the location of the viewshed and vistas that were assessed.

Like in the 2020 DEIS, the visual impacts analyses for the Preferred Alternative are based on visual simulations that were developed by superimposing building volumes that convey only building mass, height, and setbacks, without any specific design or architectural elements. However, in the 2020 DEIS, the building volumes for the private and potential Federal air rights developments were based on maximum allowable zoning volumes. In this SDEIS, they are based on more refined assumptions about mass, height, and setback, developed in collaboration with the private air rights developer during the post-2020 DEIS refinements.

Visual impacts were assessed by reviewing the compatibility and sensitivity of the visual changes based on current conceptual massing and heights for both the Project, and the private and Federal air rights development. The analysis does not consider architectural features that may affect compatibility and sensitivity and avoid or mitigate the impact.

5.11.1 Direct Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would result in negligible adverse direct operational visual impacts on two views, and beneficial direct operational visual impacts on two views out of the 28 views that were assessed.

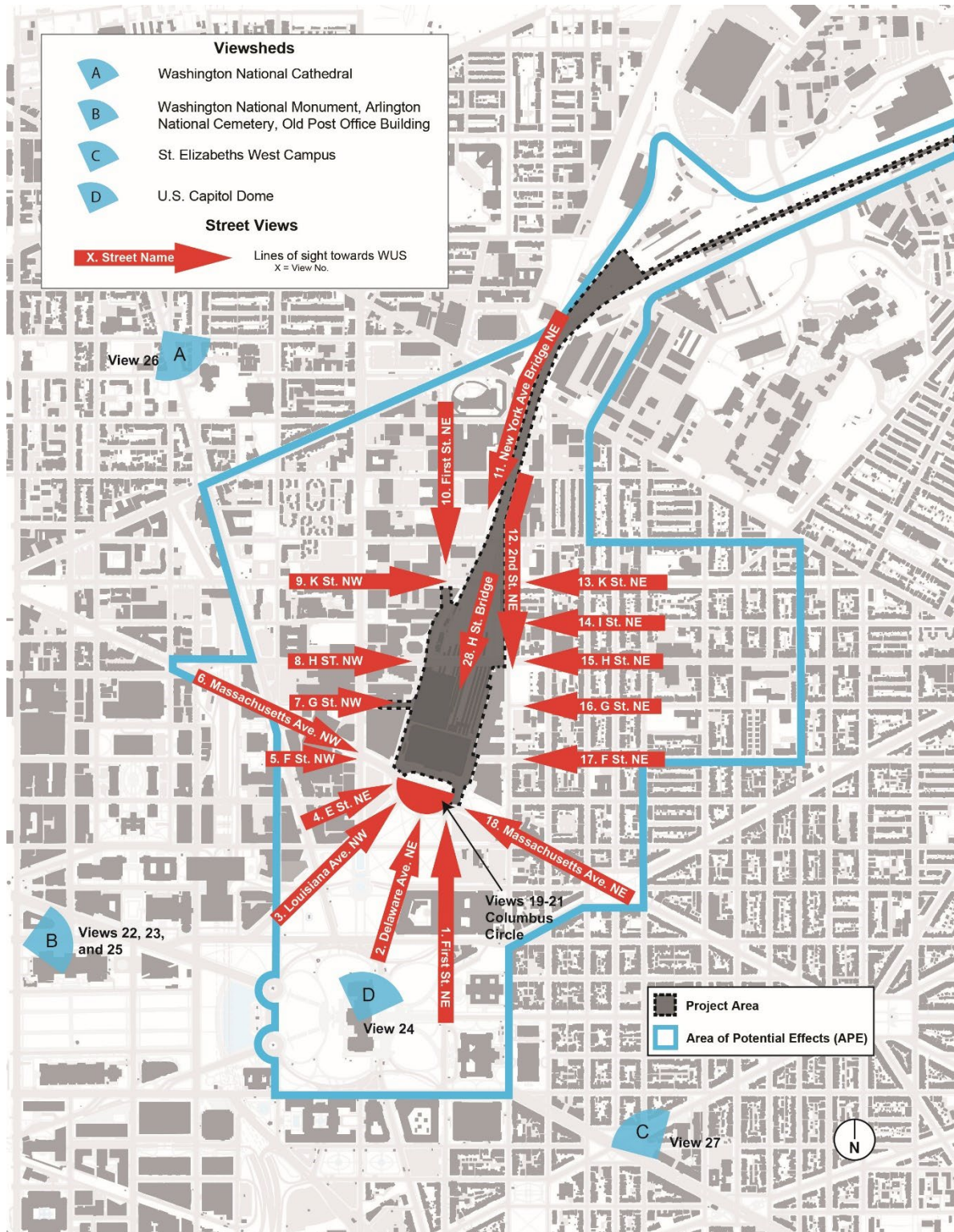
As detailed in **Appendix C3aS, Aesthetics and Visual Quality: Supplemental Visual Assessment**, the visual impact assessment conducted for the Preferred Alternative showed that the Preferred Alternative would have direct operational impacts on four views out of the 28 views evaluated. These Impacts are summarized in **Table 5-37**.

Table 5-37. Preferred Alternative Direct Operational Visual Impacts

Impact	Number of Views Affected	Views Affected ¹
Negligible Adverse	2	K Street NW, looking east (#9); Columbus Circle Drive, east side (#20)
Beneficial	2	G Street NW, looking east (#7); Columbus Circle Drive, west side (#21)

1. # refers to the number assigned to the view in **Figure 5-12**

Figure 5-12. Significant Street Views Towards Project Area and Significant Viewsheds



The Preferred Alternative would have a negligible direct adverse operational impact on two views. While some Project elements would be somewhat visible from these views, they would be barely noticeable, either because they would occupy space currently occupied by similar built elements (View #9) or because the mass of the private air rights development would obscure or encompass them (View #20). The Preferred Alternative would not change the character of these views.

The Preferred Alternative features an east-west train hall and integrated bus facility that would expand the width of the rail terminal. The existing parking garage would be removed and the portion of the garage projecting over the service roadway on the west side of WUS would be eliminated, re-establishing views along First Street NE. This would result in a beneficial impact on the view from the west side of Columbus Circle Drive (View #21). There would also be a beneficial impact on the view from G Street NW, looking east (View #7), as the Preferred Alternative's elements would be less visible than the existing parking garage.

5.11.2 Indirect Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would result in adverse indirect operational impacts on seven views out of the 28 views that were assessed.

As detailed in **Appendix C3aS, Aesthetics and Visual Quality: Supplemental Visual Assessment**, the visual impact assessment conducted for the Preferred Alternative showed that the Preferred Alternative would have direct operational impacts on seven views out of the 28 views evaluated. These indirect impacts would be caused by the mass and height of the potential Federal air rights development. They are listed in **Table 5-38**.

Table 5-38. Preferred Alternative Indirect Operational Visual Impacts

Impact	Number of Views Affected	Views Affected ¹
Moderate Adverse	1	Delaware Avenue NE, looking northeast (#2)
Minor Adverse	2	First Street NE, looking north (#1); Louisiana Avenue NW, looking northeast (#3)
Negligible Adverse	4	E Street NE, looking northeast (#4); F Street NW, looking east (#5), view from the U.S. Capitol Dome (#24); H Street Bridge, looking south (#28)

1. # refers to the number assigned to the view in **Figure 5-12**.

Delaware Avenue is one of three radial streets (the others being Louisiana Avenue NW and First Street NE) that provide direct views to WUS from the south, visually connecting it with the U.S. Capitol and Capitol Grounds. This relationship played an important role in determining the site and design of WUS. The existing view is dominated by the uninterrupted silhouette of the barrel-vault roof and wide tree-lined streets currently used for U.S. government parking. The views are characterized by the prominence of the historic station building and Columbus Plaza, designed by D.H. Burnham and Company and completed in 1908 and 1912, respectively.

Relative to the No-Action Alternative, the Preferred Alternative would have a moderate indirect impact on the view from Delaware Avenue NE (View #2) because the potential Federal air rights development would be highly noticeable from there, rising above the roofline of the west pavilion of WUS. The impact would be moderate because the Federal air rights and the private air rights developments would balance each other out, resulting in a visual symmetry behind WUS that would attenuate the impact.

The Preferred Alternative would also have minor indirect impacts on two views. It would be somewhat visible from First Street NE (View #1) and Louisiana Avenue NW (View #3) but would also be balanced out by the private air rights development, and generally would not change the character of the views.

Finally, the potential Federal air rights development would have negligible impacts on four views. While visible from these views (barely so in the case of View #5), it would generally blend in with its surroundings, which would be dominated by the private air right development or other existing buildings.

5.11.3 Construction Impacts

Construction of the Preferred Alternative would result in negligible adverse impacts on twelve views and minor adverse impacts on six views out of the 28 views that were assessed. One view would have a moderate construction-related visual impact.

Construction of the Preferred Alternative would change the appearance of the rail terminal and its immediate surroundings for the duration of the construction period, approximately 13 years. Features typical of a large construction site such as perimeter fencing, cranes and other large equipment, stockpiles of materials or debris, and partially built structures would be fully or partially visible from outside the Project Area. This would affect the visual quality of several views around WUS.

Based on distance, perspective, and the anticipated location and height of heavy construction equipment and activities, construction of the Preferred Alternative would result in negligible adverse impacts on the following views: Views #1, 2, 3, 4, 8, 9, 13, 16, 19, 20, 21, and 24. Distance or intervening structures would hide most of the construction equipment or activities from those views.

The Preferred Alternative would result in minor adverse impacts on Views #7, 10, 11, 12, 14, and 15. Construction equipment and activities would be distinctly visible from those views for at least part of the construction period. Impacts would be minor for the following reasons. The function of the Project Area as a rail terminal already gives it a semi-industrial appearance. Visually, construction would accentuate this aspect of the Project Area rather than represent a major change in visual quality. Also, although construction would take place over more than a decade, the focus of activities, and the corresponding impacts, would change over time. This would make the impacts of constructing the Preferred Alternative on any single view similar to those of most large-scale construction projects in the District despite the long overall duration of the construction activities. In general, impacts would be greater during construction Phases 1 and 4, when the focus would be on the eastern and western edges of the terminal, respectively, than during Phases 2 and 3, when activities would be in the middle of the terminal and less visible from outside. Impacts would be least during the 12-month period when only column removal work in the First Street Tunnel would take place.

2297 Construction would have a moderate impact on one view from the H Street Bridge (#28) due to the
2298 proximity of the construction relative to the bridge and passers-by.

5.11.4 Summary of Impacts

2299 A summary of the operational, permanent impacts of the Preferred Alternative for all views is provided
2300 in **Table 5-39**. The views not listed in the table would experience no permanent visual impacts. A full
2301 listing is provided in Table 11-4 of **Appendix C3S**.

Table 5-39. Summary of Preferred Alternative Visual Impacts

View	Preferred Alternative ¹
1. First Street NE, view looking north	<i>Minor adverse</i>
2. Delaware Avenue NE, view looking northeast	<i>Moderate adverse</i>
3. Louisiana Avenue NE, view looking northeast	<i>Minor adverse</i>
4. E Street NE, looking northeast	<i>Negligible adverse</i>
5. F Street NW, view looking east	<i>Negligible adverse</i>
7. G Street NW, view looking east	Beneficial
9. K Street NW, view looking east	Negligible adverse
20. View from Columbus Circle Drive – East Side	Negligible adverse
21. View from Columbus Circle Drive – West Side	Beneficial
24. View from U.S. Capitol Dome	<i>Negligible adverse</i>
28. View from H Street Bridge	<i>Negligible adverse</i>
Total Views with No Impact	17
Total Views with Negligible Adverse Impact ²	6 (2)(4)
Total Views with Minor Adverse Impact ²	2 (0)(2)
Total Views with Moderate Adverse Impact ²	1 (0)(1)
Total Views with Major Adverse Impact	0
Total Views with Beneficial Impacts ²	2 (2)(0)

1. Italics indicate a direct impact.

2. Total (direct impact) (indirect impact)

5.12 Cultural Resources

2304 This section describes the impacts of the Preferred Alternative on cultural resources. “Cultural
2305 resources” include the historic properties evaluated as part of the Section 106 of the National Historic
2306 Preservation Act of 1966 (Section 106) process. Historic properties are defined in 36 CFR Part 800 as
2307 districts, buildings, sites, structures, and objects included in or eligible for inclusion in the National
2308 Register of Historic Places (NRHP). For this Project, FRA also assessed effects to District of Columbia
2309 Inventory of Historic Sites (DC Inventory); properties that fall within the purview of the Architect of the
2310 Capitol (AOC) and are listed as AOC Heritage Assets; and properties that are under the jurisdiction of the
2311 National Park Service’s National Mall and Memorial Parks.

The SDEIS includes the Supplemental Assessment of Effects (SAOE) for the Preferred Alternative as **Appendix D1S**. As part of the Section 106 process, FRA considered 55 historic properties, including significant viewsheds from six historic properties (Washington National Cathedral, Washington National Monument, Old Post Office Building, Arlington National Cemetery, U.S. Capitol Dome, and St. Elizabeths West Campus). **Figure 5-13** shows the location of the 55 historic properties, as well as the Section 106 Area of Potential Effect (APE), which is also the Study Area for the NEPA impact analysis.

Of the 55 historic properties, effect analysis indicated that 27 would not be noticeably affected by the Preferred Alternative. This is because these resources are too far from the Project Area to be physically affected; experience changes in noise or vibration levels; or afford distinct views of the Project. Therefore, there would be no impacts on those resources. The unaffected resources are identified in Table 12-3 of **Appendix C3S** and are not discussed further in this section.

Operational impacts in this section are assessed relative to existing conditions, as in the SAOE. This approach is required for the Section 106 process, and maintains consistency across the two distinct, but connected, regulatory reviews (NEPA and Section 106). In all cases, impacts relative to the No-Action Alternative would be the same or less than impacts relative to existing conditions.

5.12.1 Direct Operational Impacts

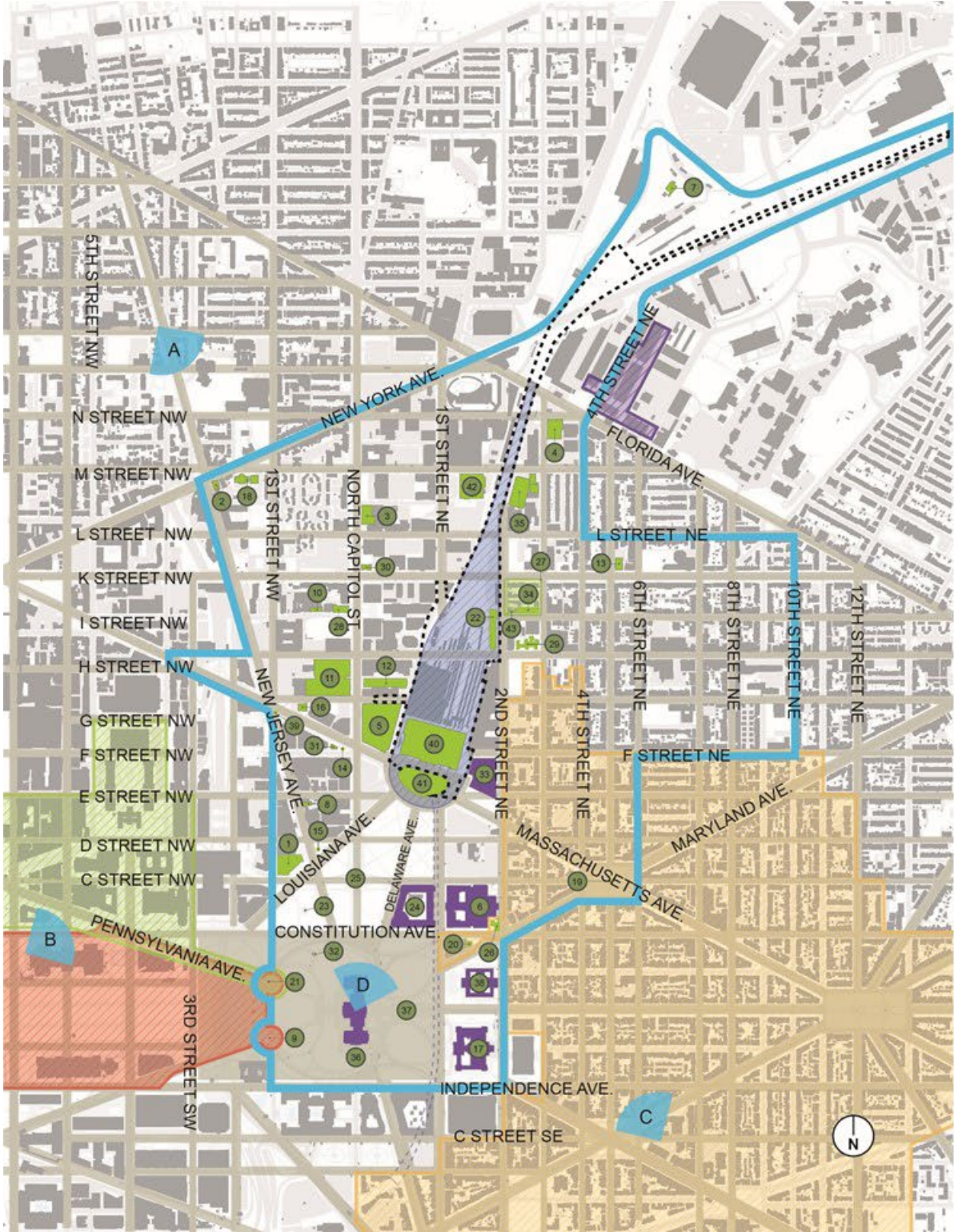
5.12.1.1 Physical Impacts

Relative to existing conditions, the Preferred Alternative would have major adverse direct operational physical impacts on WUS and the WUS Historic Site, a minor adverse direct operational physical impact on the L'Enfant-McMillan Plan, and a potential adverse direct operational physical impact on the REA Building.

Washington Union Station

The Preferred Alternative would result in a major physical adverse direct operational impact on WUS. It would involve the demolition of the Claytor Concourse (a non-historic portion of the station constructed in 1988) and construction of a new passenger concourse and train hall north of the historic station building. This would affect the north façade of the Retail and Ticketing Concourse, which was previously altered by the construction of the Claytor Concourse. The Retail and Ticketing Concourse originally featured an immense opening leading to the tracks and platforms. It was punctuated by a colonnade of nine steel-plated Doric columns with cast-iron capitals spaced evenly along its length. Currently, a section of the entablature, supported by the Doric columns, is the only original fabric that remains visible from within the Claytor Concourse, but it is possible that the Doric columns are still in place, encapsulated by the Claytor Concourse.

Figure 5-13. Area of Potential Effects



The Preferred Alternative also includes work to remove columns in the portion of the First Street Tunnel below the Retail and Ticketing Concourse. This would involve accessing the tunnel from above and demolishing a portion of the floor (approximately 15,000 square feet). The current marble finish was installed in the 1980s and is not part of the historic fabric of the building. However, the spaces between the supporting beams are filled with terra cotta-tile arches that are part of the original fabric. Adverse physical effects due to the demolition of the original floor structure and removal of the original steel columns would be minimized or avoided, as the design would adhere to the Secretary of the Interior's *Standards for the Treatment of Historic Properties*.

Washington Union Station Historic Site

The Preferred Alternative would result in a major adverse direct operational physical impact to the WUS Historic Site. The Preferred Alternative would involve extensive modifications to the railroad terminal and require the removal of numerous contributing structures throughout the historic site. Such changes in the defining features of the WUS Historic Site would be detrimental to its integrity of design, setting, materials, workmanship, feeling, and association.

L'Enfant-McMillan Plan

The Preferred Alternative would construct a two-way ramp on G Street NE, a street that is part of the L'Enfant Plan for the City of Washington. The ramp would provide access to and from the below-ground pick-up and drop-off facility. Such a change would be a minor impact on the L'Enfant-McMillan Plan's overall integrity of design, which covers approximately 3,565 acres in the District. The affected section of G Street NE would remain active and continue to connect North Capitol and First Streets NE. The site's integrity of feeling and association are connected to its design, which is characterized by the relationships between the diagonal and orthogonal streets, the open space geometries, and the views and vistas created by the streets and open space. Such relationships would not be affected by the Preferred Alternative. The physical impact of the Preferred Alternative on this resource would be minor.

REA Building

The REA Building is an approximately 63,000-square-foot parcel between Second Street NE and the eastern edge of the WUS rail terminal. To the south, the parcel partially overlaps with the old H Street alignment (H Street Tunnel), with direct access from the tunnel into the basement of the REA Building. In the Preferred Alternative, construction of the new H Street Concourse along the alignment of the H Street Tunnel would require using the part of the historic property parcel that overlaps with the alignment (approximately 9,800 square feet). Construction of the H Street concourse would also require modifying or eliminating the connection between the tunnel and the building. At the present stage of design, it cannot be determined how this would affect the REA Building. However, there is potential for a direct adverse impact on the REA Building.

5.12.1.2 Visual Impacts

Relative to existing conditions, in the Preferred Alternative, visual changes would result in major adverse direct operational impacts on WUS, the WUS Historic Site, and REA Building; moderate adverse direct operational impacts on two other cultural resources; minor adverse direct operational impacts on six, and negligible adverse direct operational impacts on two. The Preferred Alternative would also result in a beneficial direct operational impact on two cultural resources.

Visual changes caused by the Preferred Alternative would have major adverse impacts on WUS, the WUS Historic Site, and the REA Building.

These major adverse impacts would result from the reconstruction of the rail terminal and construction on Project elements south of H Street NE, including the new train hall. This would eliminate or substantially alter historic visual connections between and within these properties, adversely affecting their integrity of setting, feeling, and association. In various degrees, the Preferred Alternative would also affect views toward the properties, although these alterations, described in the SAOE (**Appendix D1S**) would not by themselves constitute a major impact.

Visual changes from the Preferred Alternative would cause moderate adverse impacts on two resources: the City Post Office (Postal Museum) and the Thurgood Marshall Building. The Preferred Alternative would be visible from the east elevation of the City Post Office (Postal Museum). The G Street NE vehicular ramp providing access to the below-ground pick-up and drop-off facility would be visible from the north elevation. Details on the wayfinding for the new ramp and other WUS-related wayfinding, which are still undefined, may add to the visual impacts. Based on the visibility and sensitivity of the resource to these changes, this would be a moderate visual impact because, while readily noticeable, these changes would not diminish the integrity of the resource. The building's architectural characteristics would not be affected. Its setting, defined by connections to WUS, Columbus Plaza, Massachusetts Avenue, and the Senate parks, would remain unaffected as well.

Elements of the Project, including the train hall and ramps along the east side to the station, would be visible from the Thurgood Marshall Building. Based on the visibility and sensitivity of the resource to these changes, this would be a moderate visual impact. It would not diminish the resource's integrity of setting, which is characterized by existing, modern institutional buildings to the north, open space to the west, and the visual connection to the WUS historic building, Columbus Plaza, and the AOC campus to the south. These connections would not be affected.

Visual changes from the Preferred Alternative would cause minor adverse impacts on six resources: Square 750 Rowhouse Development; St. Joseph's Home (Former); Woodward and Lothrop Service Warehouse; Capitol Hill Historic District; the U.S. Capitol Dome Cultural Viewshed; and the L'Enfant-McMillan Plan. While elements of the Project would be visible from the first four of these resources, they have low sensitivity to these changes, as they do not derive their significance from their visual connection to WUS.

Views from the U.S. Capitol Dome are more sensitive to WUS, and the new train hall would be visible behind the historic station building. However, the train hall would not rise above the horizon, it would

be consistent with other modern development within the viewshed, and no other element of the viewshed would be changed.

Visual changes would occur along multiple streets of the L'Enfant-McMillan Plan, with varying degrees of visibility and sensitivity, depending on the street and the distance from the Project Area. Project elements would be visible from the south, east, and west. Views from First Street NE looking north; Delaware Ave NE looking north/northeast; and Louisiana Avenue NE looking northeast are the most sensitive. Although elements of the Project would be visible from these locations, no spatial corridors or vistas along contributing streets and avenues would be obstructed. The removal of the existing parking garage would open up the view to the station from G Street NE, resulting in a beneficial visual impact, even with the addition of a new ramp and associated signage. Similarly, removal of the existing parking garage would have a beneficial impact on views from the west side of Columbus Circle, as it would reestablish the view along First street NE. As a whole, while the Preferred Alternative would have potential major visual effects on two contributing streets south of WUS (Delaware Avenue and First Street NE), the setting of the L'Enfant-McMillan Plan, which is connected to the site's architectural design and the resulting vistas, would not change from the existing conditions. The Preferred Alternative would not diminish the L'Enfant-McMillan Plan's significance or integrity. The adverse impact would be minor.

Visual changes from the Preferred Alternative would cause negligible adverse impacts on two resources: Uline Ice Company Plant and Arena Complex, and the Washington National Monument Cultural Viewshed. From these resources, the Project would be barely noticeable. This slight change in the visual environment would not affect their integrity of setting.

The Preferred Alternative would have beneficial impacts on two resources: the Government Printing Office (GPO) building and GPO Warehouse No. 4. In both cases, the beneficial impact would result from the removal of the existing parking garage.

5.12.1.3 Noise and Vibration

Relative to existing conditions, noise and vibration in the Preferred Alternative would result in minor adverse direct operational impacts on three cultural resources and negligible adverse direct operational impacts on 18 other cultural resources.

Noise from traffic in the Preferred Alternative would result in minor adverse operational impacts on the following cultural resources: St. Joseph's Home (Former); Square 750 Rowhouse Development (K Street NE side); and Uline Ice Company Plant and Arena Complex. The operational noise and vibration analysis presented in **Section 5.10.1.1, Operational Noise**, showed that increased street traffic would cause noise levels to exceed the FTA threshold for a moderate impact at or near these three resources. However, the resulting adverse impact would be minor because the noise increase would be less than 3 dBA, which would be imperceptible to most people. Such a change would not compromise the resources' integrity of setting, feeling, or association. Additionally, all three resources have experienced increased traffic on nearby streets and the construction of adjacent multi-story residential, commercial, and mixed-use developments, which have already altered their respective settings. The minimal additional noise from the Preferred Alternative would not compromise their integrity of setting (St. Joseph's Home

and Square 750 Rowhouse Development) or association (Uline Ice Company Plant and Arena Complex) further.

There would be negligible adverse impacts from increases in ambient noise relative to existing conditions at or near 18 other cultural resources. These resources are identified in Section 12.5.1.3, *Noise and Vibration*, of **Appendix C3S**. At these locations, the noise would increase by less than 3 dBA and the resulting noise levels would not exceed the FTA thresholds. The change in noise would not compromise the resources' integrity of setting, feeling, or association.

The operational vibration analysis for the Preferred Alternative indicated that changes in vibration levels would be negligible and would not affect the integrity of any cultural resource.

5.12.1.4 Traffic

Increased traffic volumes in the Preferred Alternative would result in a minor adverse direct operational impact on the Capitol Hill Historic District and in negligible adverse direct operational impacts on 18 other cultural resources.

Noise and vibration are the main source of traffic-related impacts on cultural resources; however, increases in traffic volumes along nearby streets may cause visual impacts, conflicts with pedestrians and bicyclists, and disturbances affecting access to homes and businesses that can potentially affect the integrity of a cultural resource's setting, feeling, or association.

Anticipated traffic impacts in the Preferred Alternative are addressed in **Section 5.5.1.12, Vehicular Traffic**. Relative to existing conditions, the Preferred Alternative is anticipated to see an increase in traffic volumes in the vicinity of WUS caused by greater station activity, in combination with the development of the private air rights above the rail terminal and general background economic and demographic growth. Traffic impact modeling indicates that adverse impacts would be concentrated along a few major thoroughfares, especially North Capitol Street and K Street as well as, to a lesser extent, H Street and Massachusetts Avenue. H Street and Massachusetts Avenue border or traverse the Capitol Hill Historic District. There could potentially be a minor adverse impact on the Capitol Hill Historic District if traffic congestion in the Historic District increased, including because of drivers taking short cuts through the residential streets of the district as a result of congestion on nearby thoroughfares.

As explained in the SAOE (**Appendix D1S**), in the Preferred Alternative, LOS at intersections in or on the edges of the Capitol Hill Historic District would remain the same or improve. Only the LOS of H and 3rd Streets NE would deteriorate from E to F in the AM peak. This intersection is adjacent to, but not within, the Capitol Hill Historic District. While it is not possible to predict the behavior of future drivers, there is low likelihood of significant diversion due to congestion at this intersection in the AM peak. Even if drivers reacted by diverting course through the neighborhood, the volume of diverted traffic would not diminish the integrity of setting and feeling in the district. Increases in operational traffic volumes conditions along H Street NE, Massachusetts Avenue NE, and Second Street NE would not alter their existing, busy, traffic-heavy urban setting. The significance of the Capitol Hill Historic District, as characterized in the NRHP nomination, is primarily derived from its architectural significance and its

historical contribution to the development of the District of Columbia. National Park Service guidelines state that historic districts or components of historic districts lose significance if they contain so many alternations or new intrusions that they no longer convey a sense of historic environment.⁹⁹ The Capitol Hill Historic District currently experiences a high volume of traffic. Based on information provided by the District Department of Transportation, there are currently ten intersections spread throughout the Historic District that operate at an unacceptable LOS (E or F) during at least one peak period. Despite this, the Historic District still maintains the characteristics that qualify it for inclusion in the NRHP and still conveys a sense of historic environment. Traffic impacts from the Preferred Alternative would not reach a level that would diminish the integrity and significance of the Capitol Hill Historic District. Any impacts on the Capitol Hill Historic District would be minor.

Several other resources are located along streets where operational traffic is expected to increase incrementally. These resources are identified in Section 12.5.1.4, *Traffic*, of **Appendix C3S**. Given the urban environment of these resources, incremental impacts on traffic are not anticipated to diminish integrity or significance. Impacts on these resources would be negligible.

5.12.2 Indirect Operational Impacts

Relative to existing conditions, with the potential Federal air rights development, visual changes in the Preferred Alternative would have the following indirect operational impacts on cultural resources in addition to the direct impacts: moderate adverse visual impacts on two cultural resources; and negligible adverse visual impacts on seven cultural resources.

In the Preferred Alternative, the potential Federal air rights development would occupy part of the area currently occupied by the existing WUS parking garage. This would result in the following indirect impacts, in addition to the direct impacts described above:

- Moderate adverse visual impacts on WUS and the U.S. Capitol Dome Viewshed.
- Negligible adverse visual impacts on City Post Office (Postal Museum); GPO Building; GPO Warehouse No. 4; Dirksen and Hart Senate Office Buildings; Senate Parks, Underground Garage and Fountains; Library of Congress, Thomas Jefferson Building; and Russell Senate Office Building.

The potential Federal air rights development would be adjacent to the expanded WUS and add new elements to the station's visual environment. The impact would be moderate, based on the respective scale of the structures. Additionally, the potential transfer of the air rights out of Federal ownership could include measures that ensure any new development would be implemented in a manner sensitive to WUS's historic and aesthetic environment. The Preferred Alternative would also have a moderate indirect adverse visual impact on the U.S. Capitol Dome Viewshed. The potential Federal air rights would be highly visible from the dome. However, the structure would not rise above the horizon or block any

⁹⁹ National Park Service. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Accessed from https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf, Accessed on February 12, 2023.

views along North Capitol Street. It would not disrupt views along Delaware Avenue toward Columbus Plaza and the historic station building.

The potential Federal air rights development may be visible from the other resources listed above. However, because of distance and intervening structures or vegetation, the change would be barely noticeable and would not affect the resources' integrity. The potential Federal air rights development would also be visible from several of the resources that would experience direct visual impacts. However, it would not create greater impacts than the Preferred Alternative.

5.12.3 Construction Impacts

5.12.3.1 Physical Impacts

Construction of the Preferred Alternative would potentially result in an adverse impact on unidentified archaeological resources within the WUS rail terminal.

Construction of the Preferred Alternative would require excavating most of the rail terminal to reconstruct the tracks and platforms, construct concourses, and set foundations and columns supporting the overbuilt structures south of H Street NE. Based on an archaeological assessment completed in 2015, much of the terminal was identified as having moderate to high archaeological potential, although it contains no known archaeological resources.¹⁰⁰ It is possible that excavations and ground disturbance could inadvertently damage or destroy unknown significant archaeological deposits, potentially resulting in an adverse impact. Any resources present would likely be related to the Swampoodle neighborhood and may include building foundations, wells, privies, infrastructure, and trash pits. Railroad infrastructure dating to the late 19th century and earlier may also be present.

5.12.3.2 Visual Impacts

Visual changes during construction of the Preferred Alternative would result in moderate adverse impacts on three cultural resources; minor adverse impacts on one cultural resource; and negligible adverse impacts on 15 cultural resources.

Construction would take place in phases over approximately 13 years. During much of that time, fencing around the construction site, staging areas, heavy construction equipment, excavated areas, and structures under construction would affect the visual setting of the cultural resources from which they would be visible. Because the focus of construction activities would move across the Project Area depending on the phase, the visually affected resources and the intensity of the impacts would vary over time. Construction activities would likely be visible for at least some time from the same resources that would experience operational visual impacts.

¹⁰⁰ The archaeological assessment was conducted in support of the 2015 *Washington Union Station Historic Preservation Plan* (Accessed from <https://www.usrcdc.com/projects/historic-preservation-plan/>; accessed on April 3, 2023). The assessment found that there is low to moderate potential that significant prehistoric material is present, and moderate to high potential that significant historic material is present. Any historic material present would mostly date from the 19th and early 20th centuries.

WUS, the WUS Historic Site, and the REA Building would experience the greatest visual impacts throughout construction, which would occur within or directly next to them. The reconstruction of the rail terminal and construction of the various Project elements to the north of the historic station building would turn the WUS Historic Site into an active construction site for more than a decade. Inside WUS, column removal work in the Retail and Ticketing Concourse would require setting up partitions to seal the work area from the rest of the station for more than a year. This would be a highly visible change that would affect the interior appearance of the station and how it is experienced by visitors and passengers.

Although construction would continue for several years, it would not be a permanent condition. None of these three resources' significance and integrity depends on keeping them or their immediate surroundings permanently free of construction activities. Given the phased character of the work, large sections of WUS and the WUS Historic Site would remain operational and free of visual disruptions for much of the construction period. Visual impacts from construction would not in themselves cause a loss of historic integrity that could endanger the historic status of the affected resources. While construction work and associated disturbances would make WUS less attractive to visitors, it would not entirely prevent them from appreciating its architectural and historic importance. Impacts would be adverse but moderate.

The Capitol Dome Viewshed would also be affected, as construction activities at WUS would be highly visible from the dome. However, the sensitivity of the viewshed to such disruption is low, given the distance and the common occurrence of construction within the District. The resulting adverse impact would be minor.

Construction would be visible from 15 other cultural resources to a degree that would vary with distance and the phase of construction. These resources are identified in Section 12.5.3.2, *Visual Impacts*, of **Appendix C3S**. Distance combined with the moving focus of construction make the sensitivity of the affected cultural resources to construction activities at WUS low. Additionally, as previously noted, construction sites are a common sight in the District. Visual impacts from construction would not affect the characteristics that give these resources their historic significance. Impacts would be negligible.

5.12.3.3 Noise and Vibration

Noise and vibration from construction activities in the Preferred Alternative would result in major adverse impacts on WUS, the REA Building; and the City Post Office (Postal Museum); moderate adverse impacts on six cultural resources; and minor adverse impacts on four cultural resources.

Construction of the Preferred Alternative would result in major adverse impacts from noise and vibration on WUS, the REA Building, and the City Post Office (Postal Museum). Vibratory pile driving would occur within 10 to 16 feet of these structures, resulting in vibration levels of approximately 0.33 to 0.67 in/s. Another major impact would occur at the Postal Museum where mounted impact hammers could be used as close as 5 feet from the building, resulting in vibration levels of approximately 0.39 in/s. Depending on the sensitivity of the buildings, which has not been determined, this could exceed the threshold for structural damage and compromise the physical integrity of the buildings. Additionally, noise levels at all three resources would exceed the FTA threshold for severe impacts.

Construction-related noise and vibration from constructing the Preferred Alternative would result in moderate adverse impacts on the following six cultural resources during support of excavation (SOE) construction activities and at the beginning of excavation: GPO Warehouse No. 4; Columbus Plaza; Thurgood Marshall Federal Judiciary Building; Square 750 Rowhouse Development; 901 Second Street NE; and St. Joseph's Home (Former). Noise levels at or near these resources would exceed the FTA thresholds for severe impacts. These impacts would be noticeable but temporary and they would not compromise the resources' integrity of setting, feeling, or association. The significance of these resources is not dependent on a quiet environment; rather, it is linked to their architecture, their connection to the historical development of the District, and the spatial relationships they have with WUS or each other. None of these characteristics would be affected by temporarily high noise or vibration levels.

Construction noise and vibration impacts would have minor adverse impacts on the following four cultural resources: C&P Telephone Company Warehouse, Topham's Luggage Factory (Former), the Capitol Hill Historic District (northwestern edge); and the L'Enfant-McMillan Plan.

At the C&P Telephone Company Warehouse, vibration from construction truck traffic would exceed the FTA threshold for annoyance. The adverse impact would be minor because the projected level of vibration, while noticeable, would not create any risk of structural damage and the integrity of the resource does not depend on a quiet and vibration-free setting.

At Topham's Luggage Factory, noise would exceed the FTA threshold for a moderate impact. However, this would not diminish the property's integrity or historical significance, which is related to its historical association with commercial development and industry in the District.

During excavation activities, if trucks are used to haul away spoil, locations on the northwestern edge of the Capitol Hill Historic District would experience noise levels in excess of the FTA threshold for moderate impacts. These locations include 603-607 Second Street NE and 521-527 Second Street NE. The same locations, along with a third one, 205 F Street NE would experience vibrations above the FTA threshold for annoyance. This would result in minor adverse impacts on the Capitol Hill Historic District for several reasons. The impacts would be localized and limited to locations on the edge of the Capitol Hill Historic District bordering Second Street NE. The District permits trucks to use Second Street NE, which is classified as a major collector street. The street's setting has also been substantially altered over the years by modern high-density development. The majority of the Historic District would experience no noise or vibration impacts from the Preferred Alternative. Outside of Second Street NE, construction trucks would only use designated truck routes to travel to and from the Project Area. They would not circulate along the residential streets that are one of the historic district's character-defining features. Although they would occur during a long period – construction of the Preferred Alternative would take approximately 13 years to complete – impacts would not be continuous, and they would cease entirely after excavation operations are finished. Excavation operations that would affect Second Street NE would take place during Phase 1 of construction and last for approximately 5 months.

Throughout the construction period, street and sidewalk segments around WUS could be subject to temporary closures. The only street in or adjacent to the Capitol Hill Historic District potentially affected by these closures would be Second Street NE. During closures, non-truck traffic may temporarily move

to another street in the Historic District, such as 4th Street NE. Such impacts, and the resulting noise, would be of short duration. Road closures would last from 5 to 6 minutes on average and no more than 20 minutes.

The noise and vibration from constructing the Preferred Alternative would not compromise or diminish the late 19th- and early 20th-century architectural characteristics of the Capitol Hill Historic District or its significance to the development of the District.

Noise and vibration impacts would occur along several portions of the L'Enfant-McMillan Plan, especially First Street NE, Second Street NE, Columbus Circle, G Street NE, K Street, and North Capitol Street. Such temporary effects would not diminish the property's integrity or historical significance, which is related to its 18th and early 20th century urban design and association with the history of the development of Washington, DC. Impacts would be minor.

5.12.4 Summary of Impacts

Table 5-40 summarizes the impacts of the Preferred Alternative on cultural resources that are more than negligible. Major impacts are highlighted. A complete summary is provided in Table 12-3 of **Appendix C3S**.

Table 5-40. Summary of Preferred Alternative Impacts on Cultural Resources

Cultural Resource	Impact Type	NEPA Impact ¹
C&P Telephone Company Warehouse	Construction	Minor (N/V)
City Post Office (Postal Museum)	Direct Operational	Moderate (V)
	Construction	Major (N/V)
Government Printing Office Warehouse No. 4	Construction	Moderate (N/V)
REA Building	Direct Operational	Major (V)
	Construction	Major (N/V)
Square 750 Rowhouse Development	Direct Operational	Minor (V)
	Indirect Operational	Minor (V, N/V)
	Construction	Moderate (N/V)
St. Joseph's Home (Former)	Direct Operational	Minor (V, V/N)
	Construction	Moderate (N/V)
Thurgood Marshall Federal Judiciary Building	Direct Operational	Moderate (V)
	Construction	Moderate (N/V)

Cultural Resource	Impact Type	NEPA Impact ¹
Topham's Luggage Factory (Former)	Construction	Minor (N/V)
Uline Ice Company Plant and Arena Complex	Direct Operational	Minor (V, N/V)
	Construction	Minor (V)
Washington Union Station	Direct Operational	Major (P, V)
	Indirect Operational	Moderate (V)
	Construction	Major (N/V)
Washington Union Station Plaza (Columbus Plaza) and Columbus Fountain	Construction	Moderate (N/V)
Woodward and Lothrop Service Warehouse	Direct Operational	Minor (V)
901 Second Street NE	Construction	Moderate (N/V)
Capitol Hill Historic District	Direct Operational	Minor (V, Tr)
	Construction	Minor (N/V)
L'Enfant-McMillan Plan	Direct Operational	Minor (P, V)
	Construction	Minor (N/V)
Washington Union Station Historic Site	Direct Operational	Major (P, V)
	Construction	Major (N/V)
U.S. Capitol Dome Viewshed	Direct Operational	Minor (V)
	Indirect Operational	Moderate (V)
	Construction	Minor (V)

1. When a resource would experience different types of impacts, the greatest impact is reported.

V = visual impact; N/V = noise/vibration impact; P = physical impact; Tr = Traffic impact.

5.13 Parks and Recreation Areas

This section addresses the potential impacts of the Preferred Alternative on parks and recreation areas. These include public parks, private parks open to the public, off-street bicycle trails and walking paths, and other areas used for general recreation.

5.13.1 Direct Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial direct operational impact on Columbus Plaza due to improved access from Columbus Circle.

The Preferred Alternative would not physically affect any parks or recreation areas. It would not require using or taking any part of a park or recreation area, or permanently incorporating it into the Project. The First Street NE cycle track to K Street, which ultimately connects to the Metropolitan Branch Trail, would be maintained along its existing alignment. Improvements, such as a railing, would be included to minimize potential conflicts with pedestrians crossing to or from the H Street Concourse entrance. The intersection of First Street NE and the ramp to and from the below-ground pick-up and drop-off facility would be signalized, which would minimize conflicts between bicycles using the cycle track and cars entering or exiting the facility. The Preferred Alternative would not reduce or otherwise affect the overall connectivity or functionality of the trail or the cycle track. Thus, it would not adversely affect either resource.

The Preferred Alternative includes improvements to Columbus Circle in front of WUS. These improvements would facilitate access to Columbus Plaza from the station, resulting in a minor beneficial impact on Columbus Plaza because of improved access. The Preferred Alternative would eliminate the ramp connecting southbound First Street NE and Massachusetts Avenue. This would make it easier and safer for pedestrians and bicyclists to reach Columbus Plaza from WUS because they would need to cross only one roadway instead of two, as would be the case in the No-Action Alternative. The larger pedestrian zone created by the removal of the ramp would generally make Columbus Plaza more accessible and integrated with WUS, enhancing visitor experience. The pedestrian and bicycle ramp to H Street NE on the west side of WUS would also enhance access to Columbus Plaza.

5.13.2 Indirect Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse indirect operational impact on parks and recreation areas, including Columbus Plaza, the Upper and Lower Senate Parks, and the Metropolitan Branch Trail.

Relative to the No-Action Alternative, the Preferred Alternative would result in a substantial increase in the number of passengers and visitors transiting through WUS relative to the No Action Alternative. This may result in more people using or passing through nearby parks, especially Columbus Plaza and the Upper and Lower Senate Parks. It may also generate additional traffic along the Metropolitan Branch Trail if visitors or commuters use it for local travel.

In the long term, increased use would result in accelerated wear and tear of pavements and landscaped areas in the affected parks and in increased maintenance costs. This impact would be minor. Only a small part of the additional passengers and visitors would likely make use of the nearby parks and recreation areas. Most would only transit through WUS toward other destinations in and outside the District. The Preferred Alternative would be a small contributor to the general visitations to parks and recreation area in the Study Area. By itself, the Preferred Alternative would not cause a marked degradation of user experience.

Relative to the No-Action Alternative, in the Preferred Alternative, the potential development of the Federal air rights would have a negligible adverse indirect operational impact on parks and recreation areas.

In the Preferred Alternative, the potential development of the Federal air rights could bring new residents and employees to the Project Area, some of whom may use nearby parks and recreation areas during the day. However, at any given time, the number of additional visitors attributable to the development would be a fraction of the new workers, residents, and travelers that would be present in the Project Area in the No-Action Alternative. Any adverse impacts would be negligible.

5.13.3 Construction Impacts

Construction of the Preferred Alternative would cause moderate adverse impacts on Columbus Plaza and the Metropolitan Branch Trail.

In the Preferred Alternative, construction-related traffic and sidewalk or lane closures on Second Street NE would affect the Metropolitan Branch Trail. This may lead to temporary closures or rerouting of the trail at this location and diminish the connectivity of the trail to the front of WUS and points south. These disruptions would adversely affect the experience of users at the south end of the trail. Temporary closure of the First Street cycle track in Phase 4 of construction would also reduce connectivity. However, these impacts would occur at different times, with those along Second Street NE concentrated in parts of Phase 1 (first 2 years and 4 months of construction) and those along First Street concentrated in Phase 4 (last 4 years and 3 months of construction). When one of the two facilities would be closed, the other would be operational and could provide an alternative route. Only a small portion of the eight-mile Metropolitan Branch Trail would be affected. Between Phases 1 and 4 (approximately 5 years and 3 months), disruptions would be minimal, though adjacent construction traffic and activities may detract from user experience. Overall, the anticipated disruptions would be a moderate adverse impact.

The Preferred Alternative would include the realignment of the roadways in front of WUS, adjacent to Columbus Plaza. This would result in a moderate adverse impact on this resource. While Columbus Plaza itself would not be physically affected, construction would temporarily limit pedestrian access from the front of WUS to the plaza. Access would remain available from the south, however. Construction of the ramp from the below-ground pick-up and drop-off facility on the east side of WUS would generate noise during the excavation phase that would be audible from Columbus Plaza. In general, construction activities on the adjacent roadways would make Columbus Plaza less attractive to visit and diminish visitor experience. The impact would be moderate because although it has not been established how long the construction of the improvements in the vicinity of Columbus Plaza would take, it would be much less than the entire construction period. All other construction activities associated with the Preferred Alternative would take place to the north of the historic station building and would not cause impacts on Columbus Plaza.

5.13.4 Summary of Impacts

2713 **Table 5-41** summarizes the impacts of the Preferred Alternative on parks and recreation areas.

Table 5-41. Summary of Preferred Alternative Impacts on Parks and Recreation Areas

Type of Impact	Preferred Alternative
Direct Operational	Minor beneficial impact on Columbus Plaza
Indirect Operational	Minor or negligible adverse impact.
Construction	Moderate adverse impact on Columbus Plaza and Metropolitan Branch Trail

5.14 Social and Economic Conditions

2714 This section addresses the potential impacts of the Preferred Alternative on social and economic
2715 conditions. These include impacts on demographics, jobs, taxes, community disruption, commercial
2716 activity, and local government services.

5.14.1 Direct Operational Impacts

5.14.1.1 Demographics

2717 **Relative to the No-Action Alternative, the Preferred Alternative would have a negligible direct**
2718 **operational impact on demographic conditions.**¹⁰¹

2719 The expansion of WUS in the Preferred Alternative would change the amount of residential uses in the
2720 private air right development from an assumed 1,050,000 square feet in the No-Action Alternative to
2721 979,250 square feet. Assuming an average of 950 feet per unit and an average household size of 2.1
2722 persons, and after rounding, this would reduce the residential population in the Project Area by
2723 approximately 160 persons in the Preferred Alternative relative to the No-Action Alternative. This would
2724 be a small, negligible impact in the context of the Local Study Area (27,465 residents) and the District of
2725 Columbia (689,546 residents).¹⁰²

5.14.1.2 Community Disruption and Other Social Benefits or Impacts

2726 **Relative to the No-Action Alternative, the Preferred Alternative would have major beneficial direct**
2727 **operational impacts on local communities.**

¹⁰¹ This demographic impact is not qualified as adverse or beneficial because a small change in residential population in a dense urban environment does not in itself represent a favorable or unfavorable outcome.

¹⁰² Numbers from 2020 U.S. Census. The Local Study Area consists of the Census blocks within a half-mile of WUS.

Relative to the No-Action Alternative, the Preferred Alternative would have a major beneficial impact because it would improve community cohesion by providing new pedestrian connections between WUS and the surrounding neighborhoods. While there would be increases in peak hour vehicular traffic along several thoroughfares around WUS, including North Capitol Street, K Street NE, First Street NE, and Second Street NE (see the analysis of traffic impacts in **Section 5.5.1.12, Vehicular Traffic**), continued implementation of the District Vision Zero strategy would help maintain safe pedestrian and bicycle travel through the area.¹⁰³ The new street-level pedestrian entry points along First Street NE and Second Street NE under the H Street Bridge as well as new entry points from the bridge would make WUS easier to access from both the east and west neighborhoods while also improving the connectivity between neighborhoods on either side of the station. The pedestrian and bicycle ramp along the west side of WUS would improve connectivity between the front of the station, the private air rights development, and H Street.

The Preferred Alternative would also provide approximately 64,000 square feet of new retail space in WUS. The provision of additional shopping opportunities and services located in WUS would benefit neighborhood residents as well as travelers and commuters. The access improvements mentioned in the previous paragraph would make it easier for residents to use these new amenities.

At the regional level, expanded and improved multimodal connections at WUS would result in easier and more efficient travel in and out of the District. This would benefit all District residents and visitors.

5.14.1.3 Employment

Relative to the No-Action Alternative, the Preferred Alternative would have a minor adverse direct operational impact on employment.

The Preferred Alternative would add approximately 64,000 square feet of WUS retail space to WUS, which would generate approximately 192 new jobs. It would also provide additional space for Amtrak to support expanded rail operations, which would be staffed with approximately 1,629 persons, representing a 1,229-employee increase at WUS over the No-Action Alternative. Altogether, the Preferred Alternative would add up to an estimated 1,421 jobs at WUS relative to the No-Action Alternative.

In the Preferred Alternative, the private air rights development would be smaller than in the No-Action Alternative, affecting the number of jobs the Project Area is anticipated to support by the time the Project is complete. Because of the reduction in office, retail, and hotel uses relative to the No-Action Alternative, the private air right development would support approximately 4,410 fewer jobs in the Project Area.¹⁰⁴ Factoring in the additional WUS jobs the Preferred Alternative would support (1,229 jobs), and after rounding, there would be a net reduction of approximately 2,990 in the number of jobs the Project Area is anticipated to support in the Preferred Alternative relative to the No-Action Alternative.

¹⁰³ District of Columbia. Vision Zero DC. Accessed from <https://visionzero.dc.gov/>. Accessed on January 23, 2023.

¹⁰⁴ See **Appendix C3S**, Section 14.5.1.3, *Employment*, for estimates per use.

This adverse impact on anticipated employment would be minor because, while large in the context of the Project Area, it would be small in the context of the District. According to the most recent information available from the Deputy Mayor for Planning and Economic Development (DMPED) Economic Intelligence Dashboard, as of July 2019, there were an estimated 802,000 jobs in the District. The reduction in anticipated jobs with the Project Area in the Preferred Alternative would represent approximately 0.4 percent of this total. Additionally, the 2,990 jobs may simply be accommodated elsewhere in the District.

5.14.1.4 Washington Union Station Revenue

Relative to the No-Action Alternative, the Preferred Alternative would have a major adverse operational direct impact on WUS revenue.

The Preferred Alternative would reduce the number of revenue-generating parking spaces at the station from approximately 2,205 in the No-Action Alternative to no more than 550, or a reduction of approximately 75 percent. Based on USRC's financial report for 2019, parking accounts for 70 percent of USRC's annual revenue. As noted in the report, this revenue "subsidizes USRC's financial responsibilities with regard to historic preservation."¹⁰⁵ Assuming direct proportionality between parking capacity and parking revenue, the Preferred Alternative would cause at least 52.5 percent decrease in total revenue. Any increase in parking rates that the reduced supply may cause, or the revenue from the added retail, are not likely to significantly offset this reduction. The Preferred Alternative would have a major adverse operational impact on WUS revenue.

5.14.1.5 Other Direct Economic Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial direct operational impact on the local and regional economy.

The Preferred Alternative would have a minor beneficial impact on the local and regional economy because it would add approximately 64,000 square feet of retail at WUS, with a net increase in retail within the Project Area of 29,000 square feet after accounting for the reduction in private air rights retail uses. The new retail would generate revenue for its operators as well as new jobs and sales taxes at WUS, which in turn would generate further economic activity. Existing retail and services at WUS would also benefit from anticipated increases in sales due to greater Amtrak, MARC, VRE, and intercity bus ridership. These economic impacts would be small in the context of the local and regional economy.

¹⁰⁵ USRC. 2015-2021 Annual Reports. Accessed from <https://www.usrcdc.com/annual-reports/>. Accessed on November 1, 2022. In 2020-2021, operations and revenue were affected by the COVID-19 pandemic, with 2019 being the most recent "normal" year for which financial information is available.

5.14.2 Indirect Operational Impacts

5.14.2.1 Demographics

2789 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor indirect**
2790 **operational impact on demography.¹⁰⁶**

2791 Potential development of the Federal air rights would include approximately 175,000 square feet of
2792 residential space. Assuming an average of 950 square feet per unit, and an average household size of 2.1
2793 persons, this would add approximately 390 residents to the Project Area (after rounding). This would be
2794 a small, minor impact in the context of the Local Study Area and District of Columbia.

2795 More broadly, improved connectivity and increased activity at WUS in the Preferred Alternative, as well
2796 as increased employment opportunities, may indirectly encourage or accelerate development near
2797 WUS, including residential development, in addition to what would occur in the No-Action Alternative.
2798 This impact is not readily quantifiable but likely would be negligible in the context of anticipated
2799 demographic growth in the District through 2040.

5.14.2.2 Community Disruption and Other Social Benefits or Impacts

2800 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial indirect**
2801 **operational impact on local communities.**

2802 In combination with the private air rights development, potential development of the Federal air rights
2803 would fill in a gap in the urban fabric, better connecting together the neighborhoods around WUS via
2804 the H Street Bridge and the pedestrian/bicycle ramp along the west side of the station. This would have
2805 a beneficial impact on the local community.

2806 The Preferred Alternative may also indirectly encourage development outside the Project area near
2807 WUS. This would not result in adverse impacts on local communities. District zoning regulations and
2808 applicable plans would continue to guide the density and character of potential future development.
2809 This would avoid the development of land uses that could disrupt or dislocate local communities.

5.14.2.3 Employment

2810 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial indirect**
2811 **operational impact on employment.**

2812 Potential development of the Federal air rights would include approximately 310,000 square feet of
2813 office space. This would support approximately 1,240 jobs in the Project Area. The Federal air rights
2814 development would also include 15,000 square feet of retail, adding another 45 jobs, for a total of
2815 approximately 1,290 jobs after rounding. This beneficial impact would be minor because, while large in
2816 the context of Project Area, it would be small in the context of the District. More broadly, the Preferred

¹⁰⁶ This demographic impact is not qualified as adverse or beneficial because a small change in residential population does not in itself represent a favorable or unfavorable outcome.

2817 Alternative would have a beneficial indirect impact on employment because new retail and station
2818 workers at WUS and greater numbers of passengers and visitors would increase consumer demand for
2819 goods and services. This would support employment both locally and regionally. This beneficial impact is
2820 not quantifiable. It likely would be minor in the context of the District's economy.

5.14.2.4 Washington Union Station Revenue

2821 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial indirect**
2822 **operational impact on WUS Revenue.**

2823 The potential transfer and development of the Federal air rights with a mix of residential, office, and
2824 retail uses would have a beneficial impact on WUS revenue through the lease of the space (or other
2825 mechanism through which transfer and development would be achieved), as the area is within USRC's
2826 lease area. This impact cannot be quantified at this time and can be considered to be minor.

5.14.2.5 Other Indirect Economic Impacts

2827 **Relative to the No-Action Alternative, the Preferred Alternative would have a minor beneficial indirect**
2828 **operational impact on tax revenues in the District.**

2829 Generally, the Preferred Alternative would contribute to expanding tourism and economic activity in the
2830 Regional Study Area by making it possible for WUS to overcome capacity constraints and resolve
2831 operational inefficiencies. Thanks to these improvements, WUS would continue to be a major
2832 transportation hub that supports and bolsters the local and regional economy, with attendant tax
2833 benefits. The net benefit in tax revenue that would result is not quantifiable, but it is likely to amount to
2834 a minor beneficial impact in the context of the District as a whole, whose total tax revenue in fiscal year
2835 2021 was \$8.8 billion.

5.14.3 Construction Impacts

5.14.3.1 Demographics

2836 **Construction of the Preferred Alternative would have no impacts on demography.**

2837 The construction of the Preferred Alternative would cause neither an influx nor a displacement of
2838 residential populations.

5.14.3.2 Community Disruption and Other Social Benefits or Impacts

2839 **Construction of the Preferred Alternative would have moderate adverse impacts on local**
2840 **communities.**

2841 There would be adverse impacts on local communities at various times throughout the construction of
2842 the Preferred Alternative. Construction would take place over an estimated span of approximately 13
2843 years. Throughout, to accommodate construction activities, there would be periods of rerouting
2844 passengers, closing off sections of WUS, and closing some retail space. The column removal component
2845 of the Project would close part of the Retail and Ticketing Concourse. Retail outlets located within this

part of the concourse and the mezzanine above would have to close for at least the duration of the work, which is anticipated to take place over approximately 2 years and 6 months, overlapping with Phases 1 and 2 of construction. Parking and bus loading and unloading activities would be displaced between the demolition of the existing garage and the completion of the new below-ground facility. Outside of WUS proper, construction traffic and noise as well as partial closures of sidewalks and traffic lanes would adversely affect residents, commuters and workers.

The impact from this disruption on local communities would be moderate for the following reasons. Although various disruptive activities would occur during the entire construction period, most would last for only a part of it and would be localized. The displacement of parking and bus activities would occur only in Phase 4 (last 4 years and 3 months of construction). Outside of WUS, disruptions would largely concentrate along Second Street NE (south of K Street) during Phase 1 of construction (lasting approximately 2 years and 4 months) and along First Street NE (also south of K Street) during Phase 4. Although adversely affected, access to WUS would remain available throughout the construction period and the phased construction would help minimize reductions in rail operations. While the various inconveniences construction of the Preferred Alternative would create would be highly noticeable and would make WUS and areas close to WUS less attractive to new residents or businesses while construction is ongoing, the directly affected areas would be small and the adverse impacts would decrease quickly with distance.

5.14.3.3 Construction Employment

Construction of the Preferred Alternative would have a minor beneficial impact on employment.

Construction of the Preferred Alternative would support numerous jobs during the entire construction period. While this would be a beneficial impact, it would be minor in the context of regional employment in the Washington-Arlington-Alexandria Metropolitan Statistical Area, where most of the induced jobs are likely to be located. Job generation modeling showed that on average, the Preferred Alternative would support approximately 4,390 direct jobs and 1,956 indirect and induced jobs annually, for a total of 6,346 jobs. Direct jobs would occur within the construction and architectural, engineering and related services industries. The indirect and induced jobs would occur in a wider range of industries such as wholesale trade; restaurants; real estate; hospitals; retail; and physicians. For purposes of comparison, the total annual average number of direct jobs that the Preferred Alternative would support for the duration of the construction period represent approximately 0.6 percent of total jobs in the two relevant sectors in the Washington-Arlington-Alexandria Metropolitan Statistical Area as of August 2022.

5.14.3.4 Washington Union Station Revenue

Construction of the Preferred Alternative would have a major adverse impact on WUS revenue.

Construction of the Preferred Alternative would affect the two main sources of WUS revenue: retail and parking. The retail closures due to the column removal work would affect the revenue derived from the retail lease. At this stage, it is not possible to quantify the resulting financial impact on the affected retail outlets, lease holders, and USRC. However, given the duration of the anticipated closure (at least

approximately 2 years and 6 months overlapping with Phases 1 and 2 of construction), it is likely to be major. There is also the possibility that, given the duration of the closure, the displaced outlets would not return to WUS after the completion of the work. If this occurs, and if the displaced businesses are not replaced by new tenants, the construction impacts could become permanent.

Construction-related disruptions in WUS access and the demolition of the parking garage would further cause a major reduction in the revenue accruing to WUS from parking operations. During the first three phases of construction, parking would remain available but changes in access and rerouting may reduce the number of users and the revenue generated by parking. During Phase 4, which would start approximately 8 years and 9 months after the beginning of construction and last approximately 4 years and 3 months, parking would not be available.

5.14.3.5 Other Economic Benefits or Impacts

Construction of the Preferred Alternative would have a moderate beneficial impact on the regional economy.

Construction of the Preferred Alternative would have a moderate regional beneficial economic impact from the spending of the income generated by the jobs construction of the Project would generate. Modeling indicates that the Preferred Alternative construction would produce from \$296 to \$557 million in estimated annual labor income (including employee compensation and proprietor income) depending upon the year. Annual value added, which is the combination of labor income, other property type income and indirect business taxes, would range from \$414 million to \$778 million depending on the year. Annual total output, or the value of production, would range from \$688 to \$1,293 million depending on the year. These economic outputs would spread benefits throughout the Washington DC metropolitan region. While substantial, the impact would be moderate in the context of the Washington-Arlington-Alexandria Metropolitan Area. In 2020, the gross domestic product of this area was approximately \$561 billion.

5.14.4 Summary of Impacts

Table 5-42 summarizes the socioeconomic impacts of the Preferred Alternative.

Table 5-42. Summary of Preferred Alternative Socioeconomic Impacts

Impact Category	Type of Impact	Preferred Alternative
Demographics	Direct Operational	Negligible impact
	Indirect Operational	Minor impact
	Construction	No impact
Community Disruption and Other Social Benefits	Direct Operational	Major beneficial impact
	Indirect Operational	Minor beneficial impact

Impact Category	Type of Impact	Preferred Alternative
	Construction	Moderate adverse impact
Employment	Direct Operational	Minor adverse impact
	Indirect Operational	Minor beneficial impact
	Construction	Minor beneficial impact
WUS Revenue	Direct Operational	Major adverse impact
	Indirect Operational	Minor beneficial impact
	Construction	Major adverse Impact
Other Economic Impacts	Direct Operational	Minor beneficial impact
	Indirect Operational	Minor beneficial impact
	Construction	Moderate beneficial impact

5.15 Public Safety and Security

2906 This section addresses the potential impacts of the Preferred Alternative on public safety and security
2907 conditions.

5.15.1 Direct Operational Impacts

2908 **Relative to the No-Action Alternative, the Preferred Alternative would have a major beneficial direct**
2909 **operational impact on public security and a moderate adverse direct operational impact on public**
2910 **safety.**

2911 The Preferred Alternative could potentially have adverse impacts on security at WUS due to the increase
2912 in passenger and visitor volumes, deliveries, support services, and maintenance activities. This would
2913 generate additional car and truck traffic next to, above, and within the rail terminal. The new below-
2914 ground pick-up and drop-off, and parking facility would bring vehicles directly under the rail terminal
2915 and deck-level development via a ramp below the Metrorail Red Line tunnel. The integrated bus facility
2916 would bring vehicles directly under the deck, next to the train hall and the private air rights
2917 development. These features would increase the risk of vehicle-related crashes and vehicle-based
2918 attacks such as the use of vehicle-borne improvised explosive devices (VBIED), as well as chemical,
2919 biological, radiological, nuclear and explosive (CBRNE) threats.

This potential impact would be offset by the security improvements that would result from the Preferred Alternative, resulting in a net impact that would be beneficial and major. The Project Proponents and FRA coordinated with the Federal Protective Service (FPS) and Department of Homeland Security when planning concourses, new loading dock, and new bus facility. During the early stages of planning for the Project, FRA and the Project Proponents completed a Threat, Vulnerability, and Risk Assessment (TVRA) to identify threats to WUS. At a minimum, the design and operation of the Preferred Alternative would incorporate recommended safety and security principles, such as clear sightlines, adequate and intuitive access for emergency responders, appropriate levels of patrol and video surveillance, and spatial flexibility for future security measures. The design of the Preferred Alternative would allow for the potential screening of passengers and their luggage when entering the ticketed area to board trains. Amtrak would review and approve plans to ensure that applicable vertical clearances are met, resulting in no adverse impacts on the safety of rail operations.

In contrast to the No-Action Alternative, in which no pre-screening of the goods delivered through the WUS loading docks would occur, FPS would provide screening services at an existing or to-be-constructed screening facility in the Preferred Alternative.¹⁰⁷ These services would be provided in coordination with Amtrak Emergency Management and Corporate Security (EMCS) and USRC. Bus operations would be subject to some level of screening through authentication and passenger screening practices, but not through physical screening of buses at WUS.

Increased activity at WUS would also likely result in greater demands on emergency services at WUS, with potential increases in personnel and equipment maintenance costs. The Amtrak Police Department (APD) and Amtrak EMCS would likely need to add staff in order to continue effectively policing the station and to coordinate further with the Metropolitan Police Department (MPD) and U.S. Capitol Police. Emergency responders would need to allocate additional resources to firehouses and police service areas to cover the additional passengers. Additionally, medical responders would have to deal with changing traffic patterns and additional entry/exit points. Additional resources would need to be allocated to training personnel in navigating this new geography. While this would adversely affect emergency services, the adverse impact would be moderate because growth would take place over time and the various affected services would have time to plan to avoid personnel shortages or a significant deterioration of response times.

5.15.2 Indirect Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have minor adverse indirect operational impacts on public safety and security.

The potential transfer and development of the Federal air rights in the Preferred Alternative would bring additional residents and workers to WUS and place another large development over the station's tracks and platforms. This would increase further the risk of vehicle-based crashes and attacks as well as potential demand on emergency services. This indirect impact would be minor in the context of the total

¹⁰⁷ Loading dock deliveries includes those for the Commissary (food and beverage for Amtrak trains), retail (including restaurants), and Package Express, a service that ships packages via Amtrak trains.

2955 number of vehicles trips and activities at WUS. Planning for the rail terminal and requirements for the
2956 Federal air rights development would address communications devices that may interfere with train
2957 signaling and radio frequency devices.

5.15.3 Construction Impacts

2958 **Construction of the Preferred Alternative would have major adverse impacts on security and**
2959 **moderate adverse impacts on public safety.**

2960 Construction of the Preferred Alternative would have major adverse impacts on security because
2961 construction operations would require granting access to WUS and the rail terminal to a large number of
2962 workers and vehicles for approximately 13 years. Entrance and exit points would change depending on
2963 the construction phase but at any time, deliveries and loading of construction materials would use
2964 multiple access points.

2965 Physical and non-physical access by workers would pose risks as well. Physical access to the construction
2966 site may make it a target for terrorism and criminal activity. Non-physical access to construction
2967 information, such as scheduling dates, storage locations, and management activities may also make the
2968 site vulnerable.

2969 Construction would also affect operational station security. Vehicles and workers may have access to
2970 internal station areas not normally accessible to the public. Construction vehicles and large construction
2971 equipment such as cranes may disrupt video monitoring and patrolling of select areas of WUS, leading
2972 to diminished security monitoring.

2973 All these security risks would be compounded by the size of the construction site, the sensitivity of WUS
2974 as a major transportation hub and potential target, and the duration of the construction activities.

2975 Construction of the Preferred Alternative would have adverse impacts on public safety because
2976 construction inherently poses safety risks. These risks result from the wide range of simultaneous
2977 activities large construction projects involve. Adverse impacts on safety may arise from the physical
2978 disturbance associated with construction. Examples include the excavation of open trenches or pits; the
2979 movement and operation of equipment and trucks; or the closure of sidewalks, disruption of well-used
2980 pathways, and changes in traffic patterns. The impacts on public safety would be moderate because
2981 most construction-related activities would take place within the Project Area; members of the public
2982 would not have access to the construction zone.

2983 On site, work would comply with applicable Occupational Safety and Health Administration (OSHA)
2984 requirements and guidelines for general and construction industries. Construction activities within the
2985 rail terminal would also be subject to Amtrak's requirements and authorization for work near live
2986 railroad tracks. Emergency egress in accordance with the standards defined in National Fire Protection
2987 Association (NFPA) 130 routes would be maintained at all times. Construction work in the vicinity of the
2988 DC Streetcar would require contractors to comply with the safety training requirements of the DC
2989 Streetcar Track Allocation Program. Safety issues related to tunneling below the existing Metrorail
2990 tunnel to build the access ramp to the below-ground facility would be addressed in coordination with
2991 WMATA as part of Joint Development and Adjacent Construction (JDAC) Program coordination.

2992 Within WUS, the First Street Tunnel column removal work would potentially involve the demolition of
2993 existing flooring and structural elements within parts of the Retail and Ticketing Concourse. Physical
2994 risks to persons (for instance trip and fall accidents) would be avoided by closing off the area and
2995 ensuring it is only accessible to authorized personnel.

2996 Outside the construction site, construction of the Preferred Alternative would require operating and
2997 moving equipment and other materials on public streets throughout each phase of construction over
2998 most of the entire construction period of approximately 13 years. The movement of heavy trucks and
2999 heavy material would pose safety risks. Trucks traveling on public streets could cause conflicts and
3000 accidents with other vehicles, pedestrians, and bicyclists. Sidewalk, bike lane, and road closures as well
3001 as the creation of temporary drop-off and pick-up areas may cause confusion for drivers, bicyclists and
3002 pedestrians in a changing environment, increasing the risk of conflicts. Construction may diminish lines
3003 of sight.

3004 Construction would potentially affect emergency response services when road closures are in effect.
3005 Lane closures with various timing plans may take place throughout the construction period.
3006 Construction activities would not affect nearby schools or other public facilities from a public safety
3007 perspective, as they would take place at least one block away from these facilities.

3008 There would likely be hazardous materials (such as fuel, lubricants, or solvents among others) and
3009 hazardous waste stored on the construction site. These must be contained securely, and in accordance
3010 with all applicable occupational health and safety regulations. Spills or leaching of these materials can
3011 cause danger to people and property in the vicinity. Emergency and security personnel would need to be
3012 prepared to encounter potentially hazardous materials if they respond to an emergency at WUS during
3013 construction.

5.15.4 Summary of Impacts

3014 **Table 5-43** summarizes the safety and security impacts of the Preferred Alternative.

Table 5-43. Summary of Preferred Alternative Impacts on Safety and Security

Resource Category	Type of Impact	Preferred Alternative
Security	Direct Operational	Major beneficial impact
	Indirect Operational	Minor adverse impact
	Construction	Major adverse impact
Safety	Direct Operational	Moderate adverse impact
	Indirect Operational	Minor adverse impact
	Construction	Moderate adverse impact

5.16 Public Health, Elderly and Persons with Disabilities

This section addresses the impacts of the Preferred Alternative on public health and the welfare of the elderly and persons with disabilities. In accordance with FRA's *Procedures for Considering Environmental Impacts*, it also considers the impacts of the Preferred Alternative on the transportation and general mobility of the elderly and persons with disabilities.

5.16.1 Direct Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have negligible adverse direct operational impact on public health. It would have a major beneficial direct operational impact on the transportation and mobility of the elderly or persons with disabilities at WUS.

The Preferred Alternative would not introduce functions or activities that could adversely affect public health in or near the Project Area. The Preferred Alternative would include an air conditioning strategy that would isolate areas within which fumes, heat, and noise associated with operating diesel trains occur from areas where passengers and visitors would wait or remain for any significant amount of time. The tracks and platform areas would ventilate to the outside of the station.

Relative to the No-Action Alternative, ambient noise levels would increase at several locations under the Preferred Alternative, as explained in **Section 5.10.1.1, Operational Noise**. However, increases would generally not exceed 3 dBA and, as such, would be barely perceptible and negligible. Nowhere would noise levels reach levels that could cause noise-induced hearing loss (NIHL). Impacts would be negligible.

The Preferred Alternative would have a major beneficial impact on the transportation and mobility of the elderly and persons with disabilities by making WUS easier to access and navigate. It would bring WUS into full compliance with applicable accessibility codes and regulations, including the *2010 Americans with Disabilities Act (ADA) Standards for Accessible Design*. This would remedy accessibility shortcomings that the No-Action Alternative would not address. Elevators and wheelchair ramps would be provided as required. The parking facility would contain sufficient handicapped and van spaces (at least nine for a facility with 401 to 500 spaces, or at least two percent for a facility with more than 500 spaces, including van-accessible spaces). The new platforms would be wider and would allow for level boarding, addressing a significant existing short-coming.

Several other features would benefit the elderly and persons with disabilities as well as the general public. New entrances to WUS on First, Second, and H Streets NE would reduce the distance many persons must travel within WUS to reach trains or buses. Improved private pick-up and drop-off areas in front of WUS and new ones on First and Second Streets NE, next to the train hall, and in the new below-ground facility would also facilitate access.

The new concourses and train hall would provide climate-controlled, more spacious transitional spaces than the existing Claytor Concourse, which would remain in the No-Action Alternative. The new bus facility would provide upgraded waiting spaces and other amenities relative to the existing ones, which the No-Action Alternative would keep in their current condition. The bus facility would be integrated with the train hall and provide more direct, easier, and friendlier access to the historic station building.

By making boarding and alighting from trains or buses easier and reducing congestion in transitional spaces such as concourses, the Preferred Alternative would reduce trip, slip, and fall risks, which are a consideration in an environment where people are often moving hurriedly and encumbered with luggage. While this would benefit all passengers and visitors, it would particularly benefit the elderly and persons with disabilities, making it easier for them to navigate the station and move between multimodal elements.

Increased accessibility at WUS would also provide direct access to the Kaiser Permanente Capitol Hill Medical Center on 700 Second Street, NE at the corner of Second Street NE and H Street NE. The new H Street entrance to the station would provide the public, the elderly, and persons with disabilities new access to the medical center when using public transportation.

5.16.2 Indirect Operational Impacts

Relative to the No-Action Alternative, the Preferred Alternative would have negligible adverse indirect operational impacts on public health and minor adverse indirect operational impacts on the transportation and mobility of the elderly and persons with disabilities outside WUS.

Section 5.6.2.1, *Mesoscale Analysis*, indicates that the Preferred Alternative would cause additional regional emissions of all criteria pollutants relative to the No-Action Alternative. No indirect impacts on public health would result from these emissions, which would not result in exceedances of the NAAQS. The purpose of the NAAQS is in part to provide public health protection and protect the health of sensitive populations such as asthmatics, children, and the elderly. While there are health risks associated with any level of air pollution, emissions associated with the Preferred Alternative are not likely to measurably increase these risks. Additional emissions of MSAT cannot be quantified but are expected to be minor and regional MSAT levels expected to be lower by 2040 than currently. Public health impacts linked to air pollution would be negligible.

There would be minor adverse indirect impacts on the transportation and mobility of the elderly and persons with disabilities in the Preferred Alternative. Increased roadway traffic may create an actual or perceived barrier to the transportation and mobility of such persons near WUS because of the greater potential for conflict between pedestrians and vehicles. This would occur in the No-Action Alternative as well, but the Preferred Alternative would generate more traffic than the No-Action Alternative, especially along H Street NE, Second Street NE, North Capitol Street, and the north side of Columbus Circle.

The Preferred Alternative has several features that would contribute to offsetting potential risks to pedestrians. These include additional access points (on First, Second, and H Streets NE), which would reduce the distance some persons would need to walk on public streets to reach the station. Also, the reconfiguration of the multiple pick-up and drop-off lanes in front of WUS and the reconfiguration of sidewalks in front of the station would facilitate access to WUS, with fewer roadways to cross. The removal of hop-on hop-off and tour bus traffic from that area would also make access to the front of WUS easier.

5.16.3 Construction Impacts

Construction of the Preferred Alternative would result in minor adverse impacts on public health and major adverse impacts on the transportation and mobility of the elderly and persons with disabilities.

Construction of the Preferred Alternative would take approximately 13 years to complete. Construction would take place in four phases moving from east to west plus an Intermediate Phase between Phases 1 and 2 during which only First Street Tunnel column removal work would be conducted. Construction activities, especially on the scale of the Project, inherently generate public-health-related risks. Direct impacts may arise from the physical disturbance associated with construction. Examples include the excavation of open trenches or pits; the movement and operation of equipment and trucks; or the closure of sidewalks, disruption of known pathways, and changes in traffic patterns.

Potential adverse impacts on public health from these activities would be minor because best management practices that are standard for all large construction sites would minimize risks from physical disturbance. All areas under construction would be fenced, screened, and inaccessible to the public either from the surrounding neighborhoods or from within WUS.

Public health impacts may arise from the air pollution and noise caused by construction work or if a large spill of fuel or hazardous material occurred. For the reasons described in the following paragraphs, these impacts would be minor.

During construction, fuel and hazardous materials would be stored and used on site. Accidental spills may occur, which could pose a risk to public health. Compliance with applicable Federal laws and regulations, including EPCRA, OPA, and RCRA, would minimize the risk of spilled materials migrating outside the Project Area and coming into contact with the public. Construction activities would cause air pollutant emissions from the operation of motorized equipment and movement of construction trucks to and from the site. The quantity of emissions would vary with each construction phase, and within each phase, with the type of activity. Quantitative estimates of construction-related emissions of criteria pollutants in the Preferred Alternative are presented in **Section 5.6.3, Construction Impacts**. The estimates include each phase's most emissions-intensive activities. The analysis showed that there would be no exceedance the applicable *de minimis* levels. As such, these emissions would not adversely affect public health.

During column removal work, when part of the Retail and Ticketing Concourse would be demolished and the tunnel underneath exposed, there is potential for fumes from train engines to enter the station – both public areas and back of house areas – because several tracks would remain active at all times to minimize impacts on train service. These impacts would be avoided by closing off the construction area.

Construction of the Preferred Alternative would also cause noise impacts (see **Section 5.10.3, Construction Impacts**). Compliance with applicable OSHA requirements would ensure that workers are adequately protected from NIHL if they are exposed to noise above the relevant thresholds. Members of the general public or WUS workers would not be at risk of exposure to noise levels capable of causing hearing loss, as any exposures would be temporary and brief. Non-authorized persons would not be allowed within the construction site or near noisy equipment. The partitions used to close off the part of

the station where the column removal work would take place from the rest of the building would be designed to provide an adequate level of noise shielding.

Construction of the Preferred Alternative would have major adverse impacts on the transportation and mobility of elderly persons and persons with disabilities. WUS would continue to operate throughout the construction period of approximately 13 years. During that time, depending on the phase of construction, parts of WUS would be closed to the public. This would result in congested conditions during periods of peak passenger activity. Areas that would remain open to the public may have to be temporarily reconfigured. Access to and from train platforms, bus facility, and parking facility would be relocated as construction proceeds. The disruption of usual pathways within WUS may be confusing to everyday riders and may make WUS more challenging to navigate for occasional users. Combined with increased congestion, it would create a heightened risk of trip, slip, and fall accidents or make access by elderly persons or persons with disabilities more difficult. During Phase 4 of construction, the unavailability of parking would restrict options for access to WUS. It may be more difficult or costly for the elderly and persons with disabilities to switch to alternative modes of access such as transit or for-hire vehicles. Also during Phase 4, the existing bus facility would be demolished and temporarily replaced with an interim bus facility or bus loading zones on the completed portion of the structural deck (see **Section 5.5.3.4, Intercity, Tour/Charter, and Sightseeing Buses**). These interim facilities would have fewer amenities than the existing and future ones and may be more difficult for the elderly and persons with disabilities to use.

Outside of WUS, temporary sidewalk and lane closures would occur at various times during construction. Temporary relocation of bus stops and rerouting may be necessary. During Phase 1 of construction (lasting approximately 2 years and 4 months), sidewalk or lane closures may make access to the Kaiser Permanente Medical Building (700 Second Street NE) more challenging, although ADA-compliant access would be maintained.

Although much of the main public spaces in the station, including those in the historic station building, would remain open and unencumbered, access to and from WUS during construction, as well as internal circulation, would unavoidably remain more challenging than normal for the elderly and persons with disabilities. Because of the length of construction (approximately 13 years), this would be a major adverse impact.

5.16.4 Summary of Impacts

Table 5-44 summarizes the health and mobility impacts of the Preferred Alternative.

Table 5-44. Summary of Preferred Alternative impacts on Health and Mobility

Impact Category	Type of Impact	Preferred Alternative
Public Health	Direct Operational	Negligible adverse impact
	Indirect Operational	Negligible adverse impact
	Construction	Minor adverse impact
Transportation and Mobility of Elderly and Persons with Disabilities	Direct Operational	Major beneficial impact
	Indirect Operational	Minor adverse impact
	Construction	Major adverse impact

5.17 Environmental Justice

This section evaluates the potential of the Preferred Alternative to cause disproportionately high and adverse impacts on environmental justice (EJ) populations in accordance with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. EO 12898 requires that Federal agencies identify and address disproportionately high and adverse impacts resulting from Federal projects on minority and low-income communities. For the purposes of identifying minority and low-income populations in the Local Study Area (Census blocks and block groups within half a mile of WUS), the analysis summarized in this section used 2020 Census data (for race and ethnicity) and the most recent available data from American Community Survey (ACS).

Table 17-4 of **Appendix C3S** presents a screening that identifies impact categories that have potential to result in disproportionately high and adverse impacts on EJ communities. The screening found that the following resource categories have some potential to do so and require further analysis: Transportation (Intercity Buses, City and Commuter Buses, and Vehicular Traffic); Noise and Vibration; and Social and Economic Conditions (Community Disruption). These impact categories are addressed below and in more details in **Appendix C3S**, Section 17.5.1, *Operational Impacts*, and Section 17.5.2, *Construction Impacts*.

5.17.1 Operational Impacts

The Preferred Alternative is not anticipated to have disproportionately high and adverse impacts on EJ communities after mitigation of traffic impacts and completion of an ongoing focused outreach effort.

5.17.1.1 Transportation

Intercity Buses

The Preferred Alternative would have a moderate beneficial impact on intercity bus operations, as explained in **Section 5.5.1.4, Intercity, Tour/Charter, and Sightseeing Buses**. As noted in **Appendix C3S, Section 17.5.1.1, Transportation**, available data indicate that minority and low-income passengers make up a substantial portion of intercity bus passengers. Data also suggest that minorities and low-income populations rely on the bus for intercity travel much more than other demographics.

Minority and low-income passengers would directly benefit from the improved bus facility at WUS. As explained in **Section 5.5.1.4, Intercity, Tour/Charter, and Sightseeing Buses**, this new, purpose-built facility would be integrated into the overbuild deck. It would directly open onto the train hall's lower mezzanine, where waiting areas, information displays, and other bus passenger amenities would be located. Through the train hall, bus passengers would have direct access to the multimodal connections available at WUS, including rail, Metrorail, and the pick-up and drop-off facility. This would result in a substantial improvement in passenger experience relative to the No-Action Alternative.

All intercity and tour/charter buses that serve WUS would use the facility. Based on FRA's analysis, the 38-39 slip facility would be able to accommodate all regular demand and all peak intercity demand during holidays or other times of high bus activity. During such periods, however, tour/charter bus activity may cause the facility's capacity to be exceeded. In these circumstances, buses could make use of the pick-up and drop-off area on the H Street deck level, next to the train hall. Approximately 15 buses could be accommodated in this area. **Appendix S1, Multimodal Refinement Report** provides further information on how FRA and the Project Proponents sized the bus facility to meet anticipated demand.

The Preferred Alternative would have a moderate adverse impact on hop-off/hop-on operations, which have no designated on/off boarding area in the Preferred Alternative. Hop-on/hop-off buses are marketed to, and priced for, tourists, whom they transport from landmark to landmark across the District.¹⁰⁸ There are no available data suggesting that EJ populations account for a disproportionate number of hop-off/hop-on bus passengers. The moderate adverse operational impact on hop-on/hop-off bus operations identified in **Section 5.5.1.4, Intercity, Tour/Charter, and Sightseeing Buses**, is not anticipated to disproportionately affect EJ communities.

City and Commuter Buses

As explained in **Section 5.5.1.8, City and Commuter Buses**, the Preferred Alternative would have a minor adverse direct operational impact on city and commuter buses, as increases in WUS-generated ridership would incrementally contribute to the peak-time overcrowding of some city buses. Also, increases in traffic congestion would incrementally contribute to delays experienced by all city and commuter buses.

¹⁰⁸ As of March 2023, a one-day pass for the Old Town Trolley, which stops at WUS, cost \$46.95 per person (*Washington DC Sightseeing Tours*. Accessed from <https://www.trolleytours.com/washington-dc/tickets>. Accessed on March 1, 2023.)

This would not amount to a disproportionately high and adverse impact on EJ communities. The impact would affect members of EJ populations, who make up a large proportion of bus passengers (81 percent minorities and 46 percent low-income in fiscal year 2019). However, the increase in congestion and delay attributable to the Project in the Preferred Alternative would be small relative to the No-Action Alternative, the same bus lines would be affected, and all passengers would be equally affected. Congestion would also affect all road users, not only bus riders. While there would be an impact on EJ communities, it would not be disproportionately high and adverse.

Vehicular Traffic

In the Preferred Alternative, roadway traffic around WUS would increase because of increased activity at WUS as well as general development and population growth. As shown by the results of the traffic impact analysis (**Section 5.5.1.12, Vehicular Traffic**), this would cause a degradation of operational conditions at several intersections relative to the No-Action Alternative.

Figure 5-14 shows the distribution of traffic impacts across the study area relative to the distribution of minority populations.¹⁰⁹ As explained in **Appendix C3S**, Section 17.5.1.1, *Transportation*, to determine whether these impacts would be a disproportionately high and adverse effect on EJ communities, the assessment considered:

(1) the proportion of intersections of EJ concern that would experience a major impact relative to all such intersections;¹¹⁰ and

(2) the proportion of minority residents living near an adversely affected intersection relative to the entire population of the Local Study Area.¹¹¹ The results of this assessment are summarized here. Refer to **Appendix C3S** for more details.

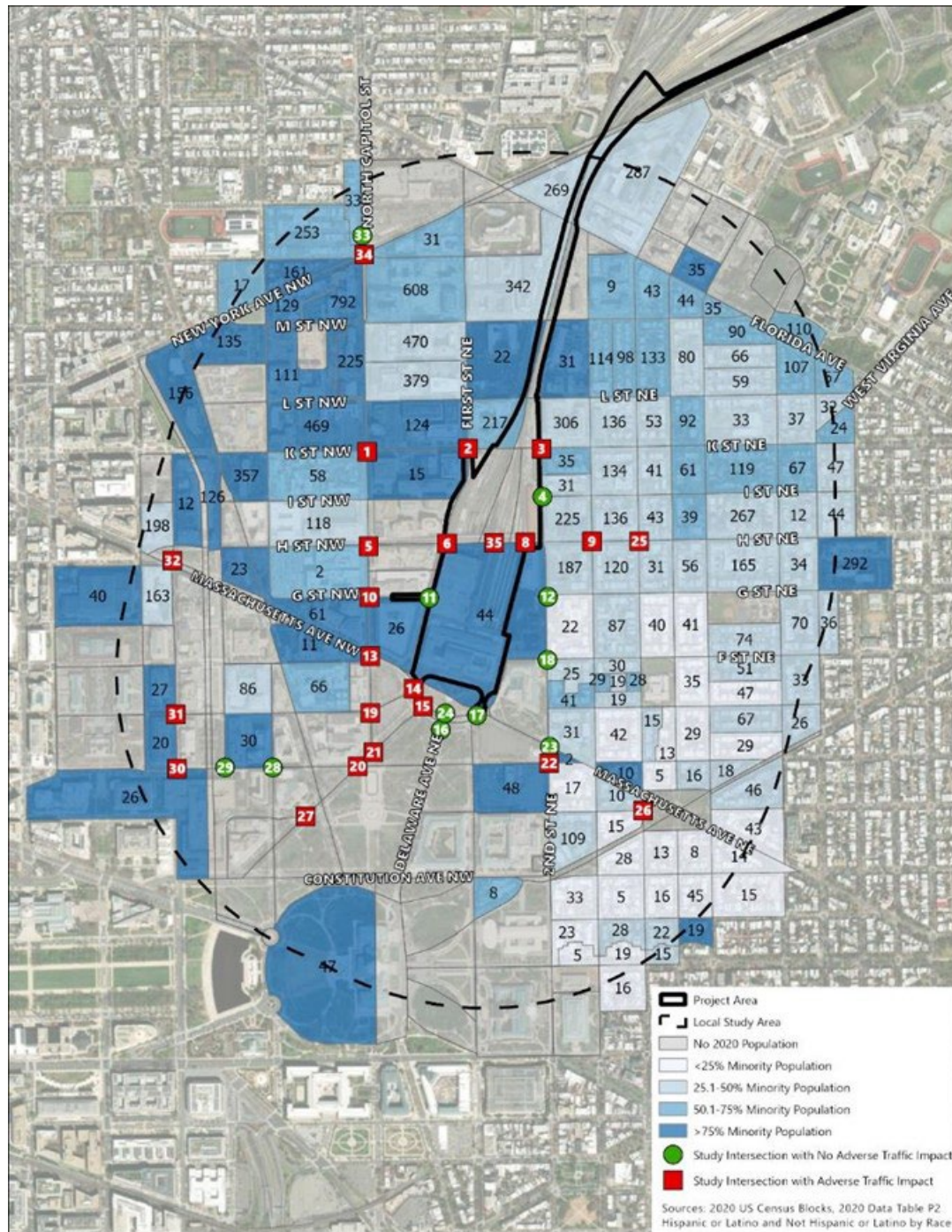
The first assessment showed that 10 out of 35 study intersections (29 percent) are intersections of EJ concern. As shown in **Table 5-45**, of these 10 intersections, 7 (70 percent) would experience a major adverse impact.

¹⁰⁹ Because of the larger Census geography used for income data (block groups instead of blocks), analysis of impacts on minorities also covers impacts on low-income populations. Therefore, the analysis focuses on minority populations.

¹¹⁰ Intersections of EJ concern are intersections in or adjacent to a Census block with more than 50 percent resident minority population.

¹¹¹ This second assessment only considers minority residents for the reason stated in the previous footnote.

Figure 5-14. Distribution of Traffic Impacts¹¹²



¹¹² Numbers are the number of minority (Non-Hispanic or Latino White or Caucasian) persons in each block per the 2020 Census.

Table 5-45. Traffic Impacts on Intersections of EJ Concern in the Preferred Alternative

Int. No.	Intersection Name	Impact		
		LOS	Queuing	Delay
1	North Capitol Street / K Street			
2	First Street / K Street NE			
3	Second Street / K Street NE			
5	North Capitol Street / H Street			
10	North Capitol Street / G Street			
28	First Street / D Street NW			
29	Second Street / D Street NW			
31	3rd Street / E Street NW			
33	North Capitol Street (SB Ramp) / New York Avenue			
34	North Capitol Street (NB Ramp) / New York Avenue			

Gray cell indicates an impact to LOS, queuing, or delay as described in **Section 5.5.1.12**, Vehicular Traffic above.

As explained in **Section 5.5.1.12**, *Vehicular Traffic*, in the Preferred Alternative, 23 of the 35 study intersections (66 percent) would experience a major impact. Six of these 23 intersection (17 percent) would degrade to LOS F from a better LOS during at least one peak period; 18 of the 23 intersections (51 percent) would experience an increase in queue length of more than 150 feet; and 18 of the 23 intersections (51 percent) would experience an increase in average delay of more than 5 seconds.

The 7 intersections of EJ concern that would experience a major impact include 4 of the 6 intersections (67 percent) that would degrade LOS F; 6 of the 18 intersections (33 percent) that would see an increase in queue length of more than 150 feet; and 7 of the 18 intersections (39 percent) that would experience delay increases of more than 5 seconds.

The second assessment (see **Table 5-46**) showed that minorities represent almost 54 percent of the persons living near an adversely affected intersection while being 45 percent of the population of the Local Study Area.

Table 5-46. EJ Population near Adversely Affected Intersections in the Preferred Alternative

Int. No.	Impacted Intersection	Impact ¹			Affected Population		
		LOS	Queuing	Delay	Minority Pop. ²	Total Pop.	% Minority
1	North Capitol Street / K Street	X	X	X	666	713	93%
2	First Street / K Street NE	X	X	X	356	547	65%
3	Second Street / K Street NE	X	X	X	341	863	40%
5	North Capitol Street / H Street		X	X	120	301	40%
6	WUS West Intersection / H Street NE	X	X	X	44	48	92%
8	WUS East Intersection / H Street NE		X	X	44	48	92%
9	3rd Street / H Street NE		X	X	668	2,049	33%
10	North Capitol Street / G Street	X	X	X	89	100	89%

Int. No.	Impacted Intersection	Impact ¹			Affected Population		
		LOS	Queuing	Delay	Minority Pop. ²	Total Pop.	% Minority
13	North Capitol Street / Massachusetts Avenue	X	X	X	98	109	90%
22	Second Street / D Street NE			X	67	162	41%
25	4th Street / H Street NE		X		330	901	37%
26	Massachusetts Avenue / C Street / 4th Street NE			X	25	152	16%
30	3rd Street / I-395 On-ramp / D Street NW		X		46	55	84%
31	3rd Street / E Street NW		X	X	47	59	80%
32	3rd Street / Massachusetts Avenue/ H Street NW			X	163	581	28%
34	North Capitol Street (NB Ramp) / New York Avenue			X	2,007	2,807	71%
TOTAL					5,111	9,495	53.7%
Total Study Area					12,774	27,465	45%

1. "X" under any of the three indicators indicates a major impact in the Preferred Alternative.

2. Non-Hispanic or Latino White or Caucasian.

Several considerations are relevant to help determine whether these findings mean that there would be disproportionately high and adverse impacts to EJ populations from traffic.

The affected intersections are along major thoroughfares, such as North Capitol Street and K Street NW/NE, which already carry large amounts of commuter traffic. Drivers transiting this area during peak times would be a large proportion of the persons experiencing these impacts. Local residents likely make use of these roadways to travel by car and would also be affected as well.

Local residents may also experience secondary effects from traffic, such as noise and general disturbance, including increased pedestrian and car conflicts. Outside the immediate frontage of North Capitol Street and K Street NW/NE, such impacts are most likely to occur if increased congestion leads drivers to divert through residential streets in search of short-cuts. It is reasonably likely that such traffic diversion, if it occurs, would be primarily between North Capitol Street and the downtown area, potentially affecting neighborhoods immediately to the west of North Capitol Street. WUS-bound drivers would have no incentives to cut through residential streets. In general, downtown traffic seeking to avoid North Capitol Street is more likely to use New York Avenue rather than divert through residential streets to the west of North Capitol Street. This is because opportunities to do so are limited to such thoroughfares as K Street NW and H Street NW, as other cross streets do not offer convenient alternative routes. Therefore, any impacts are likely to be felt only along these two streets, with the potentially affected areas mostly on North Capitol Street between K and M Streets NW/NE and on K Street NW/NE between Second Street NE and New Jersey Avenue NW.

The noise analysis for the Preferred Alternative indicates that noise from traffic would not increase in a perceptible manner within the Local Study Area (see also **Section 5.17.1.2, Noise and Vibration**, below). Increased traffic would result in increased air pollutant emissions, which would be concentrated at the

most congested intersections before dissipating. Based on air quality impacts conducted for the 2020 DEIS and this SDEIS, pollutant emissions are anticipated to remain within all applicable *de minimis* thresholds. Any disturbance and safety issues associated with greater traffic would be limited to the vicinity of the affected intersections. The lack of opportunities or incentives for diversion through side streets, as noted above, would limit the extent of such risks.

Additionally, the traffic impacts as presented in this SDEIS do not incorporate the effect of the mitigation measures FRA is proposing to implement, which are listed in **Table 7-1** below. The Final EIS will finalize the list of mitigation measures and present an updated evaluation of traffic impacts after mitigation. FRA anticipates that the intensity of these impacts will be reduced across the Local Study Area, including along North Capitol Street and K Street NW/NE.

FRA initiated a complementary, focused outreach effort to meaningfully engage the EJ communities potentially affected by traffic impacts, gain a better understanding of how these communities would be affected, and obtain their input in developing proportionate mitigation measures that would adequately address their concerns with respect to traffic impacts. This effort, which focuses on neighborhoods and communities west of WUS along the North Capitol Street corridor, is ongoing and includes the steps and activities shown in **Table 5-47**.

Table 5-47. Summary of Focused Outreach Activities

Step/Activity	Timeframe (all 2023)
<ul style="list-style-type: none"> Identify stakeholders to engage Identify current community leaders and interested parties of potentially affected neighborhoods to participate in focused Community Communications Committee Identify pop-up/event opportunities within the community of focus to share project information with public 	Late January/Early February
<ul style="list-style-type: none"> Hold first meeting of focused Community Communications Committee Interview stakeholders and community leaders 	Late February
<ul style="list-style-type: none"> Attend/participate in pop-up/event opportunities to share information and solicit input Conduct check in meeting with stakeholders/focused Community Communications Committee for responses to concerns and emerging concerns Hold second meeting of focused Community Communications Committee 	March
<ul style="list-style-type: none"> Attend/participate in pop-up/event opportunities to continue sharing information and solicit input Conduct check-in meetings with stakeholders/focused Community Communications Committee for responses to concerns and emerging concerns 	April

Step/Activity	Timeframe (all 2023)
<ul style="list-style-type: none"> Hold third meeting of focused Community Communications Committee (as needed) Attend/participate in pop-up/event opportunities to share information and solicit input (as needed) 	May

3277 The table shows activities through the publication of the SDEIS. Outreach will continue after that date,
3278 as appropriate. Steps completed to date are described in **Section 8.3.1 through Section 8.3.3** of this
3279 SDEIS.

3280 FRA will reevaluate the effects from traffic increases on EJ communities in the Final EIS based on impacts
3281 after mitigation and the outcomes of the focused engagement process. Based on the above
3282 considerations, at this time, FRA does not anticipate that traffic will result in a disproportionately high
3283 and adverse effect on EJ communities.

5.17.1.2 Noise and Vibration

3284 Adverse noise and vibration impacts would not be predominantly borne by EJ communities or be
3285 appreciably more severe for these communities than for non-EJ communities. Increased train and car
3286 traffic in the Preferred Alternative would cause increases in operational noise throughout the Local
3287 Study Area. As explained in **Section 5.10.1.1, Operational Noise**, increases in noise levels would not
3288 cause any exceedance of the applicable FTA threshold for a severe noise impact. There would be a
3289 moderate impact at 14 locations. Increases in volumes would be less than 3 dBA, which is barely
3290 perceptible, except at one location. At a modeled receptor near 1255 Union Street NE, there would be a
3291 noticeable increase in noise levels of about 9 dBA. This single impact would not constitute a
3292 disproportionately high and adverse impact on EJ communities.

5.17.1.3 Social and Economic Conditions

3293 Relative to the No-Action Alternative, the Preferred Alternative would have a major beneficial impact on
3294 local communities by improving community cohesion and providing new pedestrian connections
3295 between WUS and the surrounding neighborhoods. The Preferred Alternative would result in more and
3296 improved bus and train service at WUS. It would provide enhanced connections between the
3297 neighborhoods to the east and west of WUS as well as make the station more accessible to pedestrians,
3298 bicycles, and persons with reduced mobility.

3299 The Preferred Alternative would establish more direct and safer pedestrian and bicycle east-west
3300 connections across the rail terminal south of K Street NE, via the new H Street Concourse. In addition to
3301 better access to land uses to the east of WUS, including retail on H Street NE and community uses (such
3302 as the Kaiser Permanente Medical Center), the concourse would also provide better access to the new
3303 retail and various multimodal transportation connections at WUS for people coming from northwest of
3304 the station.

While there would be increases in peak hour vehicular traffic along several thoroughfares around WUS, including North Capitol Street, K Street NE, First Street NE, and Second Street NE (see the analysis of traffic impacts in **Section 5.5.1.12, Vehicular Traffic**), continued implementation of the District Vision Zero strategy would help maintain safe pedestrian and bicycle travel through the area.¹¹³ Increased congestion along major thoroughfares would not offset the benefits from new and improved connections.

The Preferred Alternative also would have positive economic impacts through the addition of new retail space at WUS and the intensification of train operations (see **Section 5.14.2.2, Community Disruption and Other Social Benefits or Impacts**), adding up to approximately 1,421 new jobs at WUS. Minority and low-income persons would enjoy these benefits as much as the general population. There is no reason to think that minority or low-income populations would experience disproportionately high and adverse impacts from the reduction in the size of the private air rights development that would occur in the Preferred Alternative relative to the No-Action Alternative.

5.17.2 Construction Impacts

Construction of the Preferred Alternative would not have disproportionately high and adverse impacts on EJ communities.

5.17.2.1 Transportation

Intercity Buses

As explained in **Section 5.5.3.4, Intercity, Tour/Charter, and Sightseeing Buses**, impacts on intercity bus operations would be concentrated in Phases 3 and 4 of construction. During Phase 3, which would last for approximately 2 years and 8.5 months, the relocation of the facility within the existing parking structure would create some disruptions although operations would generally be able to continue. At the beginning of Phase 4, the entire existing bus facility and parking garage would be demolished. There would be no permanent bus facility at WUS until the completion of the new facility at the end of Phase 4. Phase 4 would last for approximately 4 years and 3 months.

As explained in Section 5.11.7.2, *Bus*, of **Appendix S2, Description of Alternative F**, during Phase 3 if needed and during Phase 4, a temporary bus facility or temporary bus loading zones would be established on the completed portion of the structural deck, including the private air rights deck. FRA confirmed with the private air rights developer that this approach is feasible.

Such interim bus facilities would be sufficient to maintain adequate intercity and charter bus service at WUS until the new facility is operational. They would not provide the same amenities as the new facility and, depending on their location may increase the distance to the front of the station. This would be a moderate adverse impact, as service would continue and intermodal connections would remain available throughout. USRC would work with the private air rights developer and the bus carriers to

¹¹³ District of Columbia. *Vision Zero DC*. Accessed from <https://visionzero.dc.gov/>. Accessed on January 23, 2023.

ensure that the temporary facilities are sited and designed in a manner that provides users with the highest reasonably achievable level of comfort.

As explained in **Appendix C3S**, Section 17.5.1.1, *Transportation*, available data suggest that EJ populations rely on the bus for intercity travel appreciably more than non-EJ populations. The temporary facilities would adequately accommodate intercity bus travel during Phase 4. Therefore, there would not be any reduced opportunities for members of EJ communities to travel by bus between the demolition of the existing bus facility and the completion of the new one. All bus facility users would experience temporary moderate adverse impacts due to limited user amenities while waiting for or unboarding from a bus. Such experiences would be short and occasional for most riders regardless of their EJ status. Therefore, construction of the Preferred Alternative would not result in disproportionately high and adverse impacts on EJ communities with respect to intercity buses.

Vehicular Traffic

As explained in **Section 5.5.3.12**, *Vehicular Traffic*, construction activities at WUS would generate traffic to and from the Project Area throughout the day during the entire construction period. The volume and nature of this traffic would vary depending on the construction phase and type of activities being conducted. It would be greatest during excavations activities, when up to 120 trucks per 20-hour day could be traveling to and from the site. This is a maximum, conservative estimate that assumes that no work trains would be used to haul spoils away.

As part of the Construction Transportation Management Plan that USRC, the Project Sponsor, would prepare for the Project, construction trucks would be required to avoid residential neighborhoods and travel only along designated truck routes, with the exception of short stretches of First and Second Streets NE to reach the nearest designated route. Therefore, trucks would not travel through neighborhoods in a manner that could result in disproportionately high and adverse impacts on EJ communities.

5.17.2.2 Noise and Vibration

Construction of the Preferred Alternative would cause noise and vibrations. The construction noise impact analysis (**Section 5.10.3**, *Construction Impacts*) for the Preferred Alternative shows that there would be major construction noise impacts at up to 43 receptor locations, including residential and commercial uses, where noise levels would exceed the FTA criteria for moderate or severe impacts during SOE construction, which would be the noisiest activity. Most of the affected receptors are located close to the edge of the rail terminal, within which the work would take place, along First and Second Streets NE south of L Street and west of 3rd Street NE.

Some minority or low-income persons and locations of significance to EJ populations would experience severe or moderate noise impacts, with a cluster of impacted receptors between K and I Streets NE, just east of the rail terminal. However, due to their narrow geographical range, these impacts would not be predominantly borne by EJ communities or be appreciably more severe for these communities than for non-EJ communities. Measures that would be implemented to avoid, minimize, or mitigate noise impacts would reduce impacts on EJ as well as non-EJ communities.

Construction would also generate vibration. Modeling indicated that the greatest levels of vibration would be along the eastern side of the Project Area (affecting the REA Building and the Kaiser Permanente Medical Center) as well as near the City Post Office (Postal Museum), on the west side. Vibration from truck traffic is expected to generate annoyance at 14 locations close to New York Avenue, North Capitol Street, G Street NE, and Second Street NE. These locations are not concentrated in areas with large minority or low-income populations. While minority or low-income people may experience annoyance-generating vibration levels, vibration impacts would not be predominantly borne by EJ populations or be appreciably more severe for these populations than for non-EJ communities.

5.17.2.3 Social and Economic Conditions

There is a substantial population of people experiencing homelessness near WUS. If such a population is still present when construction of the Preferred Alternative begins, they would likely be displaced. Because of the transient, mobile, and changing character of the homeless population, as well as evolving economic conditions and District policies, no data are available to adequately determine how many people this would affect and whether it would amount to a disproportionately high and adverse impact on EJ communities. Some homeless persons may relocate to nearby areas while other may travel further. Nearby homelessness assistance resources would remain available to those who need them.

5.17.3 Summary of Impacts

After implementation of the focused outreach plan and mitigation of the traffic impacts, no disproportionately high and adverse impacts on EJ communities are anticipated. The Preferred Alternative would likely require the displacement of any homeless persons who would be using the area around WUS when construction begins.

5.18 Cumulative Impacts

This section describes the cumulative impacts of the Preferred Alternative.¹¹⁴ The Preferred Alternative would result in direct and indirect adverse or beneficial impacts on a range of resources, as described in prior impact sections. Under NEPA, a cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes

¹¹⁴ The analysis follows the same methodology as used in the 2020 DEIS. As noted in Section 18.4, *Methodology*, of **Appendix C3S**, the list of reasonably foreseeable development projects in the cumulative impact study area was reviewed and updated. Together, these projects would add approximately 13,060 residential units, 685,700 square feet of retail, 8,056,000 million square feet of office space, and 2,940 hotel rooms to the vicinity of WUS. This level of foreseeable development is similar to what was used for the 2020 DEIS cumulative impact analysis.

3396 such other actions. Cumulative impacts can result from individually minor but collectively significant
3397 actions taking place over a period of time.”¹¹⁵

5.18.1 Natural Ecological Systems

3398 **The Project would have no cumulative impacts on natural ecological systems.**

3399 The Preferred Alternative would not have any long-term impacts on natural ecological systems due to
3400 the lack of natural resources in or near the Project Area. The Preferred Alternative would generate no
3401 cumulative impacts to natural ecological systems.

5.18.2 Water Resources and Water Quality

5.18.2.1 Surface Waters

3402 **In the Preferred Alternative, when considered with past, present, and reasonably foreseeable actions,**
3403 **the Project would have a negligible adverse cumulative impact on surface waters.**

3404 The Preferred Alternative would generate wastewater that would be conveyed through DC Water’s
3405 combined sewer system to either Blue Plains or, during larger storms, combined sewer overflow (CSO)
3406 outfalls in the Anacostia River. This could result in a slightly greater risk of untreated wastewater being
3407 released into the Anacostia River relative to what past, present, and reasonably foreseeable actions
3408 would cause without the Project. The contribution of the Preferred Alternative to wastewater
3409 generation in the District would be very small and the risk would be substantially reduced by the
3410 completion of the Clean Rivers Project. The adverse cumulative impact on surface waters would be
3411 negligible.

5.18.2.2 Groundwater

3412 **In the Preferred Alternative, when considered with past, present, and reasonably foreseeable actions,**
3413 **the Project would have a moderate adverse cumulative impact on groundwater.**

3414 The Preferred Alternative would add to the local adverse impacts of past, present, and reasonably
3415 foreseeable projects on groundwater because of construction-related and operational dewatering. The
3416 rate of dewatering in the Preferred Alternative would be an estimated 220 to 280 gallons per minute
3417 (gpm) during construction and an estimated 20 to 30 gpm in the long term (operational phase). This has
3418 the potential to aggravate the risk of ground settlement in the area near WUS once these impacts are
3419 added to those of past, future, and reasonably foreseeable actions. While data indicate declines in

¹¹⁵ 40 CFR 40 CFR § 1508.7. This SDEIS is being prepared in accordance with CEQ’s regulations implementing NEPA (40 CFR Parts 1500-1508) from 1978, as amended in 1986 and 2005. CEQ comprehensively updated its NEPA implementing regulations effective September 14, 2020; the revised regulations apply to any NEPA process begun after that date. For NEPA reviews initiated prior to September 14, 2020, the lead Federal agency may continue to apply the prior regulations. CEQ is reviewing the 2020 regulations and finalized a phase 1 rulemaking in April 2022 that maintained this approach. FRA initiated the NEPA process for the Project on November 4, 2015 and is applying the CEQ regulations that were in effect at that time.

hydraulic pressure at several wells in the Patuxent Aquifer, these declines are most likely due to several large DC Water Long Term Control Plan (Clean Rivers) dewatering projects along the Anacostia River, with dewatering rates exceeding one million gallons per day at some locations. Additional groundwater withdrawal from the implementation of the Preferred Alternative is not likely to have a measurable effect. DOEE considers that long-term dewatering associated with basements and parking garages has no potential to significantly deplete groundwater.

5.18.2.3 Stormwater

In the Preferred Alternative, when considered with past, present, and reasonably foreseeable actions, the Project would have a moderate beneficial cumulative impact on stormwater infrastructure and flow.

The Preferred Alternative would upgrade stormwater management systems within the footprint of the station elements and the potential Federal air rights development to meet current District and Federal regulations. When added to similar upgrades from past, present, and reasonably foreseeable actions (which must comply with current District regulations at a minimum), this would be a beneficial impact. This beneficial impact would be moderate, as the upgraded areas would represent a relatively small part of the District.

5.18.2.4 Wastewater

In the Preferred Alternative, when considered with past, present, and reasonably foreseeable actions, the Project would have a minor adverse cumulative impact on wastewater generation.

The Preferred Alternative would generate wastewater because of greater passenger and visitor activity at WUS and the potential development of the Federal air rights above the rail terminal. This wastewater would be conveyed through DC Water's sewer infrastructure. Though the Preferred Alternative would add to the total wastewater generated by past, present, and reasonably foreseeable actions, this contribution would be small: approximately 89,730 gpd from the expansion of WUS; 51,810 gpd from the potential Federal air rights development; and up to 43,200 gpd from long-term dewatering, for a total of approximately 184,740 gpd; see **Tables 5-2 and 5-4**). This represents approximately 0.06 percent of the 300 million gpd that Blue Plains currently processes on average, 0.05 percent of its 384 million gpd capacity, and about 0.2 percent of its average unused daily capacity. This increase has no potential to create a capacity shortage. Adding the demand generated by the Preferred Alternative to the demand from the reasonably foreseeable projects in the cumulative impact study area (approximately 3.3 million gpd)¹¹⁶ would result in a cumulative demand representing around 4 percent of Blue Plain's unused capacity. The adverse cumulative impact would be minor.

¹¹⁶ See **Section 5.3.1.4, Wastewater**, for information on how wastewater demand is estimated based on land use.

5.18.2.5 Drinking Water

In the Preferred Alternative, when considered with past, present, and reasonably foreseeable actions, the Project would have a minor adverse cumulative impact on drinking water demand.

The Preferred Alternative would generate demand for drinking water from greater passenger and visitor activity at WUS and from the potential development of the Federal air rights above the rail terminal. Projected water demand from the Project would be approximately 155,694 gpd (see **Table 5-4**: 98,703 gpd from WUS and 56,991 gpd from the potential Federal air rights development). This would be a small addition to the demand past, present, and reasonably foreseeable projects would generate. It would represent approximately 0.1 percent of the 135 million gpd the Washington Aqueduct produces on average. This increase has no potential to create a capacity shortage. Adding the demand generated by the Preferred Alternative to the demand from the reasonably foreseeable projects in the cumulative impact study area (approximately 3.63 million gpd)¹¹⁷ would result in a cumulative demand representing approximately 3 percent of the 135 million gpd the Washington Aqueduct produces on average. The adverse cumulative impact would be minor.

5.18.3 Solid Waste Disposal and Hazardous Materials

5.18.3.1 Municipal Solid Waste

In the Preferred Alternative, when considered along with past, present, and reasonably foreseeable actions, the Project would have a minor adverse cumulative impact on municipal solid waste generation.

The Preferred Alternative would generate municipal solid waste from increased numbers of passengers and visitors at WUS (approximately 2,262 tpy) as well as from the potential development of the Federal air rights above the rail terminal (approximately 1,865 tpy), for a total of approximately 4,527 tpy. This would be a small addition to the waste produced in the District by past, present, and reasonably foreseeable actions, as it would represent approximately 0.4 percent of the 1,139,846 tons of waste produced in the District in 2018 and 0.002 percent of the 248.3 million tons of landfilling capacity in Virginia alone in late 2020. The increase from the Preferred Alternative is not likely to cause capacity problems at disposal facilities. Adding the demand generated by the Preferred Alternative to the demand anticipated to result from the reasonably foreseeable projects in the cumulative impact study area (approximately 69,370 tpy)¹¹⁸ would result in a cumulative demand representing approximately 0.03 percent of landfilling capacity in Virginia alone in late 2020. The adverse cumulative impact would be minor.

¹¹⁷ See **Section 5.3.1.5, Drinking Water**, for information on how drinking water demand is estimated.

¹¹⁸ See **Section 5.4.1.1, Municipal Solid Waste**, for information on how solid waste generation is estimated based on land use.

5.18.3.2 Hazardous Materials and Waste

In the Preferred Alternative, when considered along with past, present, and reasonably foreseeable actions, the Project would have a minor adverse and beneficial cumulative impact on hazardous materials and waste.

The Preferred Alternative would involve excavating the rail terminal and disposing of soil that is likely to be contaminated. Approximately 1.5 million cubic yards of soil would be removed. The removal and disposal of potentially contaminated soils in accordance with applicable regulations would positively contribute to the cumulative removal or cleaning up of legacy hazardous material issues in the District. This beneficial cumulative impact would be minor because of the likely limited level of contamination that would be encountered and removed.

The Preferred Alternative would increase the amount of hazardous material stored and used at WUS, in addition to what would be stored and used in past, present, and reasonably foreseeable developments and projects. While this increase would be an adverse cumulative impact, the storage, utilization, and disposal of hazardous materials would continue to be performed in compliance with applicable laws, regulations, and policies. The adverse cumulative impact would be minor.

5.18.4 Transportation

The analysis of transportation impacts in **Section 5.5.1, *Direct Operational Impacts***, incorporates background growth from past, present, and reasonably foreseeable actions in its No-Action baseline. Therefore, all transportation impacts as described in **Section 5.5.1** are also cumulative impacts of the Preferred Alternative. The transportation impacts are summarized in **Table 5-19** and detailed in **Appendix C3S, Section 18.5.5.2**.

5.18.5 Air Quality

In the Preferred Alternative, considered with other past, present, and reasonably foreseeable actions, the Project would cause a minor adverse cumulative impact on regional air quality.

The Preferred Alternative would generate additional emissions of criteria pollutants from mobile sources relative to the No-Action Alternative. The No-Action Alternative air quality analysis incorporated emissions from mobile sources associated with past, present, and reasonably foreseeable actions through the inclusion of background traffic in the traffic analysis. Therefore, total emissions under the Preferred Alternative represent the cumulative impacts of the Project on air quality. The cumulative adverse impact would be minor, as it would not exceed the applicable *de minimis* thresholds.

5.18.6 Greenhouse Gas Emissions and Resilience

5.18.6.1 Greenhouse Gas Emissions

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would result in a major adverse cumulative impact on GHG emissions.

As explained in **Section 5.7.2, *Indirect Operational Impacts***, the Preferred Alternative would potentially generate additional annual emissions of GHG from mobile and stationary sources relative to the No-Action Alternative, including approximately 9,791 metric tons from stationary sources; approximately 3,661 metric tons from the potential Federal air rights development; and approximately 9,247 metric tons from mobile sources. Therefore, the amount of potential stationary source emissions contributed by the Preferred Alternative in addition to those of past, present, and foreseeable actions would be approximately 22,699 metric tons. This would represent approximately 0.3 percent of the District's 2019 CO₂e emissions (7,170,450 metric tons) and 0.5 percent of the District's emission target for 2032 (4,614,141 metric tons). While a small increment, any net increase in GHG emissions would be a major adverse impact in the context of the District's goal to achieve carbon neutrality by 2045.

5.18.6.2 Resilience

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would result in a beneficial cumulative impact on resilience.

The Preferred Alternative, when added to past, present, and foreseeable actions, would increase District-wide resilience, resulting in a beneficial cumulative impact. Specifically, it would contribute to fulfilling one of *Resilient DC's* initiatives, which is to "call on regional transit providers (WMATA, MARC, VRE, Circulator) to improve regional integration (such as coordinated schedule, *increased Union Station capacity and frequency*, fare integration, free transfers) and expand night and weekend service for key residential and employment zones" (emphasis added). The Project would incorporate features that enhance its resilience (see **Section 5.7.3, *Resilience***). As such, it would cumulatively contribute to improving local resiliency.

5.18.7 Energy Resources

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would cause a minor adverse cumulative impact on energy resources.

The Preferred Alternative would cause an increase in energy use at WUS to light, heat, cool, and ventilate the expanded station. As explained in **Section 5.8.1.1, *Buildings***, the additional amount of energy used at WUS would be approximately 72,904,000 kBTUs. As explained in **Section 5.8.2.1, *Potential Federal Air Rights Development***, the potential Federal air rights development would use approximately 27,600,000 kBTUs. Total additional consumption associated would be approximately 100,504,000 kBTUs per year. This would be a small increment over consumption from past, present, and reasonably foreseeable actions, representing approximately 0.07 percent of the District's 2020 energy consumption of 144 billion kBTUs. This increase is not likely to cause energy shortages or other issues. Adding the demand generated by the Preferred Alternative to the demand from the reasonably foreseeable projects in the cumulative impact study area (approximately 1.358 billion kBTUs)¹¹⁹ would

¹¹⁹ See **Section 5.8.1.1, *Buildings***, for information on how energy demand is estimated based on land use.

3539 result in a cumulative demand representing approximately 1 percent of the District's 2020 energy
3540 consumption. The adverse cumulative impact would be minor.

5.18.8 Land Use, Land Planning, and Property

5.18.8.1 Zoning, Land Use, and Development

3541 **In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable**
3542 **actions, the Project would have a major beneficial cumulative impact on land use.**

3543 The expansion of WUS in the Preferred Alternative would enhance WUS's functionality as a multimodal
3544 facility and improve connectivity among the neighborhoods on either side of the rail terminal. The
3545 expanded station would accommodate increased intercity and commuter train service, which in turn
3546 would support nearby existing and future residential and commercial developments by making the area
3547 more accessible. The Preferred Alternative would also make available for potential mixed-use
3548 development the Federally owned air rights currently occupied by the WUS parking garage. The
3549 Preferred Alternative would render the neighborhoods around WUS more accessible and better
3550 connected which each other and the rest of the District. Together with past, present, and reasonably
3551 foreseeable actions, it would contribute to the continuing development of the areas around WUS, a
3552 major beneficial cumulative impact.

5.18.8.2 Property Ownership, Land Acquisitions, and Displacements

3553 **In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable**
3554 **actions, the Project would result in a minor adverse cumulative impact on private property.**

3555 The Preferred Alternative would use approximately 2.9 acres of the privately owned air rights above the
3556 WUS rail terminal. No past, present, and reasonably foreseeable actions have had or would have
3557 impacts on these air rights. The Project's cumulative impacts on property are the impacts of the Project
3558 alone. These impacts would be minor.

5.18.8.3 Consistency with Local and Regional Plans

3559 **In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable**
3560 **actions, the Project would have a major beneficial cumulative impact on community planning through**
3561 **its consistency with local and regional plans.**

3562 The Preferred Alternative would be consistent with and support many of the relevant plans' goals and
3563 objectives, especially those pertaining to transportation and connectivity. These impacts, when added to
3564 those of past, present, and reasonably foreseeable actions, would result in beneficial cumulative
3565 impacts.

5.18.9 Noise and Vibration

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would cause negligible adverse impacts on noise and vibrations, except at 14 modeled locations, where it would result in moderate adverse cumulative impacts on noise levels.

The Preferred Alternative would generate additional noise and vibration because of the associated increase in train and motor vehicle traffic. The noise analysis conducted for the Preferred Alternative is cumulative in that it incorporates noise from present and reasonably foreseeable traffic, along with that associated with the Project. The analysis shows that noise levels would generally be within 1 to 3 dBA of No-Action Alternative levels, which is an imperceptible difference; noise levels would continue to range from 60 to 75 dBA, typical of an urban environment. Similarly, vibration levels from trains would not perceptibly change. Therefore, the cumulative adverse impacts of the Project would be negligible except at the 14 modeled locations, where increases would bring noise levels above the thresholds for a moderate impact (see **Section 5.10.1, Operational Noise**).

5.18.10 Aesthetics and Visual Quality

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have potential negligible to moderate cumulative adverse and beneficial impacts on aesthetics and visual quality, depending on the location.

In general, the Preferred Alternative, when added to past, present, and future reasonably foreseeable actions, would introduce new visual elements in the Project Area that would be visible from areas near WUS. However, the private air rights development would surround, obscure, encompass, or balance these elements, reducing their visibility. The visual impact analysis conducted for the Preferred Alternative is cumulative in that it considers the private air rights development when assessing anticipated changes in views. This development is the only other project through which the Preferred Alternative would generate noticeable cumulative impacts. The visual impact analysis shows that it may adversely affect 9 of the 28 views and vistas considered in the analysis, with impacts ranging from moderate to negligible. The Project may also have beneficial impacts on two views.

5.18.11 Cultural Resources

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have potential major cumulative adverse impacts on WUS and the WUS Historic Site.

The Preferred Alternative, when added to past, present, and reasonably foreseeable actions, would result in major cumulative adverse impacts on WUS, the WUS Historic Site, the REA Building, and the City Post Office (Postal Museum), as explained in **Section 5.12.1, Direct Operational Impacts**. Because of the reconstruction of the rail terminal and column removal work, the Project would also increase the risk of major potential adverse impacts on archaeological resources if any are present. As much as possible, these impacts would be avoided, minimized, or mitigated through the Section 106 process.

5.18.12 Parks and Recreation Areas

5.18.12.1 Cumulative Impacts of the Project

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have minor cumulative adverse impacts on parks and recreation areas.

The Preferred Alternative would generate more activity at WUS, bringing more people to the area. Some of these people may use local parks and recreation areas, leading to accelerated wear and tear and increased maintenance costs. The increase in visits and foot traffic attributable to the Project would likely be small, however, and cumulative adverse impacts would be minor.

5.18.13 Social and Economic Conditions

5.18.13.1 Demographics

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would result in a minor cumulative impact on demography.

The Preferred Alternative would add residents to the Project Area through the potential development of the Federal air rights. It may also indirectly cause more people to move to areas near WUS by improving connectivity through, and increasing activity at, WUS, although this impact cannot be quantified. Some of the potentially induced growth may be accommodated by the residential component of the reasonably foreseeable projects, which include approximately 13,060 new residential units. In the context of the District as a whole, the impact would be minor.

5.18.13.2 Community Disruption and Other Social Benefits or Impacts

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would result in a major beneficial cumulative impact with regard to community disruption and other social benefits.

The Preferred Alternative, when added to past, present, and reasonably foreseeable actions, would have a major beneficial impact by providing more and better intermodal connectivity that would benefit the Project Area, its surroundings, and the District as a whole. It would make the Study Area more accessible, providing residents and employees with improved commuting options. This would support ongoing and future development and help address the consequences of this development on the transportation system. The Project would also directly contribute additional economic activity through new retail at WUS, though it would be a small increase to the area's past, present, and planned retail. The Project would also potentially lead to the development of the remaining Federal air rights above the rail terminal, further contributing to the economic development of the Study Area and the District.

5.18.13.3 Employment

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have a minor beneficial cumulative impact on employment.

As explained in **Section 5.14.1.3, *Employment***, the Preferred Alternative would add approximately 1,421 jobs at WUS; as explained in **Section 5.14.2.3, *Employment***, the potential Federal air rights development would add approximately another 1,290 jobs to the Project Area, resulting in a total (after rounding) of approximately 2,710 jobs that would be added to those associated with past, present, and reasonably foreseeable actions. While this would be a beneficial cumulative impact, it would be minor compared to overall present and future employment in the District.

5.18.13.4 Washington Union Station Revenue

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have a major adverse cumulative impact on WUS revenue.

The Preferred Alternative would reduce the number of parking spaces at WUS by approximately 75 percent, thereby reducing the station's revenue by more than half. No other past, present, and reasonably foreseeable actions have had or would have any substantial impacts on WUS revenue. The Preferred Alternative's cumulative impact is the impact of the Project alone. This impact would be major.

5.18.13.5 Other Economic Impacts

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have a minor beneficial cumulative impact on economic conditions.

The Preferred Alternative would have beneficial cumulative impacts on the economy through the economic activity it would support and promote at WUS and in the District, in addition to the activity supported by the past, present, and foreseeable actions in the area. The spending of Project-generated private and commercial income would in turn generate more economic activity both locally and regionally. This activity would generate revenue for the District through sales, property taxes, and income taxes. While these economic and fiscal benefits cannot be quantified, they likely would be proportionately minor in the context of the District's economy.

5.18.14 Public Safety and Security

In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable actions, the Project would have a major beneficial impact on security and a moderate adverse impact on public safety.

As explained in **Section 5.15.1, *Direct Operational Impacts***, the Preferred Alternative would create new security risks at WUS but also provide the opportunity to enhance security measures there. This would result in a major beneficial cumulative impact on security in the area, given WUS's central and highly visible presence, and its potential as a target.

The Preferred Alternative would also have an adverse cumulative impact on safety, as it would add further to the demand for emergency services that past, present, and foreseeable actions would generate. However, emergency services would have time to plan for increases in personnel and equipment need. The adverse impact would be moderate.

5.18.15 Public Health, Elderly, and Persons with Disabilities

3660 In the Preferred Alternative, when considered with other past, present, and reasonably foreseeable
3661 actions, the Project would have a negligible cumulative impact on public health and a major beneficial
3662 cumulative impact on the transportation and mobility of the elderly and persons with disabilities at
3663 WUS.

3664 As explained in **Section 5.16.1**, *Direct Operational Impacts*, the Preferred Alternative would have
3665 negligible adverse impacts on health. It would not create conditions that would directly threaten or
3666 diminish public health when considered with other past, present, and reasonably foreseeable actions.
3667 The Project would also have a major cumulative beneficial impact on the mobility of the elderly and
3668 persons with disabilities at WUS.

6 Draft Section 4(f) Evaluation

6.1 Introduction

3669 This section supplements or updates the following sections of the Draft Section 4(f) Evaluation
3670 contained in the 2020 Draft Environmental Impact Statement (2020 DEIS):¹²⁰

- 3671 ■ Section 6.6, *Use of Section 4(f) Properties*
- 3672 ■ Section 6.7, *Avoidance Alternatives Analysis*
- 3673 ■ Section 6.8, *Least Overall Harm Analysis*
- 3674 ■ Section 6.9, *Minimization and Mitigation of Harm*
- 3675 ■ Section 6.10, *Consultation to Date*

6.2 Section 4(f) Applicability

3676 Refer to 2020 DEIS, Section 6.2.

6.3 Project Purpose and Need

3677 Refer to 2020 DEIS, Section 6.3.

6.4 Action Alternatives

3678 Refer to 2020 DEIS, Section 6.4. A description of the Preferred Alternative is provided in Chapter 3 of this
3679 SDEIS.

6.5 Section 4(f) Properties

3680 Refer to 2020 DEIS, Section 6.5.

¹²⁰ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 6, *Draft Section 4(f) Evaluation*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-6-draft-section-4f-evaluation>.

6.6 Use of Section 4(f) Properties

6.6.1 Introduction

3681 Refer to 2020 DEIS, Section 6.6.1.

6.6.2 Public Parks, Recreation Areas, and Wildlife Refuges

3682 **Table 6-1** provides a summary of the findings of the Section 4(f) use analysis for the public parks and
3683 recreation areas the Preferred Alternative has the potential to affect. **Section 6.6.2.1**, *Columbus Plaza*
3684 through **Section 6.6.2.4**, *Upper and Lower Senate Parks* present the analysis.

Table 6-1. Summary of Use Analysis: Public Parks and Recreation Areas in Preferred Alternative

Section 4(f) Property	Incorporation Analysis	Temporary Occupancy Analysis	Constructive Use Analysis
Columbus Plaza	No use	No use	No use
Metropolitan Branch Trail	No use	No use	No use
Playground at Capitol Hill Montessori (Public School)	No use	No use	No use
Upper and Lower Senate Parks	No use	No use	No use

6.6.2.1 Columbus Plaza

Permanent Incorporation Analysis

3685 The Preferred Alternative would not permanently incorporate Columbus Plaza into a transportation
3686 facility. The improvements to the traffic lanes that separate the plaza from the historic station building
3687 would take place within the existing right-of-way and would not require using any part of the plaza.
3688 There would be no changes to the physical or visual relationship of Columbus Plaza to Washington
3689 Union Station (WUS).

Temporary Occupancy Analysis

3690 The Preferred Alternative would not require temporarily physically occupying Columbus Plaza. During
3691 construction of the improvements to the traffic lanes between the historic station building and the
3692 property, staging and storage areas would be outside the plaza. Construction activities would
3693 temporarily limit pedestrian circulation between Columbus Plaza and the front of WUS. In general,
3694 construction activities on the adjacent roadways and along the sides of the historic station building
3695 would make Columbus Plaza temporarily less attractive to visitors. Columbus Plaza would remain
3696 accessible from the south at all times. Construction would not affect the activities, features, and
3697 attributes that qualify Columbus Plaza for protection under Section 4(f). There would be no temporary
3698 occupancy of Columbus Plaza.

Constructive Use Analysis

3699 The Preferred Alternative would not severely impact any of the important features, activities, or
3700 attributes that qualify Columbus Plaza for protection under Section 4(f) and substantially impair this
3701 resource. The Project would result in additional air pollutant emissions, as described in **Section 5.6.1,**
3702 *Direct Operational Impacts* and **Section 5.6.2, Indirect Operational Impacts.** However, all emissions
3703 would remain below the applicable General Conformity *de minimis* thresholds and activities or
3704 attributes of Columbus Plaza would not be severely impacted.

3705 The Project would also result in slight increases in noise levels (less than 3 A-weighted decibels,
3706 generally imperceptible) resulting in no impact on Columbus Plaza, as described in **Section 5.10.1, Direct**
3707 *Operational Impacts* and depicted in **Figure 5-2.**

3708 The Preferred Alternative would result in a negligible adverse impact to the view from Columbus Plaza,
3709 as explained in **Section 5.11.1, Indirect Operational Impacts.** This negligible adverse impact would not
3710 severely impact any important features, activities, or attributes that qualify Columbus Plaza for
3711 protection under Section 4(f) and substantially impair or diminish this resource.

6.6.2.2 Metropolitan Branch Trail

Permanent Incorporation Analysis

3712 The Preferred Alternative would not permanently incorporate the Metropolitan Branch Trail into a
3713 transportation facility.

Temporary Occupancy Analysis

3714 Construction of the Project in the Preferred Alternative would likely require the temporary closure of
3715 the segment of the Metropolitan Branch Trail that runs on the Second Street NE sidewalk between H
3716 Street and K Street NE due to work in the vicinity of the right-of-way and the associated traffic in and
3717 out of the construction site. Such closures would occur throughout the first phase of construction only.
3718 Although their aggregated duration is not known at this time, closures would occur during just a fraction
3719 of the phase. They would affect only a small portion of the 8-mile trail, which would be entirely
3720 unaffected north of K Street. Additionally, construction work would not occur on the east and west sides
3721 of WUS at the same time because of the east-west phasing of construction. Therefore, during Phase 1 of
3722 construction, access to the trail would remain available via the First Street cycle track. Union Station
3723 Redevelopment Corporation (USRC), the Project Sponsor, would coordinate with the District
3724 Department of Transportation (DDOT), the official with jurisdiction over the Metropolitan Branch Trail,
3725 to clearly signal temporary detours or alternative routes. As needed, after construction in the vicinity of
3726 the trail is complete, any temporarily physically affected segment of the trail would be returned to its
3727 prior condition or better. There would be no permanent adverse physical impacts. The activities,
3728 features, and attributes that qualify the Metropolitan Branch Trail for protection under Section 4(f)
3729 would not be affected.

Constructive Use Analysis

The Preferred Alternative would not result in effects that would severely impact any of the important features, activities, or attributes that qualify the Metropolitan Branch Trail for protection under Section 4(f) and substantially impair this resource. The Project would result in additional air pollutant emissions, as described in **Section 5.6.1, Direct Operational Impacts** and **Section 5.6.2, Indirect Operational Impacts**. However, all emissions would remain below the applicable General Conformity *de minimis* thresholds and activities or attributes of the trail would not be severely impacted.

The Project would also result in slight increases in noise levels (less than 3 A-weighted decibels, generally imperceptible), resulting in a moderate adverse impact at receptor locations on Second Street NE across from the trail, as shown in **Section 5.10.1, Direct Operational Impacts** and illustrated in **Figure 5-4**. The slight increase in noise would not severely impact important features, activities, or attributes the Metropolitan Branch Trail, a facility located in an urban setting.

The Project in the Preferred Alternative would not result in adverse visual impacts on the Metropolitan Branch Trail. Views from the east side of WUS toward the station and the trail would experience no visual impacts (see **Appendix C3aS, Aesthetics and Visual Quality: Supplemental Visual Assessment**). Visual changes from the Preferred Alternative would not severely impact any important features, activities, or attributes that qualify the Metropolitan Branch Trail for protection under Section 4(f) or substantially impair this resource.

6.6.2.3 Playground at Capitol Hill Montessori (Public School)

Permanent Incorporation Analysis

The Preferred Alternative would not permanently incorporate the Capitol Hill Montessori Playground into a transportation facility.

Temporary Occupancy Analysis

The Preferred Alternative would not require temporarily physically occupying the Capitol Hill Montessori Playground. The playground is located approximately 600 feet from the Project Area.

Constructive Use Analysis

The Preferred Alternative would not result in effects that would severely impact any important features, activities, or attributes that qualify the Capitol Hill Montessori Playground for protection under Section 4(f) and substantially impair this resource. The Project would result in additional air pollutant emissions, as described in **Section 5.6.1, Direct Operational Impacts** and **Section 5.6.2, Indirect Operational Impacts**. However, all emissions would remain below the applicable General Conformity *de minimis* thresholds and activities or attributes of the playground would not be severely impacted.

The Preferred Alternative would also result in slight increases in noise levels (less than 3 dBA, generally imperceptible). No receptors near the playground would experience an impact (see **Section 5.10.1, Direct Operational Impacts** and **Figure 5-4** above). The Project would not be visible from the Capitol Hill

3760 Montessori Playground. The Preferred Alternative would not severely impact any important features,
3761 activities, or attributes that qualify the Capitol Hill Montessori Playground for protection under Section
3762 4(f) or substantially impair this resource.

6.6.2.4 Upper and Lower Senate Parks

Permanent Incorporation Analysis

3763 The Preferred Alternative would not require using any part of the Upper and Lower Senate Parks or
3764 result in their permanent, whole or partial incorporation into a transportation facility. This property is
3765 located approximately 420 feet south of WUS.

Temporary Occupancy Analysis

3766 The Preferred Alternative would not require temporarily physically occupying the Upper and Lower
3767 Senate Parks.

Constructive Use Analysis

3768 The Preferred Alternative would not result in effects that would severely impact any of the important
3769 features, activities, or attributes that qualify the Upper and Lower Senate Parks for protection under
3770 Section 4(f) and substantially impair this resource. The Project would result in additional air pollutant
3771 emissions, as described in **Section 5.6.1, Direct Operational Impacts** and **Section 5.6.2, Indirect**
3772 *Operational Impacts*. However, all emissions would remain below the applicable General Conformity *de*
3773 *minimis* thresholds and activities or attributes of the parks would not be severely impacted.

3774 The Preferred Alternative would also result in slight increases in noise levels (less than 3 A-weighted
3775 decibels, generally imperceptible). No receptors near the Upper and Lower Senate Parks would
3776 experience an impact (see **Section 5.10.1, Direct Operational Impacts** and **Figure 5-4**).

3777 In the Preferred Alternative, views along the streets that run through the Upper and Lower Senate Parks
3778 (First Street NE south of Massachusetts Avenue, Delaware Avenue NE, Louisiana Avenue NW) toward
3779 WUS would experience minor to moderate adverse impacts from the potential development of the
3780 Federal air rights north of WUS, as explained in **Section 5.11.2, Indirect Operational Impacts**. This would
3781 not severely impact important features, activities, or attributes of the Upper and Lower Senate Parks. To
3782 the north, the historic station building would remain the dominant visual elements. To the south,
3783 connections with the U.S. Capitol would not be affected. The Preferred Alternative would not severely
3784 impact any important features, activities, or attributes that qualify the Upper and Lower Senate Parks
3785 for protection under Section 4(f) or substantially impair this resource.

6.6.3 Historic Properties

The Preferred Alternative would result in a Section 4(f) use due to permanent incorporation of three historic properties:

- WUS—Listed in the National Register of Historic Places (NRHP) and District of Columbia Inventory of Historic Sites (DC Inventory);
- WUS Historic Site—Eligible for listing in the NRHP and the DC Inventory; and
- Railway Express Agency (REA) Building—Contributing element to the NHRP-eligible, WUS Historic Site, potentially eligible for listing in the NRHP, and individually eligible for listing in the DC Inventory.

Of the other historic properties that are present in the Area of Potential Effects (APE), FRA has determined that the 22 properties shown in **Table 6-2** would experience “No Adverse Effect” under Section 106 and 23 properties would experience “No Effect,” as documented in the Supplemental Assessment of Effects (SAOE) report prepared in compliance with Section 106.¹²¹ The Preferred Alternative would not result in the permanent incorporation of any of these properties in a transportation facility or require temporarily physically occupying any of them. The properties would experience either no effect or no adverse effect from the Preferred Alternative; therefore, there would be no constructive use.

One property, the City Post Office (Postal Museum) would experience a potential adverse effect, based on the high level of noise and vibration near the building during construction of the ramp on G Street NE. Any effect would be temporary (limited to a part of construction Phase 4) and avoided, minimized, or mitigated through the same monitoring measures that would be applied to WUS and the REA Building. This temporary impact would not constitute a use under Section 4(f).

These 46 properties are not discussed further. The following sections address only the three historic properties that would incur a permanent incorporation use under Section 4(f).

Table 6-2. Historic Properties with No Adverse Effect Finding under Section 106

Property Name	
C&P Telephone Company Warehouse	St Joseph’s Home (Former)
Dirksen and Hart Senate Office Buildings	St. Phillip’s Baptist Church
Government Printing Office	Suntrust Building (Former Child’s Restaurant)
Government Printing Office Warehouse No.4	Thurgood Marshall Federal Judiciary Building
Holodomor Ukrainian Holocaust Memorial	Topham’s Luggage Factory (Former)
Joseph Gales School	Uline Ice Company Plant and Arena Complex
Library of Congress, Thomas Jefferson Building	Washington Union Station Plaza and Columbus Fountain

¹²¹ The SAOE is included in this SDEIS as **Appendix D15**.

Property Name	
Russell Senate Office Building	Woodward and Lothrop Service Warehouse
Senate Parks, Underground Parking and Fountain	901 Second Street NE
Square 750 Rowhouse Development	Capitol Hill Historic District
St. Aloysius Catholic Church	L'Enfant – McMillan Plan

6.6.3.1 Washington Union Station

WUS is an example of Beaux Arts architecture designed by D.H. Burnham & Company. It consists of three primary spaces: the historic headhouse (1908); the original passenger concourse (1908), currently used for retail and Amtrak ticketing (Retail and Ticketing Concourse); and the Claytor Concourse, completed in 1988. WUS is significant for its association with railroad transportation improvements facilitated by the Washington Terminal Company. It established a monumental landscape befitting the capital city, allowed for increased safety and future rail growth, and initiated the twentieth-century development and urban design of Washington DC. The location, design, setting, materials, workmanship, feeling, and association of the Beaux-Arts building contribute to the understanding of the station as a prominent transportation hub and monumental gateway to Washington DC.

Use Analysis

The Preferred Alternative would physically impact WUS and permanently incorporate it into the expanded multimodal transportation hub the Project would construct. Because FRA determined that the Preferred Alternative would result in an adverse effect to WUS under Section 106, this Section 4(f) use does not qualify as *de minimis*.

Physical impacts would include the removal of the Claytor Concourse (built in 1988) and the construction of a new passenger concourse and train hall on the north side of the historic station building as well as and the removal of original columns in the portion of the First Street Tunnel below the historic Retail and Ticketing Concourse. While the Claytor concourse does not contribute to the historic integrity of WUS, its removal as well as the construction of the concourse and train hall would impact the north façade of the Retail and Ticketing Concourse. It is not known how much of the original fabric remains on the north elevation of the Retail and Ticketing Concourse. The original construction featured an immense opening leading to the tracks and platforms and was punctuated by nine steel-plated Doric columns with cast-iron capitals spaced evenly along its length. The view from the original passenger concourse to the north was of the rail terminal. Views of the north elevation from the rail terminal were only available to rail workers. Currently, a section of the entablature supported by the Doric columns is the only original element visible from within the Claytor Concourse. It is possible that the Doric columns remain *in situ*, encapsulated by the Claytor Concourse construction. Until the Project advances to later stages of design, the extent of the physical alterations to the north elevation of the original concourse cannot be determined. However, construction of the Project in the Preferred Alternative would adversely affect the building's overall integrity of design as it would substantially increase the mass of the station.

Further physical impacts on WUS would include the demolition of approximately 15,000 square feet of the Retail and Ticketing Concourse floor to allow for column removal in the underlying tunnel. While the current marble finish of the floor was installed in the 1980s, the floor structure is original. It is constructed of a steelwork frame and terracotta tile arches. The demolition of the original floor structure and removal of the original steel columns would affect the integrity of station.

There may also be as yet undermined physical effects related to the design of the Project, including interior changes that would affect the historic materials, design, workmanship, or circulation flow in the station. Such changes have the potential to result in adverse effects to WUS.

Additionally, physical impacts could occur during excavation activities because of the use of vibration-generating equipment. Vibratory pile driving and drill rigging may occur within approximately 10 feet of the north elevation of WUS, resulting in vibration levels of up to approximately 0.67 inches per second (in/s). The Federal Transit Administration (FTA) thresholds for potential structural damage to buildings from vibration range from 0.5 to 0.12 in/s, depending on the type of building construction. Although the historic station building was designed to facilitate train operations and may be capable of withstanding vibration levels that exceed the thresholds, its sensitivity to vibration has not been specifically determined at this stage of Project planning.

6.6.3.2 Washington Union Station Historic Site

FRA prepared a determination of eligibility for this property, which comprises approximately 60 acres and consists of four areas: Columbus Plaza, the historic Union Station building, the rail terminal, and the First Street Tunnel. The station building and Columbus Plaza are both individually listed in the NRHP and are discussed separately. This section focuses on impacts on the rail terminal and the First Street Tunnel.

The rail terminal is 760 feet wide at its greatest extent, immediately north of Union Station. It narrows along its length to 135 feet wide at its narrowest point at Florida Avenue. The length of the terminal from the station to Florida Avenue is approximately 3,725 feet or 0.7 mile. Several contributing buildings, structures, and objects that date to the terminal's original construction in 1903-1907 and to the electrification project of the 1930s are extant. These include the REA Building (discussed as an individual property below); K Tower; umbrella sheds and platforms dating from 1903-1935; retaining walls (known as the Burnham Walls); bridge underpasses and associated infrastructure; Signal Bridges H, J, and K; single catenaries dating from 1903-1935, a catenary with cross beam, P&W Ownership Marker, and pneumatic switch valves dating from 1903-1935. In addition to the visible contributing buildings, structures, and objects in the rail terminal, archaeological resources may exist below ground.

The First Street Tunnel extends 4,033 feet from the north face of Union Station to the intersection of New Jersey Avenue SE and D Street SE. The tunnel was completed in 1906 to serve the Pennsylvania Railroad rail lines south of the District. It runs below the station along First Street NE and SE until C Street SE, where it turns west towards its terminus.

Use Analysis

The Preferred Alternative would physically impact the WUS Historic Site and permanently incorporate it into the expanded multimodal transportation hub the Project would construct. Because FRA determined that this would result in an adverse effect to the WUS Historic Site under Section 106, this Section 4(f) use does not qualify as *de minimis*.

The Preferred Alternative would cause extensive physical impacts within the rail terminal, including the reconstruction of all tracks, platforms, and associated infrastructure, although the new track layout would continue to be divided between stub-end tracks and run-through tracks and would maintain the rail terminal's general layout. Reconstruction of the rail terminal would require the removal of the K Tower; all existing platforms and umbrella sheds; the original retaining wall dividing the run-through tracks from the rest of the terminal; catenary poles; catenary with cross beam; signal bridges; and pneumatic switch valves. In addition, the excavation of the rail terminal may cause adverse effects to any significant archaeological resources, if present, within its footprint.

The Preferred Alternative would also cause physical changes to the portion of the First Street Tunnel underneath the historic station building due to the column removal work, as described in **Section 6.6.3.1, Washington Union Station, Use Analysis**. The H Street Underpass (which was closed and used to support WUS after the construction of the H Street Bridge in 1976) would be removed and converted to a concourse. A portal to provide access to and from the below-ground parking facility would be constructed in the western wall along First Street NE. In addition, the ventilation intake required for the operation of all expanded station may require the potential reconstruction and the insertion of vents at the southwest portion of the Burnham Wall.

6.6.3.3 REA Building

The REA Building is directly adjacent to the east side of the rail terminal. It was constructed in 1908 and designed by D.H. Burnham and Co. in conjunction with the development of WUS. The rectangular two-story plus attic and basement brick structure has an elongated footprint common to American industrial buildings. Prominent ground-floor arches encircle the building and express its use as an operational warehouse. A train platform runs the full length along the west elevation of the building. The REA Building is an example of early 20th-century industrial architecture in Washington. It exemplifies the thoughtful design consideration given to even the utilitarian structures associated with WUS.

As defined in the NRHP Nomination Form and District Historic Preservation Review Board Application for Historic Landmark of Historic District Designation prepared for this resource, the REA Building occupies Lot 812 of Square 717 in the District. The historic property boundary, which is the same as the parcel boundary, is approximately 63,000 square feet in size. It is located between Second Street NE and the eastern edge of the WUS rail terminal. To the south, the parcel partially overlaps with the old H Street right-of-way and current H Street Tunnel. There is direct access from the tunnel into the basement of the REA Building.

Use Analysis

The Preferred Alternative would permanently incorporate some land within the REA Building historic property boundary into the expanded multimodal transportation hub the Project would construct. Because FRA determined that the Preferred Alternative would result in an adverse effect to the REA Building under Section 106, this Section 4(f) use does not qualify as *de minimis*.

In the Preferred Alternative, the new H Street Concourse would be constructed along the old alignment of H Street, replacing the H Street Tunnel. The portion of the old alignment within the REA Building historic property boundary, which is approximately 9,800 square feet in size, would be used, like the rest of the tunnel, for the new concourse. Construction of the H Street Concourse would also modify or eliminate the direct access to the basement of the building from the H Street Tunnel, resulting in a potential physical impact to the building (at this stage of design, the extent and character of this impact are undetermined).

Additionally, the REA Building's integrity of setting, feeling, and association depends directly on its design and relationship with WUS and the rail terminal. The Preferred Alternative would fully reconstruct the rail terminal, requiring the demolition or removal of all existing tracks and platforms; umbrella sheds; K Tower; single catenaries; catenary with cross beam; pneumatic switch valves; and signal bridges. Such physical and visual changes would alter the connection between the REA Building, the rail terminal, and the historic station building, compromising its integrity of setting, feeling, and association.

6.7 Avoidance Alternatives Analysis

This section provides an avoidance alternative analysis for the three Section 4(f) properties the Preferred Alternative would use: WUS, the WUS Historic Site, and the REA Building. As discussed below, there is no feasible and prudent alternative that would avoid the use of these properties.

An avoidance alternative is not feasible if it is not possible to build it as a matter of sound engineering judgment. It is not prudent if, among other criteria, it compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need.

As explained above, the Section 4(f) use of WUS, the WUS Historic Site, and the REA Building in the Preferred Alternative would result primarily from the reconstruction of the rail terminal and construction of the Project elements within the rail terminal. This includes Concourse A and a train hall, adjacent to the north elevation of the historic station building, which would require the demolition of the existing Claytor Concourse; and the H Street Concourse along the old H Street alignment and current H Street Tunnel, including the part within the REA Building historic property boundary. Column removal in the First Street Tunnel and the associated demolition of part of the floor of the Retail and Ticketing Concourse would further affect the physical fabric of the WUS historic station building.

An alternative that would avoid these impacts would need to leave the rail terminal, Claytor Concourse, First Street Tunnel, and the eastern end of the H Street Tunnel in their existing condition. This would

preclude the construction of new concourses and train hall and keep WUS from being able to adequately accommodate projected future ridership.

Such an alternative, including the No-Action Alternative, would be unreasonable because it would fail to meet the Purpose and Need for the Project. As documented in Chapter 3, *Alternatives*, of the 2020 DEIS, the Project Proponents and FRA conducted an extensive alternative development, screening, and refinement process to define a reasonable range of Action Alternatives for analysis in the DEIS. Through this process, the Proponents and FRA determined the Project elements needed to meet the Purpose and Need and considered multiple options to construct those elements. The outcome of this process was the six Action Alternatives evaluated in the 2020 DEIS. Following the publication of the 2020 DEIS, FRA paused the NEPA process and develop the Preferred Alternative evaluated in this SDEIS, in partial response to the comments received on the DEIS (see **Section 3.2, Post-DEIS Refinements**).

All Action Alternatives considered, including the Preferred Alternative, feature the reconstruction of the rail terminal and column removal because there is a need for new tracks and platforms that can adequately support current and future long-term growth in rail service as well as achieve compliance with ADA and emergency egress requirements. Similarly, all alternatives considered include the removal of the modern Claytor Concourse, construction of Concourse A, and construction of the H Street Concourse to provide adequate circulation space and connections between WUS and the surrounding neighborhoods. Not constructing the new concourses and train hall to avoid impacts to the north façade of the historic station building and REA Building property would fail to support the following components of the Purpose and Need for the Project: facilitate intermodal travel; provide a positive customer experience; enhance integration with the adjacent neighborhoods, businesses, and planned land uses; and sustain WUS's economic viability.

The Claytor Concourse is commonly overcrowded, and its passenger facilities do not reliably provide a positive customer experience. The Claytor Concourse is not adequate to handle future demand and passenger loadings. Provision of a new, improved concourse and train hall space is necessary to facilitate the movement of increasing numbers of passengers across the various transportation modes at WUS. It is also needed to provide the retail and passenger support facilities needed to support WUS's economic viability and create a positive experience for travelers and visitors. The H Street Concourse would create a link between the neighborhoods to the east and west of WUS that are currently separated by the expanse of the rail terminal and only connected via the pedestrian-unfriendly H Street Bridge.

Because these Project elements are needed together to meet the Project's Purpose and Need, all Action Alternatives include the reconstruction of the rail terminal, First Street Tunnel column removal, demolition of the Claytor Concourse to build Concourse A and a train hall; and construction of the H Street Concourse along the H Street Tunnel. Therefore, there is no prudent and reasonable alternative that would avoid a Section 4(f) use of WUS, the WUS Historic Site, or the REA Building.

6.8 Least Overall Harm Analysis

When there are no avoidance alternatives that would be feasible and prudent, FRA performs a least overall harm analysis of the remaining alternatives under consideration by balancing or comparing the alternatives in terms of the seven factors identified below:

- The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- The relative significance of each Section 4(f) property;
- The views of the official(s) with jurisdiction (OWJ) over each Section 4(f) property;
- The degree to which each alternative meets the purpose and need for the project;
- After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- Substantial differences in costs among the alternatives.

The following sections compare the Action Alternatives on the basis of each of these seven factors.

6.8.1 Ability to Mitigate

All Action Alternatives would have the same or similar physical impacts on WUS, the WUS Historic Site, and the REA Building. Potential mitigation for these impacts would generally be the same or similar across the alternatives as well. However, the refinements that resulted in the Preferred Alternative included design-related considerations that were responsive to comments from the District State Historic Preservation Officer (SHPO) on the alternatives considered in the 2020 DEIS.

In a letter to FRA dated September 28, 2020, the SHPO made the following comments:

- FRA should revise the Preferred Alternative (Alternative A-C) in whatever ways are necessary to guarantee civic space will be integrated into the design.
- The Visual Access Zone (VAZ) must be centered on the historic station and wide enough to allow users to view as much of the barrel vault as possible.
- The proposed VAZ is going to be largely defined by a six-story parking garage that is not compatible with and does not contribute to the civic character which is so important for the new entrance. SHPO requests that FRA reduce the amount of parking and revise the Preferred Alternative to remove most or all parking from this area.
- SHPO also requests that FRA include a below grade parking deck in the Preferred Alternative.

- Because buses do not contribute to civic character SHPO also request that FRA eliminate the unnecessary slips and promote better bus management practices to facilitate improved design options for the bus facility and its surroundings.
- Because the intensity of the adverse effects will depend upon the height of new construction on either side of Union Station's barrel vault and the extent to which incongruous asymmetry or a visually incompatible parking garage disrupts or competes with the historic character of the station, SHPO requests that FRA work with appropriate entities to develop design guidelines that would apply to all new development, both public and private, north of Union Station.
- The preferred alternative should also be revised to reflect parking facilities consistent with the recommendations of local and Federal planning agencies. Below-grade parking options should be pursued and the proposed vehicular circulation around the terminal should be revised to avoid and minimize the use of ramps and roads directly encircling the historic building. Alternative treatments of the historic train concourse should also be considered to restore its historic integrity, improve pedestrian access, and enhance intermodal transit facilities.
- It is important that FRA commit to collecting traffic-related data and continuing to evaluate and implement alternative solutions that may avoid or substantially minimize traffic-related effects at both the station and the adjacent Capitol Hill Historic District.

These comments were considered when developing the Preferred Alternative evaluated in this SDEIS. As described in **Section 3.2.2.4, *Urban Design***, the post-DEIS refinements that led to the development of the Preferred Alternative included coordinating with the private air rights developer to create opportunities for the creation of a public space north of WUS that would be commensurate with WUS's historic and architectural significance and centered on the historic station building. This would allow for an overall site design respectful of the symmetry of WUS. This was in part achieved by moving all parking below ground and integrating the bus facility in the structural deck. Parking capacity was substantially reduced. While the development of the civic space remains the responsibility of the private air rights developer, coordination between the projects will continue.

While consultation with the SHPO is ongoing, FRA concludes that the Preferred Alternative offers more and better opportunities for successful minimization and mitigation of the remaining adverse effects than the Action Alternatives previously considered.

6.8.2 Relative Severity of Remaining Harm

Some of the most severe physical impacts of the Project, such as the impact of the reconstruction of the rail terminal on the WUS Historic Site and the acquisition of the portion of the REA Building property that overlaps with the old H Street alignment and H Street Tunnel, would remain in the Preferred Alternative. However, because the Preferred Alternative incorporates refinement that address other concerns, it offers better opportunities for successful mitigation than the Action Alternatives previously considered, as explained above. This would ensure that any remaining harm is less severe under the Preferred Alternative than under the other Action Alternatives.

6.8.3 Relative Significance of Each Property

With respect to significance, the three historic properties that the Preferred Alternative would affect are closely connected, as WUS and the REA Building are contributing elements to the WUS Historic Site. However, as a stand-alone property, WUS itself is the most significant of the three, both historically and architecturally. The Preferred Alternative would affect all three properties, including WUS. However, based on the refinements that were incorporated in it, summarized in **Section 6.8.1, *Ability to Mitigate***, above, the Preferred Alternative would result in less severe impacts on WUS than the Action Alternatives previously considered, both before and after mitigation.

6.8.4 Views of OWJ

The SHPO is the OWJ for all three affected properties. FRA is consulting with the SHPO in compliance with Section 106 and will be seeking the SHPO's views on the Preferred Alternative as part of that consultation. In a letter dated February 9, 2023, after reviewing the draft SAOE, the SHPO concurred on findings of adverse effect for WUS, the WUS Historic Site, and the REA Building, and on a finding of potential adverse effect for the City Post Office (Postal Museum). Correspondence with the SHPO is included in **Appendix D1S**.

6.8.5 Degree to Which Alternatives Meet the Purpose and Need

As explained in **Section 3.2.3, *Purpose and Need Analysis***, the Preferred Alternative meets the Project's Purpose and Need as well as, or better than, the other Action Alternatives considered. In particular, by integrating the bus facility in the structural deck adjacent with, and visible from, the train hall, intermodal connections would be more efficient and clearer than in the other Action Alternatives considered.

6.8.6 Magnitude of Adverse Impacts to Resources Not Protected by Section 4(f)

The magnitude of the Preferred Alternative's impacts on resources that are not protected by Section 4(f) varies according to the resource and type of impact. In this respect, the greatest difference among the Action Alternatives is the length of the construction period and the duration of the resulting construction impacts. While all Action Alternatives would involve similar construction activities and similar impacts, these impacts would continue over a shorter period in some alternatives than in other. The Preferred Alternative would take 13 years to construct, longer than all but two of the previously considered Action Alternatives. A primary reason for differences in construction durations is the depth of excavation. With one below-ground level, the Preferred Alternative is in the middle range of the Action Alternatives considered. In general, the construction as well as operational impacts of the Preferred Alternative are within the range defined by the 2020 DEIS Action Alternatives. There are no resources on which the Preferred Alternative is anticipated to have greater impacts than any of the previously considered Action Alternatives.

6.8.7 Substantial Differences in Costs

The estimated cost to construct the Preferred Alternative, \$8.8 billion, is substantially higher than that of the previously considered Action Alternatives. The cost of construction is largely driven by the Project elements, construction complexity and methods, and the duration of the construction period.

6.8.8 Determination

Based on the above considerations, FRA proposes to conclude that the Preferred Alternative would result in least overall harm. It would offer the best opportunities for successful mitigation and, consequently, for less severe remaining harm after mitigation than the Action Alternatives previously considered. In all other respect, it would be comparable to them.

6.9 Minimization and Mitigation of Harm

The measures FRA is proposing to minimize and mitigate harm include:

- USRC, the Project Sponsor, would coordinate with DDOT to plan and maintain alternative routes for users of the Metropolitan Branch Trail when parts of the trail would be closed.
- USRC would work with DDOT to appropriately advertise construction-related closures of the Metropolitan Branch Trail and establish alternative routes, as needed.
- The construction contractor would be required to prepare and implement a Construction Noise and Vibration Control Plan. This plan would include detailed predictions of construction noise and vibration levels; requirements for conducting construction noise and vibration monitoring; and, if necessary, detailed approaches to mitigate construction-period noise and vibration impact. The plan would assess buildings at risk from vibration to determine the appropriate threshold applicable to each based on its type of construction and condition. The plan would define measures to be taken to minimize the risk of damage based on these thresholds.
- Properties that would be used for the Project would experience an adverse effect under Section 106. Per 36 CFR § 800.6, a finding of adverse effect requires that Section 106 consultation continue to avoid, minimize, or mitigate effects to historic properties that would alter the characteristics that qualify the properties for inclusion in the NRHP. USRC would implement the mitigation stipulations outlined in the Project's Programmatic Agreement (PA) to resolve the known adverse effects of the Project on historic properties in accordance with 36 C.F.R. § 800.14(b)(1)(ii). A draft of the PA is included in **Appendix D2**. The Draft PA proposes the following measures (see **Appendix D2** for more details):
 - Prior to any transfer of real property out of Federal ownership, FRA would seek to include a historic preservation covenant in the transfer instrument to be recorded in the real estate records of the District of Columbia.

- 4105 • USRC would establish and implement a Design Review process to review design and
4106 engineering documents at various phases of design.
- 4107 • USRC would establish Design Guidelines that will guide the future design of
4108 development within the Federally owned air rights.
- 4109 • USRC would prepare individual Level II Historic American Building Survey (HABS) and
4110 Historic American Engineering Record (HAER) written, drawing, and photographic
4111 documentation for various contributing resources within the WUS Historic Site.
- 4112 • USRC would prepare an Architectural Salvage Plan to establish a process for determining
4113 which contributing resources to the WUS Historic Site that require removal or relocation
4114 could be salvaged.
- 4115 • USRC would develop and implement an Interpretation Plan that communicates the
4116 history, evolution, and significance of the WUS Historic Site, especially the WUS Historic
4117 Site as originally constructed and used until the implementation of the Project.
- 4118 • USRC would prepare a NRHP Nomination Form for the WUS Historic Site, based on the
4119 Determination of Eligibility Form for the Washington Union Station Historic completed
4120 in 2019.
- 4121 • USRC would prepare a Historic Properties Construction Protection and Signage Plan to
4122 protect against, monitor for, and manage construction-related effects to identified
4123 historic properties.
- 4124 • USRC would require the construction contractor to prepare and implement a
4125 Construction Noise and Vibration Control Plan that incorporates an assessment of
4126 buildings at risk of structural damage from construction vibration, as identified in the
4127 SDEIS.
- 4128 • Prior to 35% design or prior to any ground disturbing activities, USRC would complete a
4129 Phase IB archaeological assessment and survey; if archaeological sites are identified in
4130 the Phase IB assessment and survey, prior to any ground disturbing activities, USRC
4131 would complete one or more Phase II survey(s) and resolve any adverse effects.
- 4132 • If a previously undiscovered archeological or cultural resource that is or could
4133 reasonably be a historic property is encountered or a previously known historic property
4134 would be affected in an unanticipated manner during construction, USRC would follow
4135 the Unanticipated Discovery or Effect to Cultural Resources procedures outlined in the
4136 Draft PA.

6.10 Consultation to Date

- 4137 FRA provided the draft SAOE to SHPO for review from December 22, 2022, through February 9, 2023.
- 4138 Correspondence with the SHPO is included in **Appendix D1S**. FRA considered SHPO's comments in

4139 preparing the final SAOE. FRA provided the final SAOE and determination of adverse effects to SHPO on
4140 March 9, 2023.

4141 FRA will continue to consult with DDOT regarding the temporary occupancy of the Metropolitan Branch
4142 Trail.

7 Mitigation Measures, Project Commitments, and Permits

7.1 Mitigation Measures and Project Commitments

4143 The Federal Railroad Administration (FRA) is proposing to adopt the measures listed in **Table 7-1** to
4144 avoid, minimize, or mitigate the adverse impacts of the Preferred Alternative. USRC as Project Sponsor
4145 would be responsible for implementing these measures. Some of the measures would involve
4146 coordination with other agencies and organizations.

Table 7-1. Proposed Mitigation Measures and Project Commitments

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
Water Resources and Water Quality		
1	<ul style="list-style-type: none"> USRC to ensure that Project design incorporates stormwater management features, including green infrastructure practices such as rainwater collection and reuse, green roofs, and bioretention facilities, as appropriate to manage stormwater flows in accordance with the Department of Energy and Environment (DOEE)'s <i>Stormwater Management Guidebook</i> and restore pre-development site hydrology to the maximum extent technically feasible in compliance with Section 438 of the Energy Independence and Security Act (EISA). 	Operational-phase stormwater runoff.
2	<ul style="list-style-type: none"> USRC to require that the construction contractor provides on-site treatment of pumped groundwater and obtain a Temporary Discharge Authorization permit for discharge through the District's combined sewer system. Prior to the beginning of construction, USRC to conduct additional groundwater studies, including: <ul style="list-style-type: none"> Performing additional borings to depths of 120 to 150 feet inside and along the perimeter of the Project Area to better characterize the lower aquifer's composition and extents and any discontinuities of the Potomac Clay layer separating the aquifers. Performing research of adjacent properties to understand the local impacts of ongoing or periodic dewatering systems acting around the Project Area. Performing additional pump testing that target zones of clay discontinuity in the lower aquifer. 	Construction-phase groundwater dewatering.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<ul style="list-style-type: none"> If warranted by the above, performing further modeling to map the areas that have high potential to experience ground subsidence from drawdown. If warranted by the studies listed above, USRC to require the construction contractor to monitor and control the amount of active dewatering on the site so dewatering does not create subsidence in and around adjacent properties. 	
3	<ul style="list-style-type: none"> USRC to require the construction contractor to implement erosion and sedimentation controls compliant with National Pollutant Discharge Elimination System (NPDES) construction general permit and District Department of Environment and Energy (DOEE)'s <i>Erosion and Sediment Control Manual</i>. 	Construction-phase erosion and sedimentation.
Solid Waste Disposal and Hazardous Materials		
4	<ul style="list-style-type: none"> USRC to update existing Spill Prevention Control and Countermeasure (SPCC) Plan to reflect any major changes to on-site petroleum product or liquid hazardous waste storage. 	Operational-phase petroleum and hazardous waste storage.
5	<ul style="list-style-type: none"> USRC to require the construction contractor to develop and implement a construction-specific SPCC. 	Construction-phase petroleum and hazardous waste storage.
6	<ul style="list-style-type: none"> USRC to require the construction contractor to identify hazardous building materials (asbestos-containing materials, lead-based paint, polychlorinated biphenyls [PCBs], mercury, etc.) prior to any demolition work. If present, USRC to require that abatement of such material be conducted by a licensed contractor in accordance with District regulations. Debris to go to a receiving facility licensed to handle the relevant type of waste in compliance with applicable shipping regulations. 	Construction-phase demolition and disposal of hazardous building materials and debris.
7	<ul style="list-style-type: none"> USRC to require the construction contractor to develop a Soil Management Plan (SMP) based upon subsurface investigations, as needed. The purpose of these investigations would be to pre-characterize the soils to be removed during the construction of the Project. The SMP typically outlines standards and procedures for the identification and disposal of contaminated materials encountered during construction. 	Construction-phase removal and disposal of potentially contaminated soils.
8	<ul style="list-style-type: none"> USRC to require the Construction contractor to exclusively use certified clean soil to replace excavated soil. 	Construction-phase excavation and replacement of potentially contaminated soils.
9	<ul style="list-style-type: none"> USRC to require the construction contractor to control fugitive dust through wetting, sweeping, and other suppression techniques. 	Construction-phase fugitive dust emissions.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
10	<ul style="list-style-type: none"> USRC to require the construction contractor to develop a Health and Safety Plan that provides the minimum health and safety specifications that must be met during construction, including requirements for environmental monitoring, personnel protective equipment, site control and security, and training. 	Construction-phase human and environmental health and safety risks.
11	<ul style="list-style-type: none"> USRC to maximize opportunities for recycling or other waste diversion methods in support of the District's vision of an 80% or more solid waste diversion. 	Construction- and operational-phases solid waste disposal.
Transportation		
12	<ul style="list-style-type: none"> USRC to require the construction contractor to prepare an integrated Construction Transportation Management Plan. The Plan will aim to provide safe passage for pedestrians, cyclists and vehicular traffic around a construction site with as little inconvenience, impact and delay as possible. The Plan will define the measures to be implemented by the construction contractor to avoid, minimize, or mitigate impacts from construction on all transportation modes in each phase of construction, along with procedures to enforce, monitor, and evaluate these measures and ensure consistency with District requirements for managing construction impacts. The Plan will be coordinated with the District Department of Transportation (DDOT), the Washington Metropolitan Area Transit Authority (WMATA), Architect of the Capitol (AOC), and other relevant agencies. 	All construction-related transportation impacts
13	<ul style="list-style-type: none"> USRC to coordinate with Amtrak to ensure that, as much as possible, Amtrak accommodates passengers on other Amtrak trains. USRC to coordinate with Amtrak, Maryland Area Regional Commuter trains (MARC), and Virginia Railway Express (VRE) on alternative service options for affected passengers, including the honoring of tickets on alternative services. 	During construction, up to two Amtrak trains, four MARC trains, and two VRE trains may be cancelled daily.
14	<ul style="list-style-type: none"> USRC to fund a new WMATA Station Access and Capacity Study and to contribute to improvements identified in that study that have not been addressed by the Concourse Modernization Project or by WMATA by the time of implementation. 	Impact of increased passenger volumes on circulation at the WUS WMATA Station.
15	<ul style="list-style-type: none"> USRC, in coordination with DDOT, to engage with WMATA about the determination of the Preferred Alternative for a new core line, referred to as "Blue-Orange-Silver." 	Increase in passenger volumes and capacity issues on WMATA Red Line.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
16	<ul style="list-style-type: none"> USRC to develop, with WMATA, construction approaches that would minimize delays or stoppages on the Red Line. 	Need for schedule adjustments or temporary stoppage on the Red Line during Phase 4 of construction.
17	<ul style="list-style-type: none"> USRC to develop, with DDOT, options for temporary access to WUS DC Streetcar station during construction and take steps with the District State Safety Office to address issues that may affect Streetcar certification. USRC to implement any changes to public access required, subject to DDOT approval, and provide safe accommodations for pedestrians. 	Construction activities may block direct access from DC Streetcar station to WUS facilities.
18	<ul style="list-style-type: none"> USRC to develop Bus Facility Operations Plan in coordination with the bus carriers using the facility, DDOT, and the Mayor's Office of Special Events. The plan would address: <ul style="list-style-type: none"> Approach to dynamic management, including use of zones and patterns to improve wayfinding and operations; Technology used to implement management approach; How special events in the District will be managed to minimize impacts to core operations and adjacent streets; How peak intercity periods will be managed; How revenues, costs, slip fees will be managed and allocated in the facility to balance operational and maintenance needs and bus industry economics; Safety and security systems planning; and Operational approaches for electric charging or other alternative fuels. USRC to coordinate with the bus carriers on the design of the future facility and multiple connections and amenities for bus passengers. USRC to regularly evaluate trends in bus demand at WUS and in the District to identify refinements to operations planning or design. 	Dynamic management of bus facility.
19	<ul style="list-style-type: none"> USRC to identify a new curbside location for hop-on/hop-off sightseeing buses to pick up and drop off riders in coordination with DDOT. 	Hop-on/hop-off buses would no longer be accommodated in front of WUS.
20	<ul style="list-style-type: none"> USRC to accommodate Gallaudet University shuttle on the H Street Deck level/train hall curbside. 	Loss of space for Gallaudet University shuttle.
21	<ul style="list-style-type: none"> USRC to work with the private air rights developer to build the interim bus facilities as close as possible to an access point to the station and Metrorail, and with the best user amenities achievable; USRC to coordinate with bus carriers in its design. 	Interim bus facilities would be used during Phase 4, possibly starting during Phase 3.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
22	<ul style="list-style-type: none"> USRC to perform a pedestrian crossing study to identify and recommend to DDOT signal timing adjustments needed to provide sufficient crossing time for pedestrians exiting the front of WUS; the study also to identify opportunities to provide enhanced pedestrian accommodations at the front of WUS and work with DDOT to implement them. USRC to design, permit, and install agreed-upon upgrades. USRC to coordinate with DDOT on additional pedestrian safety infrastructure measures informed by the traffic monitoring to be conducted during the first year of operation (see #28). USRC to design, permit, and install signalization of First and G Streets NE, and a raised crosswalk at the H Street Concourse on First and Second Streets NE, subject to warrant study and DDOT review and approval. USRC to design, permit, and install pedestrian safety improvements, such as raised crosswalks or Americans with Disabilities Act (ADA) improvements, at Level of Service (LOS) F intersections on North Capitol Street and K Street, in coordination with DDOT. 	Increases in passenger volumes may have a moderate impact on pedestrian crossing and queueing conditions adjacent to WUS.
23	<ul style="list-style-type: none"> USRC to coordinate with DDOT on appropriate bicycle facilities and strategies to reduce conflicts among bicyclists, pedestrians, and vehicles. USRC to design, permit and install upgrades to adjacent quick-build or unprotected bicycle infrastructure to a protected level, if such protection has not already been provided by the time of Project construction. 	Conflicts between bicycles, pedestrians, and vehicles on the First Street cycle track at H Street Concourse entrance.
24	<ul style="list-style-type: none"> USRC to develop, with DDOT, appropriate bicycle accommodations and wayfinding plan to direct bicyclists to the Second Street NE shared-use portion of the Metropolitan Branch Trail when needed. As part of the integration Construction Transportation Management Plan, USRC to minimize obstruction to bicycle traffic on roads and on the trail and provide safe accommodations. 	Work on First Street NE would disrupt use of the cycle track during parts of the construction period.
25	<ul style="list-style-type: none"> USRC to reallocate the middle lanes in front of WUS to be used for transit bus passenger boarding and alighting for Circulator and Metrobus routes terminating or passing through the area in front of the station. USRC to relocate bus stops from adjacent streets, including Columbus Circle and E Street, to these middle lanes, based on which services are relocated to the front of WUS. USRC also to evaluate whether context- 	Multiple bus lines would experience increased overcrowding and delays.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>appropriate bus passenger amenities can be installed in the median serving the middle lanes.</p> <ul style="list-style-type: none"> USRC to construct a bus stop on H Street adjacent to, or incorporated into, the north and south station headhouses with shelter, seating, and real-time information displays. USRC to design, permit, and install improved wayfinding, shelters, and other accommodations for major commuter bus stops serving WUS on North Capitol Street. USRC to support study, design, and construction of bus priority measures in the vicinity of Union Station, consistent with the District of Columbia's Long Range Transportation Plan, <i>Move DC</i>. Regarding existing Circulator operations at the WUS bus facility, USRC to design and install locations for Circulator operational and layover needs at, or adjacent to, WUS, including electric bus charging. USRC to evaluate whether middle lanes in front of WUS can be used for layover. 	
26	<ul style="list-style-type: none"> USRC to develop a for-hire vehicle plan as part of the integrated Construction Transportation Management Plan (see #12 above). The Plan should prioritize maintaining safe traffic operations and distributing pick-ups and drop-offs. 	During Phase 4 of the construction period, the west ramp and back ramp would become unavailable, forcing for-hire vehicles to queue on the southeast road and east ramp. This queue could interfere with traffic operations on the deck.
27	<ul style="list-style-type: none"> USRC to ensure that there is sufficient staffing to manage curb activity along USRC-controlled curbsides. USRC to coordinate with District Department of Public Works and Metropolitan Police Department (MPD) to provide coordinated enforcement of active curb areas along public streets and discourage use of non-designated curb areas. USRC to coordinate with MPD to provide coordinated enforcement to prevent queues on public roadways. USRC to coordinate with DDOT and the District Department of For-Hire Vehicles (DDFHV) to develop and implement regulatory strategies to reduce excess taxi and Transportation Networking Companies (TNC) pick-up and drop-off activity at WUS, promote shared rides, and avoid adjacent spillovers or excessive congestion, including the creation of a geofenced area that determines specific pick-up locations; incentives; and pricing policies for for-hire vehicles. USRC to develop, in coordination with DDOT and DDFHV, an advanced vehicle dispatching and dynamic wayfinding strategy to distribute taxis and TNC vehicles within the 	Increased traffic congestion may negatively affect pick-up and drop-off operations.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>below-ground facility, from the facility to the front of WUS, and around the site, alongside an internal wayfinding strategy to direct passengers to appropriate curbsides based on traffic and queueing conditions.</p> <ul style="list-style-type: none"> USRC to monitor future pick-up and drop-off conditions in order to refine operational approaches. 	
28	<ul style="list-style-type: none"> USRC to work with DDOT to identify traffic mitigation approaches including, but not limited to, regular monitoring activities, turn restrictions, alternative intersection phasing, lane reassignment, parking restrictions, and circulation changes to address congestion at the most severely impacted intersections in the Study Area. USRC to be responsible for design, permitting, and installation of those improvements, in coordination with DDOT. Specific solutions identified to date include: <ul style="list-style-type: none"> Developing mode shift and trip reduction goals for the station to be achieved through mitigation efforts. Conducting multimodal traffic performance monitoring in the first ten years of operation to confirm mode shift and trip reduction goals; this monitoring to be conducted consistent with DDOT Comprehensive Transportation Review (CTR) guidelines for Performance Monitoring Plans, to determine refinements to the measures presented below and to operations and circulation in the Project Area. As needed to address congestion identified by traffic monitoring, making spot intersection modifications at First and K Streets NE, North Capitol and G Streets, Second and K Streets NE, and other intersections in the Study Area. USRC to be responsible for design, permitting, and installation subject to DDOT approvals. Coordinating with the U.S. Government Publishing Office (GPO) to open up currently closed sections of First Street and G Street NW to public access and to fund costs associated with this opening to meet GPO requirements and requirements for public access. Performing a signal and mobility study of the southern portion of the Study Area, around the intersection of Louisiana Avenue and North Capitol Street, to identify how changes to signalization could address degraded traffic conditions. USRC, in coordination with DDOT, to install study-identified 	<p>Increases in traffic volumes would result in increases in delay and queueing at multiple intersections.</p>

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>improvements and support DDOT signalization changes.</p> <ul style="list-style-type: none"> ▪ Further coordinating with the private air rights developer on strategies for traffic distribution to address degraded traffic conditions, as possible, on H Street. USRC, in coordination with the private air rights developer, to design and install wayfinding and other measures to improve traffic distribution on H Street. ▪ Participating in DDOT's mobility study for the North Capitol Street corridor to understand how Project and DDOT policies and strategies could reduce congestion along the North Capitol Street corridor. USRC to provide technical support and information on future WUS operations to inform the study's recommendations. ▪ Advancing facility design that implements internal wayfinding prioritizing transit access and balancing pick-up and drop-off demand across different locations based on congestion. This wayfinding would be provided through static and variable signage. ▪ In coordination with DDOT, developing external wayfinding to reduce turn pressures on congested intersections, including, as appropriate, static and variable signage on the Center Leg Freeway to direct traffic to appropriate locations. USRC to design, permit, and install this wayfinding. ▪ Allocating sufficient resources to implement identified mitigations. 	
29	<ul style="list-style-type: none"> ▪ USRC to incorporate a truck traffic plan into the integrated Construction Transportation Management Plan (see #12) to avoid impacts of truck traffic on residential neighborhoods. Truck traffic plan to be coordinated with DDOT. Affected Advisory Neighborhood Commissions (ANCs) would be given an opportunity to comment on the plan. Truck traffic plan to be consistent with District commercial vehicle regulations and oversize permitting requirements, and to make use of DDOT routing tool.¹²² ▪ USRC to coordinate with Amtrak to evaluate and maximize to the extent practicable the use of work trains instead of dump trucks to haul away excavation spoil. 	<p>During excavation, up to 120 daily construction trucks would enter and exit the site.</p>

¹²² DDOT. *Commercial Vehicles*. Accessed from <https://ddot.dc.gov/service/commercial-vehicles>. Accessed on March 11, 2023.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	This approach would substantially eliminate the work truck traffic associated with excavation. Typical construction truck traffic would be addressed by the Construction Transportation Management Plan.	
30	<ul style="list-style-type: none"> USRC to coordinate with DDOT and the new owner, transferee, or lessee of the Federal air rights to follow required transportation demand management practices to reduce traffic activity associated with the development of the Federal air rights through the CTR process. 	Potential Federal air rights development would generate additional vehicular activity.
Air Quality		
31	<ul style="list-style-type: none"> USRC to ensure that Project design places ventilation fans at least 30 feet from the nearest operable windows, louvers, or doors and emergency generators at least 30 feet from the nearest building or on a rooftop. USRC to coordinate with rail operators to impose restrictions on diesel locomotive idling in order to minimize Mobile Source Air Toxics (MSAT) emissions. 	Operational-phase air pollutant emissions.
32	<ul style="list-style-type: none"> USRC to require the construction contractor to implement measures to reduce pollutant emissions, including but not limited to dust suppression; idling restrictions; use of zero-emissions equipment and Ultra Low Sulfur Diesel (ULSD) fuel; proper maintenance of all motor vehicles, machinery, and equipment; and fitting of equipment with mufflers or other regulatory-required emissions control devices. USRC to require the construction contractor to limit non-road engine idling to 3 minutes in compliance with District anti-idling law in all phases of construction, and place idling restriction signs on the premises. Drivers and equipment operators to be trained accordingly. USRC to require the construction contractor to fit all diesel-fuel construction equipment with after-engine emission controls; use ULSD fuel for all off-road construction vehicles; use nonroad diesel equipment rated 50 horsepower or greater to meet U.S. Environmental Protection Agency (EPA)'s Tier 4 emission limits or retrofitted with appropriate emission reduction equipment. Emission reduction equipment potentially to include EPA-verified or California Air Resource Board (CARB)-verified diesel oxidation catalysts or diesel particulate filters. USRC to require the construction contractor to implement measures to protect local residents, visitors, passengers, and passers-by from off-site exposure to dust and debris. Appropriate methods of dust control to be 	Construction-related air pollutant emissions.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>determined according to the surfaces concerned (roadways or disturbed areas) and include, as applicable: application of water during ground-disturbing activities; stone surfacing of construction roads; seeding of areas of exposed or stock-piled soils; wheel washing; and regular sweeping of paved roadways. Recycling construction waste and demolition materials may also reduce dust emissions.</p> <ul style="list-style-type: none"> During construction in or immediately adjacent to the historic station building (demolition of the Claytor Concourse, column removal), USRC to require the construction contractor to set up airtight walls or partitions around the construction areas as needed to eliminate the risk of train engine exhaust fumes or dust drifting into the indoor areas accessible to the public or station employees. 	
Greenhouse Gas Emissions and Resilience (see also <i>Energy Resources</i> and <i>Air Quality</i>)		
33	<ul style="list-style-type: none"> USRC to prepare a Life Cycle Assessment of total greenhouse gas (GHG) emissions associated with the Project (embodied emissions). 	Potential net emissions of GHG.
34	<ul style="list-style-type: none"> Wherever possible, USRC to ensure that at least the Federally owned portion of the Project achieves the requirements and standards of Public Buildings Service (PBS)-P100. PBS-P100 provides performance-based standards and prescriptive requirements focused on energy efficiency, carbon neutrality, and practices that protect against climate risks (excluding the historic station building). As required by PBS-P100, USRC to direct that at least the Federally owned portion of the Project achieve a Leadership in Energy and Environmental Design (LEED) v4 Gold rating within a boundary encompassing all station areas that support typical operations (excluding the historic station building). Examples of measures the USRC could include in Project design include but are not limited to: <ul style="list-style-type: none"> Design and technology features to minimize buckled railroad tracks. Power supply redundancy and backup generation. Reduced dependency on centralized power by installing renewable energy systems at WUS, including for instance solar panels. Shelter facilities to provide shading and natural ventilation for passenger comfort and safety. 	Need for greater resilience in the context of climate change.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<ul style="list-style-type: none"> Water conservation features (See also <i>Water Resources and Water Quality</i> above). Reflective roofs or green roofs to reduce urban heat island effect. Appropriate glazing for the train hall so that it can control solar heat gain by season Placement of electrical components above ground level to protect them from flash flood events during extreme storm events. Use of building materials that can withstand inundation or installing flood barriers at openings of below-grade structures that may become vulnerable to flooding. Dry and wet floodproofing measures for below-grade parking areas. 	
Energy Resources		
35	<ul style="list-style-type: none"> USRC to develop and incorporate Net-Zero Energy strategies into the design of the Project to the greatest extent practicable, including for instance, solar panels. USRC to incorporate cost-effective energy efficiency technologies in Project design. Examples include but are not limited to programmable and learning thermostats; energy management systems that react to utility price signals and energy demand in the region; and light motion sensors and dimmers. USRC to develop a Tenant Manual to help current and future tenants make their operations more sustainable and energy efficient, and reduce overall energy demand 	Energy consumption increases.
Land Use, Land Planning, and Property		
36	<ul style="list-style-type: none"> USRC to work with private air rights owner regarding acquisition of the privately owned air rights needed to construct Project elements for just compensation, consistent with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended. 	Need to use approximately 2.9 acres of private air rights for Project elements.
Noise and Vibration		
37	<ul style="list-style-type: none"> USRC to require the construction contractor to prepare and implement a Construction Noise and Vibration Control Plan. The plan to: <ul style="list-style-type: none"> Include detailed predictions of construction noise and vibration levels; requirements for conducting construction noise and vibration monitoring; and, if 	General construction noise and vibration.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>necessary, detailed approaches to mitigate potential construction-period noise and vibration impacts.</p> <ul style="list-style-type: none"> ▪ Set acceptable vibrations limits and address the need for a pre-construction crack survey, install crack detection monitors, and conduct vibration monitoring. ▪ Define a process to alert the contractor of any limit exceedances and implement corrective actions. ▪ Contain a public engagement plan specifying measures that would be implemented to inform neighbors and other relevant parties of anticipated noisy activities, noise or vibration level exceedances, and measures to be taken to remedy these exceedances. ▪ At a minimum, include the following measures, unless equivalent but more Project-or location-specific measures are identified during the preparation of the plan: <ul style="list-style-type: none"> - Ensuring equipment is properly functioning and equipped with mufflers and other noise-reducing features. - Locating especially noisy equipment as far from sensitive receptors as possible. - Using quieter construction equipment and methods, as feasible. - Using path noise control measures such as temporary noise barriers, portable enclosures for small equipment (such as jackhammers and concrete saws). - Replacing back up alarms with strobes if and as allowed by Occupational Safety and Health Administration (OSHA) regulations. - Maintaining smooth truck route surfaces within and next to the Project Area. - Establishing and implementing procedures to maintain robust communications with neighbors. ▪ If warranted by the projections in the Construction Noise and Vibration Control Plan, USRC to require the construction contractor to construct a temporary noise wall approximately 12 feet tall along the perimeter of the Project Area where there are no adjacent buildings. 	
38	<ul style="list-style-type: none"> ▪ USRC to require that the Construction Noise and Vibration Control Plan: <ul style="list-style-type: none"> ▪ Include an assessment of the buildings at risk to determine the appropriate threshold applicable to each based on its type of construction and condition. 	Risk of structural damage to buildings from construction vibration.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>Such buildings to include the Washington Union Station historic station building, the Railway Express Agency (REA) Building, the City Post Office (Postal Museum), and the Kaiser Permanente Medical Center.</p> <ul style="list-style-type: none"> Define measures to be taken to minimize the risk of damage based on these thresholds. As warranted by the assessment and projections in the plan, and as technically feasible, alternative construction methods to be implemented would including but not limited to the following: <ul style="list-style-type: none"> Using a hydromill instead of a clam shovel for slurry wall construction when working close to a building. Using push-in type sheeting equipment rather than vibratory equipment to install sheet-pile walls. Using sonic drill rigs instead of traditional drill rigs. 	
39	<ul style="list-style-type: none"> USRC to require in the Construction Noise and Vibration Control Plan that, when there is a choice, construction trucks use those truck routes with the fewest residential receptors. USRC to require that the Construction Noise and Vibration Control Plan limit truck speeds or direct trucks to use the travel lanes farthest from receptors on multi-lane roads such as New York Avenue. <i>(See also measures under #29).</i> 	Annoyance from construction trucks
Aesthetics and Visual Quality		
40	<ul style="list-style-type: none"> USRC to design the Project with context-compatible architecture and materials, and in a manner sensitive to surrounding structures. 	Potential impacts to views around WUS.
Cultural Resources		
41	<ul style="list-style-type: none"> USRC will be responsible for implementing the mitigation stipulations outlined in the Project's Programmatic Agreement (PA) to resolve the known adverse effects of the Project on historic properties in accordance with 36 C.F.R. § 800.14(b)(1)(ii). A draft of the PA is available for review in Appendix D2. Measures included in the Draft PA include (refer to Appendix D2 for more details): <ul style="list-style-type: none"> Prior to any transfer of real property out of Federal ownership, FRA would seek to include a historic preservation covenant in the transfer instrument to be recorded in the real estate records of the District of Columbia. 	Adverse effects on WUS, WUS Historic Site, REA Building, and potential adverse effects on the City Post Office (Postal Museum).

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<ul style="list-style-type: none"> ▪ USRC would establish and implement a Design Review process to review design and engineering documents at various phases of design. ▪ USRC would establish Design Guidelines that will guide the future design of development within the Federally owned air rights. ▪ USRC would prepare individual Level II Historic American Building Survey (HABS) and Historic American Engineering Record (HAER) written, drawing, and photographic documentation for various contributing resources within the WUS Historic Site. ▪ USRC would prepare an Architectural Salvage Plan to establish a process for determining which contributing resources to the WUS Historic Site that require removal or relocation could be salvaged. ▪ USRC would develop and implement an Interpretation Plan that communicates the history, evolution, and significance of the WUS Historic Site, especially the WUS Historic Site as originally constructed and used until the implementation of the Project. ▪ USRC would prepare a National Register of Historic Places Nomination Form for the WUS Historic Site, based on the Determination of Eligibility Form for the WUS Historic Site completed in 2019. ▪ USRC would prepare a Historic Properties Construction Protection and Signage Plan to protect against, monitor for, and manage construction-related effects to identified historic properties. ▪ USRC would require the construction contractor to prepare and implement a Construction Noise and Vibration Control Plan that incorporates an assessment of buildings at risk of structural damage from construction vibration, as identified in the SDEIS. ▪ Prior to 35% design or prior to any ground disturbing activities, USRC would complete a Phase IB archaeological assessment and survey; if archaeological sites are identified in the Phase IB assessment and survey, prior to any ground disturbing activities, USRC would complete one or more Phase II survey(s) and resolve any adverse effects. ▪ If a previously undiscovered archeological or cultural resource that is or could reasonably be a historic 	

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	property is encountered or a previously known historic property would be affected in an unanticipated manner during construction, USRC would follow the Unanticipated Discovery or Effect to Cultural Resources procedures outlined in the Draft PA.	
Parks and Recreation Areas		
42	<ul style="list-style-type: none"> USRC to coordinate with the National Park Service (NPS) during construction planning to develop measures to maintain as much as possible access to Columbus Plaza during the construction of the Columbus Circle improvements. USRC to prohibit the construction contractor from using Columbus Plaza as a staging area during construction. USRC to coordinate with the DDOT to plan and maintain alternative routes for users of the Metropolitan Branch Trail when parts of the trail would be closed. USRC to work with DDOT to appropriately advertise construction-related closures of the Metropolitan Branch Trail and establish alternative routes, as needed. 	Columbus Plaza and the Metropolitan Branch Trail.
Social and Economic Conditions		
43	<ul style="list-style-type: none"> USRC to identify new funding sources. 	Loss of WUS revenue from parking.
Safety and Security		
44	<ul style="list-style-type: none"> USRC to develop a Safety and Security Operations Plan that would identify procedures appropriate to the level of passenger activity; evaluate appropriate passenger screening practices; and identify funding for these purposes. 	Safety and security issue associated with increased passenger volumes.
45	<ul style="list-style-type: none"> USRC, in coordination with Federal law enforcement and security agencies, to identify security features that the Project design would incorporate, including measures recommended in the Project's Threat and Vulnerability Risk Assessment (TVRA), as appropriate. 	Increased risks and threats from increased vehicular volumes.
46	<ul style="list-style-type: none"> USRC to develop a Construction Safety and Security Plan for the Project. This plan to include procedures to screen people, equipment, and goods, and to reduce the risk of injury to workers, passengers, and passers-by from construction activities. May also include background checks for contractors and their employees. 	Public safety and security threats during construction.
47	<ul style="list-style-type: none"> USRC to require the Construction contractor to ensure that the movement of heavy motorized equipment and trucks in and out of the construction site is through 	Public safety risks from construction traffic.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	designated access points and designated truck routes only; use flaggers as needed to prevent conflicts between trucks and street traffic; and ensure that construction-related traffic proceed in compliance with applicable speed limitations and other District traffic laws.	
48	<ul style="list-style-type: none"> During column removal work within WUS, USRC to require the construction contractor to close off the portions of the historic station building where the column removal work would be conducted from the areas remaining accessible to the public or to station or Amtrak employees. Walls and partitions to be sufficient to provide fire protection at least equal to that provided by the existing floor and walls. Only authorized personnel to have access to the area. 	Public safety risks from column removal work.
49	<ul style="list-style-type: none"> USRC to ensure that the bus facility and structural deck are designed in accordance with the recommendations of the TVRA and in a manner that minimizes risks to adjacent development. 	Potential Risks to WUS from bus facility integrated within the Deck Structure.
50	<ul style="list-style-type: none"> FRA to ensure that any new owner, transferee, or lessee develop a safety and security plan that Amtrak and FRA would review and approve in any sale, transfer, or lease of the Federal air rights. 	Indirect impacts of potential Federal air rights development on safety and security.
Public Health, Elderly and Persons with Disabilities		
51	<ul style="list-style-type: none"> USRC to require the construction contractor to install temporary walls and partitions to close off the portions of the Retail and Ticketing Concourse where the column removal work would be conducted from the areas remaining accessible to the public or to station or Amtrak employees. These walls and partitions would be sufficient to prevent the fumes from train operations in the tunnel, as well as dust from the demolition or construction work and emissions from construction equipment, from entering these areas. They would also provide adequate shielding from noise. USRC to ensure that the construction contractor maintains accessibility during construction in compliance with ADA requirements and DDOT's <i>Pedestrian Safety and Work Zone Standards</i>, including avoiding or minimizing narrow passages, bottlenecks, or areas otherwise difficult for persons with disabilities or elderly persons with reduced mobility to navigate. Outside WUS, USRC to require the construction contractor to provide protected pedestrian passages along with appropriate signage. Signs would be clear and concise and designed to communicate information to 	Construction impacts to transportation and mobility of elderly or persons with disabilities.

No.	Mitigation Measure/Project Commitment	Impacts Mitigated
	<p>visually impaired as well as non-visually impaired persons. Where possible, audible direction would be provided. Pedestrian pathways would be kept clear of debris and obstructions, adequately drained, and provide adequate passing spaces. Pedestrian pathways would have detectable edges or channelizing equipment. Pedestrians would be protected from vehicular traffic with crash-worthy barriers. Barriers would be equipped with reflective material for delineation on the side exposed to traffic.</p> <ul style="list-style-type: none"> USRC to require the construction contractor properly and clearly advertise lane closures, detours, alternative parking access, or use of metal plates to cover temporary trenches across roadways. <p>USRC to require construction contractor to notify the owners and occupants of the Kaiser Permanente Medical Building of any planned road or sidewalk closures sufficiently in advance to allow them to publicize these disruptions to their patients and customers as appropriate. Temporary entrances or pathways would be clearly marked and advertised. ADA-compliant access to the building would be maintained at all times.</p>	
Environmental Justice		
52	<ul style="list-style-type: none"> When implementing impact mitigation measure #28, USRC would incorporate EJ considerations informed by the ongoing targeted community outreach effort 	Traffic impacts on EJ communities
53	<ul style="list-style-type: none"> USRC to require that, if and when the construction contractor encounters homeless persons during staging and construction, the contractor should contact and coordinate with the appropriate authorities and organizations to ensure the displaced persons are given access to assistance services, including opportunities for shelter, and health and mental health care; that they are not deprived of their belongings or otherwise mistreated; and that neither they nor the workers interacting with them are put at risk of harm. 	Impacts on people experiencing homelessness.

7.2 Permits and Key Regulatory Processes

4147 **Table 7-2** lists the applicable permits and key regulatory processes for the Preferred Alternative.

Table 7-2. Permits and Key Regulatory Processes for the Preferred Alternative

No.	Permit
Natural Ecological Systems	
1	<ul style="list-style-type: none"> DDOT Urban Forestry Division Public Space Tree permit, including compensation, as applicable. Non-hazardous street trees require payment of \$200 per inch diameter. Hazardous street trees require planting a new street tree at a 1:1 ratio.
Water Resources and Water Quality	
2	<ul style="list-style-type: none"> DOEE permit for erosion and sediment control, dewatering, and post-construction storm water management.
3	<ul style="list-style-type: none"> EPA National Pollutant Discharge Elimination System (NPDES) Construction General Permit Stormwater Pollution Prevention Plan (SWPP) submission to both DOEE and EPA Region 3 that is in compliance with the requirement of the NPDES permit.
Solid Waste Disposal and Hazardous Materials	
4	<ul style="list-style-type: none"> Register underground storage tanks covered under 20 District of Columbia Municipal Regulations, Chapter 55
Transportation	
5	<ul style="list-style-type: none"> DDOT permits governing the use of the public right-of-way and creation of roadway access permits, including: <ul style="list-style-type: none"> Public Space Permit – Construction Public Space Permit – Occupancy Traffic Control Plan for both Construction and Occupancy permits.
6	<ul style="list-style-type: none"> Washington Metropolitan Area Transit Authority permits governing construction and service closure.
Air Quality	
7	<ul style="list-style-type: none"> Permit from DOEE before causing or allowing the construction of a new stationary source of emissions, the modification of an existing stationary source, or the installation or modification of any air pollution control device on a stationary source.
Energy	
8	<ul style="list-style-type: none"> Green determination request to the District Department of Buildings (DDOB) to determine the applicability of green and energy laws in the Green Building Design Process.
Land Use, Land Planning, and Property	
9	<ul style="list-style-type: none"> DDOB building permit.
10	<ul style="list-style-type: none"> DDOT public space permit – construction and occupancy (see also #5).
11	<ul style="list-style-type: none"> DDOT fences and retaining walls permit.
12	<ul style="list-style-type: none"> DDOT sidewalk, curb, and gutter permit.
13	<ul style="list-style-type: none"> Notification to Federal Aviation Administration (FAA) of proposed alteration or construction potentially obstructing airspace (Part 77 Notice).

No.	Permit
14	<ul style="list-style-type: none"> Pre-design and programming, schematic design review and approval by the National Capital Planning Commission (NCPD).
15	<ul style="list-style-type: none"> Concept design review and approval by the Commission of Fine Arts (CFA).
16	<ul style="list-style-type: none"> Final design and site plan review and approval by NCPD and CFA.
Aesthetics and Visual Quality	
17	<ul style="list-style-type: none"> Pre-design and programming, schematic design review and approval by NCPD.
18	<ul style="list-style-type: none"> Concept design review (including perimeter and exterior security elements) and approval by CFA.
19	<ul style="list-style-type: none"> Final design and site plan review and approval by NCPD, CFA, and the District of Columbia Historic Preservation Office (including perimeter and exterior security elements).
Noise	
20	<ul style="list-style-type: none"> Construction outside Monday-Saturday from 7 AM to 7PM requires a permit from DDOB.
Cultural Resources	
21	<ul style="list-style-type: none"> PA resolving the Project's adverse effects on historic properties in compliance with Section 106.
22	<ul style="list-style-type: none"> Archaeological Resources Protection Act (ARPA) permit if archaeological investigations are conducted.
Safety and Security	
23	<ul style="list-style-type: none"> Compliance with safety standards and railroad safety statute administered by FRA.
24	<ul style="list-style-type: none"> Compliance with Amtrak Safety and Security Regulations, including Amtrak approval for measures addressing the safety of the railroad operations and station activity.
25	<ul style="list-style-type: none"> Compliance with Federal regulations concerning rail transportation administered by the Transportation Security Administration.
26	<ul style="list-style-type: none"> Compliance with the applicable safety and security requirements of WMATA's Joint Development and Adjacent Construction process.
27	<ul style="list-style-type: none"> District Public Space Committee review and approval of items in public right-of-way that do not fall within the regular permitting process such as over-height retaining walls; over-height fences; and security bollards.
Public Health, Safety, and Persons with Disabilities	
28	<ul style="list-style-type: none"> Compliance with ADA requirements and U.S. Access Board's ADA Accessibility Guidelines (ADAAG) adopted by the U.S. Department of Transportation in 2006.
29	<ul style="list-style-type: none"> Compliance with the District of Columbia Building Code, which includes requirements for accessibility and indoor environmental quality, and is enforced through the building permitting process administered DDOB.

8 Public Involvement and Agency Coordination

Agency and public involvement is an integral part of the National Environmental Policy Act (NEPA) process. Accordingly, the Federal Railroad Administration (FRA) provided numerous opportunities for open, collaborative, and meaningful participation for the Washington Union Station (WUS) Expansion Project (Project). This chapter summarizes the public and agency involvement activities for the Project's NEPA and Section 106 of the National Historic Preservation Act (NHPA) reviews that have occurred since the publication of the Draft Environmental Impact Statement (DEIS) in June 2020. For information on public and agency involvement activities prior to the 2020 DEIS, refer to 2020 DEIS Chapter 8, *Public Involvement and Agency Coordination*.¹²³

8.1 Coordination During Post-DEIS Pause

Following review of the agency and public comments received on the 2020 DEIS, FRA decided to pause the EIS process to allow the Project Proponents to further coordinate with stakeholders regarding the Project elements. As part of this pause, the Project Proponents developed The Preferred Alternative (Alternative F) and engaged with agencies and stakeholders on elements of this alternative. This engagement included meetings with elected officials and agencies such as the Mayor's Office; the Deputy Mayor for Planning and Economic Development (DMPED); District elected officials; the District Department of Transportation (DDOT); the District of Columbia Office of Planning (DCOP); the District of Columbia State Historic Preservation Office (SHPO); the U.S. Commission on Fine Arts (CFA); the National Capital Planning Commission (NCPC); and Advisory Neighborhood Commission (ANC) 6C. The Project Proponents also coordinated with the private air rights developer and the bus carriers that use the WUS bus facility. Key agency meetings are listed in **Table 8-1**.

At the conclusion of this process and as part of the coordination described in **Section 8.2, Agency Coordination During Preparation of the SDEIS**, the Project Proponents presented the refinements made to the Project to both CFA and NCPC to advance the regulatory approvals associated with those agencies. These briefings are indicated in **Table 8-1**. (Note: Cooperating Agency and Consulting Party meetings are not presented in **Table 8-1**.)

¹²³ Federal Railroad Administration. 2020. *Draft Environmental Impact Statement for Washington Union Station Expansion Project*. Chapter 8, *Public Involvement and Agency Coordination*. Available at <https://railroads.dot.gov/elibrary/washington-union-station-expansion-project-draft-eis-chapter-8-public-involvement-and>.

Table 8-1. Agency Meetings and Presentations

Meeting	Date
District Government Briefing: Discussed planning elements of the Preferred Alternative with DDOT and DCOP.	May 20, 2021
District Government Briefing: Discussed planning elements of the Preferred Alternative with DDOT, DCOP, and DMPED.	June 23, 2021
DDOT Ramps and Traffic Coordination: Discussed planning for belowground access ramps and traffic circulation with DDOT.	June 25, 2021
DDOT Ramps and Pick-up/Drop-off Coordination: Discussed planning for below-ground access ramps and pick-up/drop-off approach with DDOT.	July 20, 2021
District Bus Coordination: Discussed bus planning issues with DDOT and DCOP.	July 21, 2021
District Transportation Coordination: Met regularly with DDOT to discuss bus, ramp, pick-up/drop-off, and other multimodal planning items.	October 2021 – January 2022
NCPC Staff Briefing: Updated NCPC staff on the Preferred Alternative and Project status.	February 9, 2022
SHPO Briefing: Updated SHPO on the Preferred Alternative and Project status.	February 14, 2022
CFA Staff Briefing: Updated CFA staff on the Preferred Alternative and Project status.	February 18, 2022
NCPC, CFA, and SHPO Staff Briefing: Shared advanced design elements of the Preferred Alternative for regulatory agency feedback.	May 10, 2022
CFA Information Hearing: Presented to Commission and received feedback from Commissioners regarding the Preferred Alternative.	June 16, 2022
NCPC Concept Review: Presented to Commission and received Concept Approval for the Preferred Alternative.	July 7, 2022

8.2 Agency Coordination During Preparation of the SDEIS

4172 Agencies can participate in the Project’s NEPA process as a Cooperating Agency or as an Interested
 4173 Agency. Agencies were engaged during specific points of the Project to inform decision making
 4174 throughout the NEPA process. Agency coordination included identification and engagement of agencies
 4175 to maintain open communications, as well as informing permitting and resource agencies about the
 4176 NEPA process, and applicable regulations to the Project. FRA considered the agency comments received
 4177 in preparing the SDEIS.

Cooperating Agencies have particular expertise and jurisdiction with respect to any environmental issue, including agencies for which the Project would require NEPA action. In agreement with FRA through a Memorandum of Understanding, these agencies have specific roles and responsibilities regarding the NEPA process and review pre-publication drafts of the Draft and Final Environmental Impact Statements. The Cooperating Agencies provided input for defining the Project's Purpose and Need, the range of reasonable alternatives to be considered, and the methodologies and level of detail required in the Alternatives Analysis. They also identified issues that could substantially delay or prevent obtaining needed permits and approvals, participated in coordination meetings, provided feedback on Alternative F, and prepared mitigation recommendations.

The Cooperating Agencies for the Project at initiation included the Federal Transit Administration (FTA), National Park Service (NPS), DDOT, and NCPC. On January 24, 2023, NPS indicated that they would no longer serve as a Cooperating Agency. FRA will continue to convene Cooperating Agency meetings throughout the NEPA process. Meetings with the Cooperating Agencies during the preparation of the SDEIS are listed in **Table 8-2**.

Table 8-2. Cooperating Agency Meetings

Meeting	Date
Cooperating Agency Meeting #8: Discuss restart of the NEPA process, SDEIS approach, and schedule ahead.	March 4, 2022
DDOT Transportation Coordination: Discuss transportation impacts and mitigations in the SDEIS.	January-March 2023
FTA Pre-SDEIS Briefing: Provide update of Project status and process for FTA staff.	January 18, 2023
NCPC Pre-SDEIS Briefing: Provide overview of SDEIS findings in NCPC's areas of regulatory interest.	February 9, 2023

The Cooperating Agencies were provided an administrative draft of the SDEIS for their review from February 17 through March 7, 2023. Comments were received from all three agencies. FRA incorporated Cooperating Agency comments in the SDEIS, as appropriate.

8.3 Public Involvement During Preparation of the SDEIS

There is public interest in the Project given its size and complexity and because residential and business neighborhoods and areas surround WUS. While preparing the SDEIS, FRA encouraged meaningful participation of WUS users; nearby residents, businesses, and institutions; and other interested organizations, with a focus on local minority and low-income communities that may be affected by the Project.

FRA initiated a complementary, focused outreach effort to meaningfully engage the EJ communities. This effort, which focuses on neighborhoods and communities west of WUS along the North Capitol

4202 Street corridor, includes the steps and activities summarized in **Table 8-3**. The table shows activities
4203 through the publication date of the SDEIS. Outreach will continue after that date, as appropriate. Steps
4204 completed to date are described in the following sections.

Table 8-3. Summary of Focused Outreach Activities During Preparation of the SDEIS

Step/Activity	Timeframe (2023)
<ul style="list-style-type: none"> Identify stakeholders to engage Identify current community leaders and interested parties of potentially affected neighborhoods to participate in focused Community Communications Committee Identify pop-up/event opportunities within the community of focus to share project information with public 	Late January/Early February
<ul style="list-style-type: none"> Hold first meeting of focused Community Communications Committee Interview stakeholders and community leaders 	Late February
<ul style="list-style-type: none"> Attend/participate in pop-up/event opportunities to share information and solicit input Conduct check in meeting with stakeholders/focused Community Communications Committee for responses to concerns and emerging concerns Hold second meeting of focused Community Communications Committee 	March
<ul style="list-style-type: none"> Attend/participate in pop-up/event opportunities to continue sharing information and solicit input Conduct check-in meetings with stakeholders/focused Community Communications Committee for responses to concerns and emerging concerns 	April
<ul style="list-style-type: none"> Hold third meeting of focused Community Communications Committee (as needed) Attend/participate in pop-up/event opportunities to share information and solicit input (as needed) 	May

8.3.1 Focused Community Communications Committee

4205 On February 17, 2023, FRA sent a letter inviting the persons listed in **Table 8-4** to participate in
4206 Community Communications Committee (CCC) sessions focused on environmental justice issues and
4207 geographically centered on neighborhoods west of WUS. The role of the focused CCC members would
4208 be to help share information on the Project with their respective constituencies and obtain meaningful
4209 feedback from the community. All invitees accepted.

Table 8-4. Members of the EJ-Focused CCC

Name	Title/Role	Organization
Kevin Rogers	Commissioner	ANC6E03
Denise Blackson	Commissioner	ANC6E04
Dylan Forest	Commissioner	ANC6E06
Ritanch Hans	Commissioner	ANC6E09
Marcus Manning	Community Outreach and Relations Specialist Ward 6	Executive Office of the Mayor
Drew Hubbard	Interim Director	District of Columbia Department of Housing and Community Development (DHCD)
Talib Shakir	Director of Operations	Mayor's Office of Community Relations and Services (MOCRS)
Jake Stolzenberg	Community Outreach and Relations Specialist Ward 6	MOCRS
Anthony Brown	Church Liaison	Bible Way Church
Rev. Kimberly Jamieson	Chief of Operations	Mount Carmel Baptist Church
Tawanda Johnson	Library Manager	Northwest One Library
Mary Van Bavel	Commuter Programs Manager	Gallaudet University

8.3.1.1 Interviews

In February 2023, members of the Project Team conducted initial interviews with the following CCC members: Commissioners Blackson (ANC6E04) and Hans (ANC6E09); Drew Hubbard (DHCD); Talib Shakir (MOCRS); Jake Stolzenberg (MOCRS); Tawanda Johnson (Northwest One Library); and Mary Van Bavel (Gallaudet University). The following themes emerged from these interviews:

- There is a large senior population in this area who will need more face-to-face interaction to reach them.
- There are populations that may be skeptical about the project and if their concerns will actually be taken into consideration.
- Everyone that we have spoken to has seemed enthusiastic about participating and helping to share project information.

8.3.1.2 February 28, 2023 CCC Meeting

The February 17, 2023, letter invited EJ-focused CCC members to attend a meeting on February 28, 2023, at Union Station Redevelopment Corporation (USRC) offices, 750 First Street NE. The purpose of this meeting was to update the CCC members on the Project and the SDEIS process, and to provide more information on the EJ outreach plan and the CCC's role. The meeting consisted of a presentation that

summarized the history of the Project; described the Preferred Alternative; and identified traffic impacts as impacts of EJ concern. A question and answer session followed the presentation.

The following CCC members attended: Ritanch Hans (ANC6E09); Drew Hubbard (DHCD); and Jake Stolzenberg (MOCRS). Additionally, Leandro Zucchi represented USRC.¹²⁴ Topics raised during the post-presentation discussion included bicycle and pedestrian safety; noise pollution; and visual impacts. Participants were invited to identify opportunities to reach their respective constituents.

8.3.1.3 March 28, 2023 CCC Meeting

On March 28, 2023, members of the Project Team held a meeting of the EJ-focused CCC online. The following CCC members attended: Denise Blackson (ANC6E04); Anthony Brown (Bible Way Church); Ritanch Hans (ANC6E09); Drew Hubbard (DHCD); Tawanda Johnson (Northwest One Library); Marcus Manning (Executive Office of the Mayor); Kevin Rogers (ANC6E03); Talib Shakir (MOCRS); and Jake Stolzenberg (MOCRS).

The meeting started with a presentation that provided an overview of the methodology and initial findings of the EJ analysis conducted for the SDEIS. The presentation was followed by a discussion during which the following topics were raised: impacts from construction dust; impacts on traffic congestion of roads with reduced capacity because of bicycle lanes and road diets; and need for regularly providing the community with information on the Project.

8.3.2 March 14, 2023, ANC6E Meeting

Members of the Project Team presented an abridged version of the February 28 presentation at the regular meeting of ANC6E on March 14, 2023. The abridged presentation focused on the history of the Project to date; the Preferred Alternative; potential EJ impacts; and next steps in the outreach effort. A question and answer session followed the presentation. The questions included whether the Project has a residential component; how much parking, if any, would be provided; whether bicycle parking would be provided; and whether provisions were being made to have sufficient seating areas in the new train hall.

8.3.3 Pop-up Events

Table 8-5 lists the pop-up events conducted through early April 2023. The pop-up events consist of a table and graphic displays staffed by Project Team members. Their purpose is to provide information on the Project and receive feedback from on community concerns or questions about the Project and how it could impact the daily lives and commutes of local residents. Pop-up events will continue through May 2023 at a minimum. Events not described in this SDEIS will be described in the Final Environmental Impact Statement (FEIS).

¹²⁴ The limited attendance is attributable to several CCC members being sick combined with last-minute competing events in the District. To mitigate this risk, in consultation with CCC members, the next meeting will be in virtual format.

Table 8-5. Summary of Pop-up Events

Date	Location	Key Topics Raised
February 25, 2023	Northwest One Library	<p>Conversations held with 11 people. Topics raised included:</p> <ul style="list-style-type: none"> • What would happen to the parking garage and rental cars • The benefits of redevelopment • Adding more retail at WUS • Creating more jobs in the area • Concerns about effect of traffic on commutes • Cost of transit
March 18, 2023	Ward 6 Community Clean up Event	<p>Conversations held with 15 people. Topics raised included:</p> <ul style="list-style-type: none"> • Awareness of the Project • Interest in learning more about the Project • Concerns about road closures and impacts to pedestrian routes
March 23, 2023	Northwest One Library	<p>Conversations held with 14 people. Topics raised included:</p> <ul style="list-style-type: none"> • Concern about need to reroute traffic • Job opportunities • Use of solar panels in the new parts of the station • Energy friendliness of the expanded station • Elevators and accessibility • Avoiding construction during rush hour • Minimizing construction duration • Sharing information with the community
March 25, 2023	Union Station in Bloom Event at WUS	<p>Conversations held with 43 people. Topics raised included:</p> <ul style="list-style-type: none"> • Impacts of the Project on WUS visitors • Project duration and cost • Impacts to bicycle and pedestrian circulation, and disruption of train service during construction • Construction noise and dust • Need for public seating at WUS • Cost of parking • Preservation of the historic building • Need for new access to WUS at H Street and improved access at the front of the station • Importance of sharing information • Traffic congestion around WUS

Date	Location	Key Topics Raised
March 31, 2023	2M Apartments (2M Street NE)	<p>Conversations held with 43 people. Topics raised included:</p> <ul style="list-style-type: none"> • Car circulation, especially in front of WUS • Retail and entertainment at the expanded station • Construction traffic and vehicular access during construction • Need to advertise any detours during construction • Loss of street parking • Bicycle safety • Increased rents • Impacts on cultural resources
April 2, 2023	NoMA in Bloom Event (Alethia Tanner Park)	<p>Conversations held with 47 people. Topics raised included:</p> <ul style="list-style-type: none"> • Safety aspects of the Project • Impacts on transit bus routes • Timely notification of changing schedules, Metrorail delays, and road closures • Desire for indoor secure bicycle parking in WUS • Impact on Metrorail • Concern about street closures • Question on type of retail and green space activities and community programming that will be available • Need for information on neighborhood benefits, including additional housing • Question on what will happen to bicycle lanes and pedestrian walkways during and after construction • Impact on the Metropolitan Branch Trail • Need to share route changes information to nearby housing areas and apartments • Need to create protected walk and bicycle alternative routes during construction • Need to avoid impacts on transit bus routes and Metrorail • Need to reduce speed through the construction area • Creating better traffic patterns around New York Avenue and Florida Avenue intersection • Making sure detour wayfinding is easy • Concern that parking access is decreasing • Need for more retail stores in WUS

Date	Location	Key Topics Raised
		<ul style="list-style-type: none"> Maintaining Americans with Disabilities (ADA) accessibility during construction Concern about long wait times during peak hours while trains or Metrorail service are impacted Minimizing internal space for private car parking and maximizing public access Wish for more seating in and around WUS Need to maintain access to Kaiser Permanente Medical Building
April 12, 2023	Hayes Senior Wellness Center	Conversation held with 45 people. Topics raised included: <ul style="list-style-type: none"> Long-term benefits Access to Streetcar during construction Length and phasing of construction Access to nearby transportation and services such as Metrorail and the Post Office Impacts to transit buses

8.4 National Historic Preservation Act Section 106 Consultation

4253 FRA paused the Section 106 process for the Project along with the NEPA process. After the pause, FRA
 4254 resumed consultation with the Section 106 Consulting Parties for the Preferred Alternative. **Table 8-6**
 4255 lists the key post-pause Section 106 steps.

Table 8-6. Section 106 Consultation Meetings

Section 106 Step	Action	Date
Assess Effects	Consulting Parties Meeting #11: Briefing the Consulting Parties on the proposed Preferred Alternative.	March 22, 2022
	Consulting Parties Meeting #12: Briefing the Consulting Parties on the newly identified Preferred Alternative, Area of Potential Effect (APE), Identification of Historic Properties.	July 14, 2022
	Consulting Parties Meeting #13: Review of the Supplemental Assessment of Effects and proposed mitigation measures	January 31, 2023

Section 106 Step	Action	Date
Resolve Effects	Consulting Parties Meeting #14 (planned): Review of minimization and mitigations measures in Draft PA.	Summer 2023
	Consulting Parties Meeting #15 (planned): Finalization of PA.	Winter 2023

8.5 Availability of the SDEIS

8.5.1 Publication of the SDEIS

In accordance with NEPA and FRA's *Procedures for Considering Environmental Impacts*, the SDEIS is open for comment from agencies and the public. FRA filed the SDEIS with the U.S. Environmental Protection Agency (EPA) and the EPA will publish a Notice of Availability (NOA) of the SDEIS in the *Federal Register* on May 19, 2023. The public comment period will remain open until July 6, 2023.

The SDEIS is available on the Project website at: www.wusstationexpansion.com.

Printed copies are available for consultation at the following locations:

- Northwest One Neighborhood Library, 155 L Street NW
- Northeast Neighborhood Library, 330 7th Street NE
- Martin Luther King Jr. Memorial Library, 901 G Street NW

A limited number of individual copies are available upon request at info@WUSstationexpansion.com.

8.5.2 Commenting on the SDEIS

Agencies and the public may submit comments on the SDEIS via the following methods:

- Sending an email or written comment to info@WUSstationexpansion.com
- Sending a written comment to:

Amanda Murphy
Deputy Federal Preservation Officer
Office of Federal Railroad Policy and Development
USDOT Federal Railroad Administration (MS-20)
1200 New Jersey Avenue, SE
Washington, DC 20590

- 4275 ■ Giving oral testimony at one of the public hearings (see **Section 8.5.3, Public Hearings on the**
4276 **SDEIS**, below)
- 4277 ■ Leaving an oral comment at the following toll-free number: 800-892-3297
- 4278 Agencies and the public have until July 6, 2023, to provide comments.
- 4279 All comments received will become part of the public record. Commenters' names and, when applicable,
4280 organizational affiliations, may be shown. No other identifying personal information (including personal
4281 email addresses) will be published.
- 4282 FRA is coordinating compliance with NEPA and Section 106 of the National Historic Preservation Act
4283 consistent with 36 CFR 800.8. The Draft PA is appended to this SDEIS for public and Section 106
4284 Consulting Party review (Appendix D2). The public may provide comments on the Section 106 process as
4285 part of the public comment period on the SDEIS through the above methods.

8.5.3 Public Hearings on the SDEIS

- 4286 Public hearings are held at least 30 days after the release of a DEIS or SDEIS to receive oral testimony
4287 from the public, elected officials, and agency representatives. FRA will conduct two public hearings to
4288 receive comments on the SDEIS.

8.5.3.1 In-Person Public Hearing

- 4289 FRA will hold an in-person public hearing on Tuesday **June 27, 2023, from 5 PM to 8:00 PM** at **Union**
4290 **Station (East Hall)**. The in-person hearing will consist of an open house (5 to 6 PM) during which
4291 members of the Project Team will be available to informally share information and answer questions,
4292 followed by a presentation (6:00 PM to 6:30 PM) and oral comments (6:30 PM to 8:00 PM).
4293 Commenters will also be able to submit written comments. An American Sign Language interpreter and
4294 a Spanish interpreter will be available.

8.5.3.2 Virtual Public Hearing

- 4295 FRA will also conduct a virtual public hearing on Wednesday **June 28, 2023, from 5 PM to 7:00 PM**. The
4296 virtual hearing will consist of the same presentation as given at the in-person hearing (5:00 PM to 5:30
4297 PM) followed by oral comments (5:30 PM to 7:00 PM). The virtual public hearing can be accessed via the
4298 following link: <https://bit.ly/wus-sdeis-mtg> or by calling (301) 715-8592, Meeting ID: 817 4039 4141,
4299 Passcode: 368015.

8.6 Final Environmental Impact Statement and Record of Decision

- 4300 Pursuant to the Fixing America's Surface Transportation Act of 2015 (FAST Act), FRA plans to issue a
4301 single document consisting of the FEIS and Record of Decision (ROD), which contains the Final Section

4302 4(f) Evaluation and the Final Programmatic Agreement.¹²⁵ The FEIS will respond to all substantive
4303 comments received from the public and agencies on both the 2020 DEIS and this SDEIS. The ROD will
4304 identify the alternative selected for implementation, explain the rationale for this selection, and list
4305 mitigation measures and environmental commitments.

¹²⁵ 49 USC 304a provides that FRA must prepare a single document that consists of a FEIS and ROD to the maximum extent practicable.

9 Distribution of the Supplemental Draft Environmental Impact Statement

4306 The Federal Railroad Administration (FRA) made the Washington Union Station (WUS) Expansion Project
4307 (the Project) Supplemental Draft Environmental Impact Statement (SDEIS), including all appendices,
4308 available to all listed below.¹²⁶

9.1 Stakeholder and General Public

4309 FRA notified the public about the availability of the SDEIS through the means described in **Section 8.5.1,**
4310 *Publication of the SDEIS*. The SDEIS is available at www.wusstationexpansion.com. Printed copies are
4311 available for consultation at the following locations:

- 4312 ■ Northwest One Neighborhood Library, 155 L Street NW
- 4313 ■ Northeast Neighborhood Library, 330 7th Street NE
- 4314 ■ Martin Luther King Jr. Memorial Library, 901 G Street NW

4315 A limited number of individual copies are available upon request at info@WUSstationexpansion.com.

9.2 Project Proponents

- 4316 ■ National Railroad Passenger Corporation (Amtrak)
- 4317 ■ Union Station Redevelopment Corporation

9.3 Elected Officials

9.3.1 Federal

- 4318 ■ Congresswoman Eleanor Holmes Norton (District of Columbia)

¹²⁶ Preliminary. Subject to change.

9.3.2 District

- 4319 ■ Mayor Muriel Bowser
- 4320 ■ Chairman Phil Mendelson
- 4321 ■ Councilmember Charles Allen, Ward 6
- 4322 ■ Councilmember Anita Bonds, At-Large
- 4323 ■ Councilmember Matthew Frumin, Ward 3
- 4324 ■ Councilmember Vincent C. Gray, Ward 7
- 4325 ■ Councilmember Christina Henderson, At-Large
- 4326 ■ Councilmember Janeese Lewis George, Ward 4
- 4327 ■ Councilmember Kenyan R. McDuffie, At-Large, Chair Pro Tempore
- 4328 ■ Councilmember Brianne K. Nadeau, Ward 1
- 4329 ■ Councilmember Zachary Parker, Ward 5
- 4330 ■ Council Member Brooke Pinto, Ward 2
- 4331 ■ Councilmember Robert C. White, Jr., At-Large
- 4332 ■ Councilmember Trayon White, Sr., Ward 8
- 4333 ■ Advisory Neighborhood Commission 6C
- 4334 ■ Advisory Neighborhood Commission 6E

9.4 Native American Tribes

- 4335 ■ Cherokee Nation
- 4336 ■ Pamunkey Indian Tribe

9.5 Federal Agencies

- 4337 ■ Advisory Council on Historic Preservation
- 4338 ■ Architect of the Capitol
- 4339 ■ Department of the Interior
- 4340 ■ Federal Highway Administration
- 4341 ■ Federal Emergency Management Agency
- 4342 ■ Federal Protective Service

- 4343 ■ Federal Transit Administration
- 4344 ■ Government Publishing Office
- 4345 ■ National Capital Planning Commission
- 4346 ■ National Park Service – National Capital Region
- 4347 ■ National Park Service – National Mall and Memorial Parks
- 4348 ■ Transportation Security Administration
- 4349 ■ United States Commission of Fine Arts
- 4350 ■ United States Environmental Protection Agency
- 4351 ■ United States Fish and Wildlife Service
- 4352 ■ United States General Services Administration – National Capital Region

9.6 District and State Agencies

- 4353 ■ District Department of Energy and Environment
- 4354 ■ District Department of Transportation
- 4355 ■ District of Columbia Office of Planning
- 4356 ■ District of Columbia Office of the City Administrator
- 4357 ■ District of Columbia State Historic Preservation Office
- 4358 ■ District of Columbia Water
- 4359 ■ District of Columbia Office of the Deputy Mayor for Planning and Economic Development
- 4360 ■ District of Columbia Public Schools
- 4361 ■ District of Columbia Public Works
- 4362 ■ District Office of Zoning
- 4363 ■ District of Columbia Department of Buildings
- 4364 ■ Maryland Department of Transportation
- 4365 ■ Maryland Transit Administration
- 4366 ■ Virginia Department of Rail and Public Transportation
- 4367 ■ Virginia Passenger Rail Authority

9.7 Regional Agencies

- 4368 ■ Metropolitan Washington Council of Governments

9.8 Rail and Transit Operators

- 4369 ■ CSX Transportation
4370 ■ Greyhound
4371 ■ Maryland Area Rail Commuter Train (MARC)
4372 ■ Megabus
4373 ■ Norfolk Southern
4374 ■ Virginia Railway Express (VRE)
4375 ■ Washington Metropolitan Area Transit Authority (WMATA)

9.9 Organizations and Other Interested Parties

- 4376 ■ Adventure Cycling Association
4377 ■ Akridge
4378 ■ American Bus Association
4379 ■ Arlington Chamber of Commerce
4380 ■ Baltimore-DC Metro Building Trades
4381 ■ Capital Trails Coalition
4382 ■ Capitol Hill Business Improvement District
4383 ■ Capitol Hill Restoration Society
4384 ■ Coalition for Smarter Growth
4385 ■ Coalition for the Northeast Corridor
4386 ■ Committee of 100 on the Federal City
4387 ■ Consortium for Citizens with Disabilities
4388 ■ DC Preservation League
4389 ■ DC Sustainable Transportation
4390 ■ Downtown Business Improvement District

- 4391 ■ Federal City Council
- 4392 ■ Greater Washington Partnership
- 4393 ■ Guild of Professional Tour Guides of Washington, DC
- 4394 ■ H Street Main Street
- 4395 ■ Montgomery County Chamber of Commerce
- 4396 ■ Mount Vernon Triangle Community Improvement District
- 4397 ■ Multimodal Accessibility Advisory Council
- 4398 ■ National Association of Railroad Passengers
- 4399 ■ National Federation of Tourist Guide Associations
- 4400 ■ National Railway Historical Society, DC Chapter
- 4401 ■ National Trust for Historic Preservation
- 4402 ■ NoMA Business Improvement District
- 4403 ■ Northern Virginia Chamber of Commerce
- 4404 ■ Rail Passengers Association
- 4405 ■ Southern Environmental Law Center
- 4406 ■ The BWI Business Partnership, Inc.
- 4407 ■ The Guild of Professional Tour Guides of Washington, DC
- 4408 ■ Transportation for America
- 4409 ■ Travelers Aid International at Washington Dulles International Airport
- 4410 ■ Virginia Bicycling Federation
- 4411 ■ Virginia Transit Association
- 4412 ■ Virginians for High Speed Rail
- 4413 ■ Washington Area Bicyclist Association

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11 Glossary

4870 No additions or changes are made to this chapter.

12 Preparers

4871 The Federal Railroad Administration (FRA) prepared the Washington Union Station (WUS) Expansion
4872 Project (the Project) Supplemental Draft Environmental Impact Statement (SDEIS) in accordance with
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