

6 Recommended Union Station Intermodal Transit Center Plan

6.1 Introduction to Recommendations

The recommendations in this chapter address shortcomings in the current configuration of Union Station and position the station to accommodate expected growth between the present date and the year 2050. These recommendations were derived from identified needs (discussed in Chapter 3) that emerged from previous studies as well as from the data collection, charrette, and condition assessment phases of this study.

To spatially orient the reader, recommended improvements have been grouped according to study context areas starting as one would access Union Station from Columbus Plaza, move west through the station toward First Street, utilize First Street or the North Pedestrian Walkway to go north toward H Street, and move back through the station area from H Street and the Union Station Parking Garage. These study context areas include:

- **Area A: Columbus Plaza**
- **Area B: Train Concourse**
- **Area C: First Street**
- **Area D: H Street**
- **Area E: Parking Garage and Tracks**

Study context areas are delineated in **Figure 6-1**, which illustrates the overall physical context of this study (including buildings, roadways, other transportation features, etc.) and provides a “key” to follow-on exhibits that more fully illustrate individual recommendations within particular areas of the station complex.

Within the overall study area, recommended improvements relate to certain systems that address the nature of the recommendations being made. These systems include:

- Pedestrian
- Bicycle
- Bus
- Streetcar
- Rail
- Station
- Taxi/Motor Vehicle

Each system helps give further definition to improvements within the same context area. **Figure 6-2** shows the location of each of system within the overall study area.

Drawing from the information initially highlighted in **Figures 6-1 and 6-2**, **Table 6-1** includes a summary of recommended improvements that are classified according to context area and are further defined by system.

The table also shows which identified needs would be met through the implementation of each recommended improvement.

Recommended improvements are described in detail in Section 6.2 and corresponding figures are presented. At the end of Chapter 6, recommended improvements will be tied back to framework planning goals to illustrate how each goal is upheld in the context of USITC Feasibility Study recommendations.

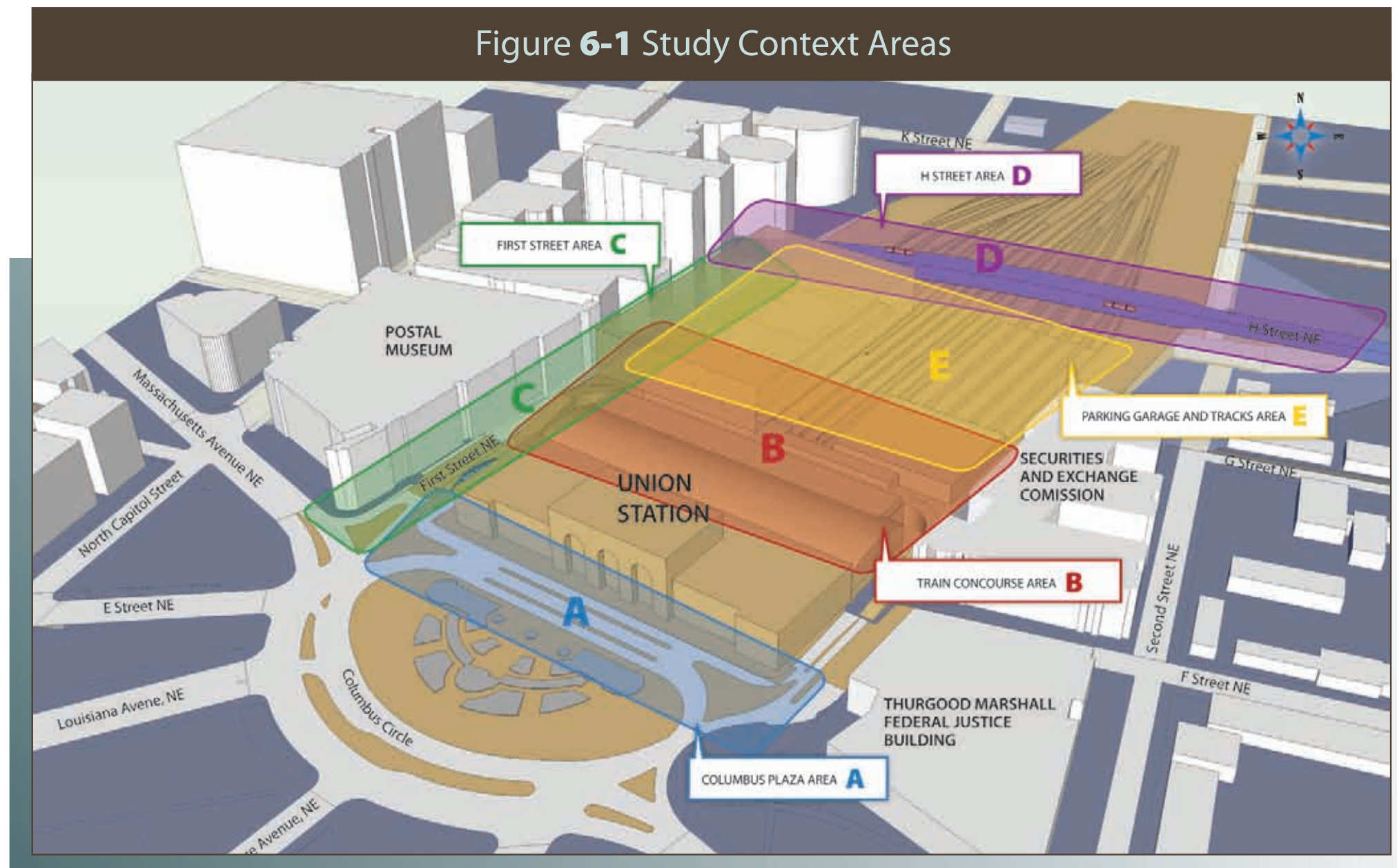
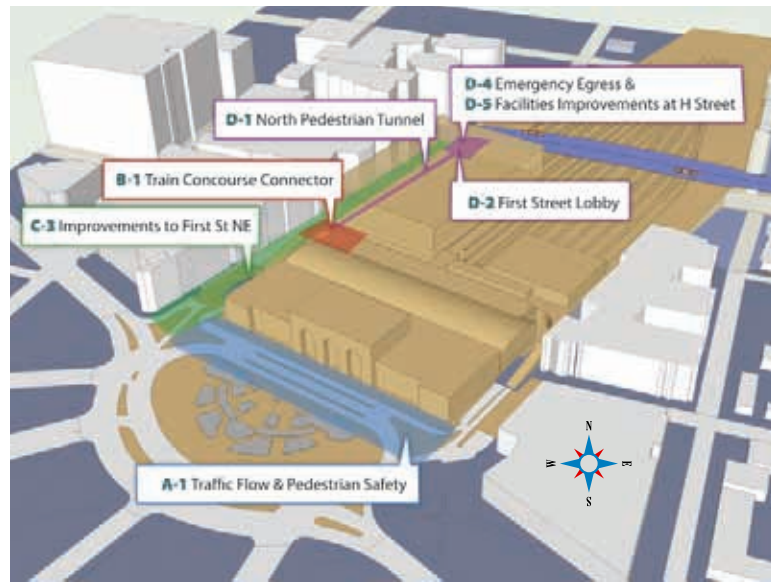
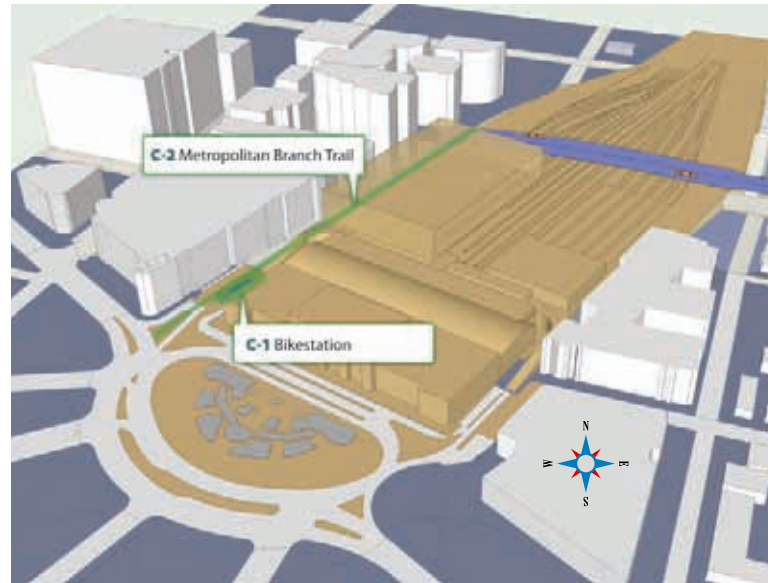


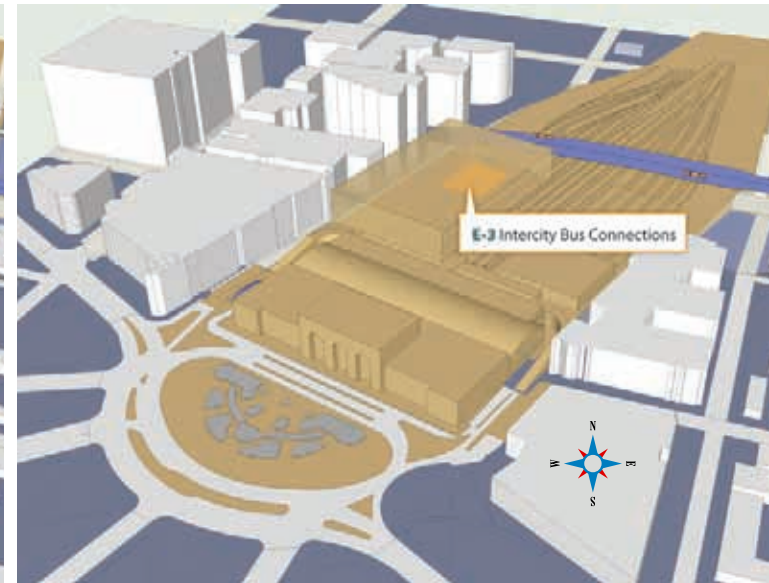
Figure 6-2 Modal and Station Systems in Study Area



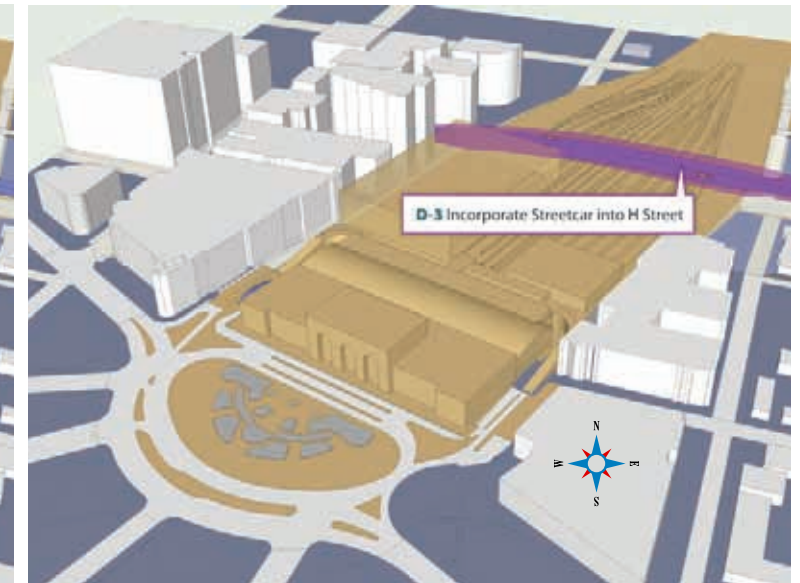
Pedestrian



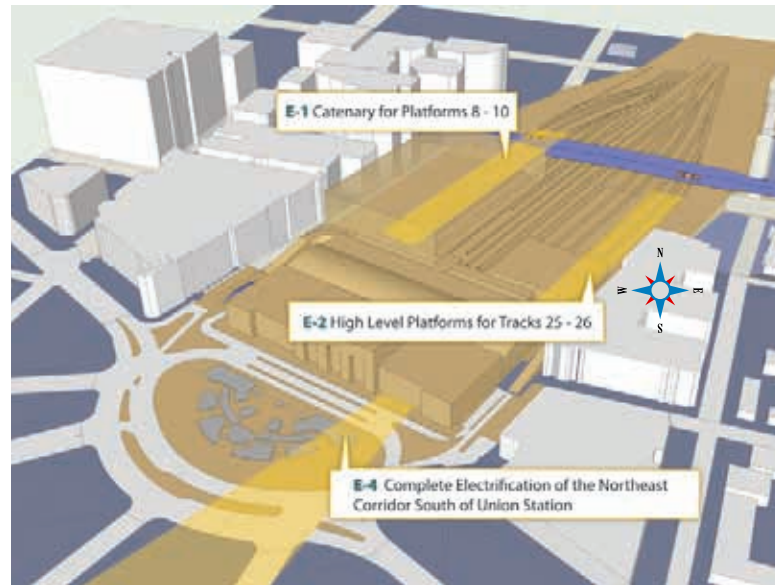
Bicycle



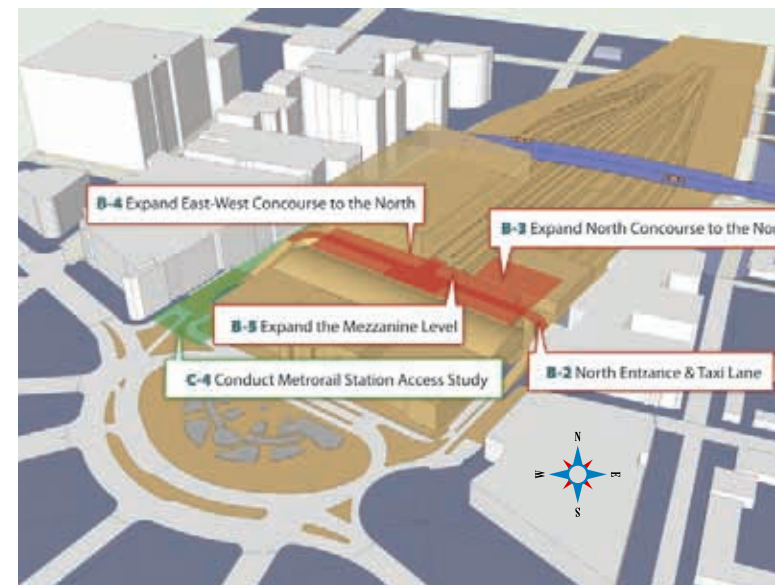
Bus



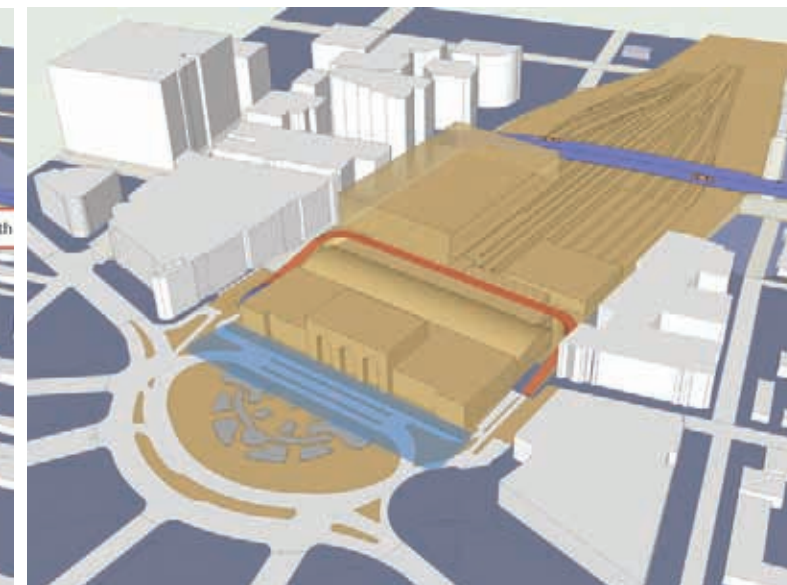
Streetcar



Rail



Station



Taxi/Motor Vehicle

COLUMBUS PLAZA AREA **A**

TRAIN CONCOURSE AREA **B**

FIRST STREET AREA **C**

H STREET AREA **D**

PARKING GARAGE AND TRACKS AREA **E**

Table 6-1 Summary of Recommended Improvements

Study Context Area	Recommended Improvements	Improvement Notation	Contained in which Figure?	Related to which System?	Related to which identified needs?	Cost**
Columbus Plaza Area A	Improve Traffic Flow and Pedestrian Safety on Columbus Circle	A-1	6-2, 6-3	Pedestrian		Cost assigned to another project
	Construct Train Concourse Connector	B-1	6-2, 6-4	Pedestrian		\$4,598,125
Train Concourse Area B	Develop North Entrance along Taxi Lane	B-2	6-2, 6-4	Station		\$949,000
	Extend North Concourse to the North	B-3	6-2, 6-4	Station		\$21,660,000
	Expand East-West Concourse to the North	B-4	6-2, 6-4	Station		\$11,630,000
	Expand the Mezzanine Level	B-5	6-2, 6-4	Station		\$4,632,500
	Bikestation	C-1	6-2, 6-5	Bicycle		Cost assigned to another project
First Street Area C	Improve Connections to the Metropolitan Branch Trail	C-2	6-2, 6-5	Bicycle		\$27,000
	Improve Pedestrian Spaces along First Street NE	C-3	6-2, 6-5	Pedestrian		Cost assigned to another project
	Conduct Metrorail Station Access Study	C-4	6-2, 6-5	Station		\$250,000
	Complete North Pedestrian Walkway	D-1	6-2, 6-6, 6-7	Pedestrian		\$1,850,325
H Street Area D	Construct First Street Lobby	D-2	6-2, 6-6, 6-7	Pedestrian		\$5,035,000
	Incorporate Streetcar into H Street	D-3	6-2, 6-6, 6-7	Streetcar		\$5,291,600
	Construct Emergency Egress at H Street	D-4	6-2, 6-6, 6-7, 6-8	Pedestrian		\$4,986,510
	Enhance Rail Operations Facilities at H Street	D-5	6-2, 6-6, 6-7, 6-8	Pedestrian		\$12,868,000
	Return Catenary to Platforms 8-10	E-1	6-2, 6-8	Rail		\$320,000
Parking Garage and Tracks Area E	Construct High level platforms for Tracks 25-26	E-2	6-2, 6-8	Rail		\$540,288
	Improve Intercity Bus Connections through Construction of an Intercity Bus Station	E-3	6-2, 6-8	Bus		\$2,479,170
	Complete Electrification of the Northeast Corridor South of Union Station	E-4	6-2, 6-8	Rail		\$43,145,800
	Improve Interior Signage/Conduct a Comprehensive Signage Program	*	*	Pedestrian		\$720,000
Additional Recommendations Not Tied to a Specific Area	Implement TOD Principles	*	*	Station		\$300,000
	Implement Emergency Access/Egress Strategies	*	6-9	Station		Cost spread across different improvements

* Recommendation not shown in Figures

**Detailed cost elements may be found in Appendix C



6.2 Recommended Actions

This section goes into a greater level of detail about the recommendations introduced by context area and system in Section 6.1. It is important to note that the recommendations described in this section are conceptual – more detailed analysis will be needed in most cases to develop detailed designs and to refine cost estimates. All cost estimates are planning-level and represent costs in present-day (2009) dollars.

AREA A: COLUMBUS PLAZA

Improvement A-1: Improve Traffic Flow and Pedestrian Safety on Columbus Circle

Needs met:

- Improve pedestrian crossing safety.
- Address congestion and multiple transportation uses in Columbus Plaza.

The proposed changes to the traffic and layout of Columbus Circle and Columbus Plaza were recently approved by the National Capital Planning Commission to improve pedestrian flow across the plaza and vehicular circulation around the building. These improvements pay special attention to increased pedestrian safety in the area and include better marked pedestrian crossings at the east and west sides of Columbus Circle in the front of the building. In keeping with the historic character of Union Station, new crossings will be brick-stamped, instead of painted as before (as shown in **Figure 6-3**). The audible and tactile feedback provided by the stamped crosswalks is expected to calm traffic on Columbus Circle, especially on the heavily trafficked crossing of Columbus Court NE that connects Union Station with the Thurgood Marshall Federal Judiciary Building. It is anticipated that this project could begin construction in late 2009.

AREA B: TRAIN CONCOURSE AREA

Improvement B-1: Construct Train Concourse Connector

The Train Concourse Connector is proposed to link the North Pedestrian Walkway and the existing rail concourse level via a short tunnel (depicted on **Figure 6-4** as B-1). The primary purpose of the Train Concourse Connector is to provide an alternate channel for passengers exiting rail platforms and traveling to the west or north of Union Station, in addition to the 14-foot-wide “Metro passageway,” connecting

the Union Station tracks and platform to the Metrorail station. The passageway experiences significant congestion, often operating at LOS F, as passengers queue to use the bank of two escalators connecting the concourse level to the Metrorail mezzanine level.

The Train Concourse Connector improvement consists of a pair of escalators descending from the concourse level to a new 1,650-square-foot tunnel by which pedestrians can access both the North Pedestrian Walkway and Metrorail station. The Train Concourse Connector could potentially be outfitted with retail and could

be extended east in the event of future high-speed rail expansion.

Once the Train Concourse Connector is complete, train passengers wishing to go to First Street NE from the tracks will have the option of using either the Connector or the existing escalators at the north end of the Metrorail station. As a result of this improvement, the number of patrons using the First Street NE exit in the Metrorail station would likely be reduced as many train patrons traveling to areas near to or north of H Street would use the Train Concourse Connector to access the North Pedestrian Walkway.

Figure 6-3 Area A - Columbus Plaza Improvements

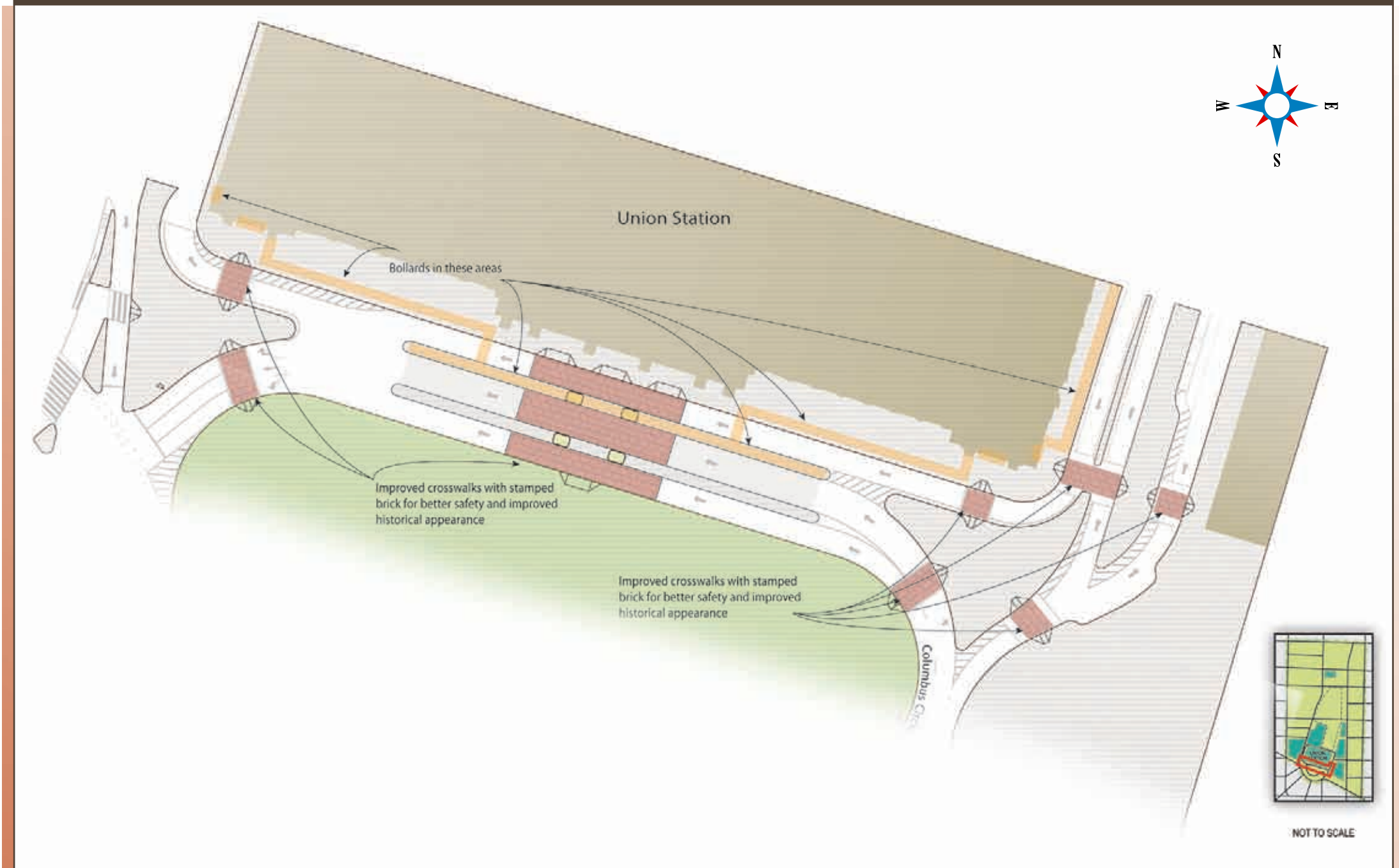
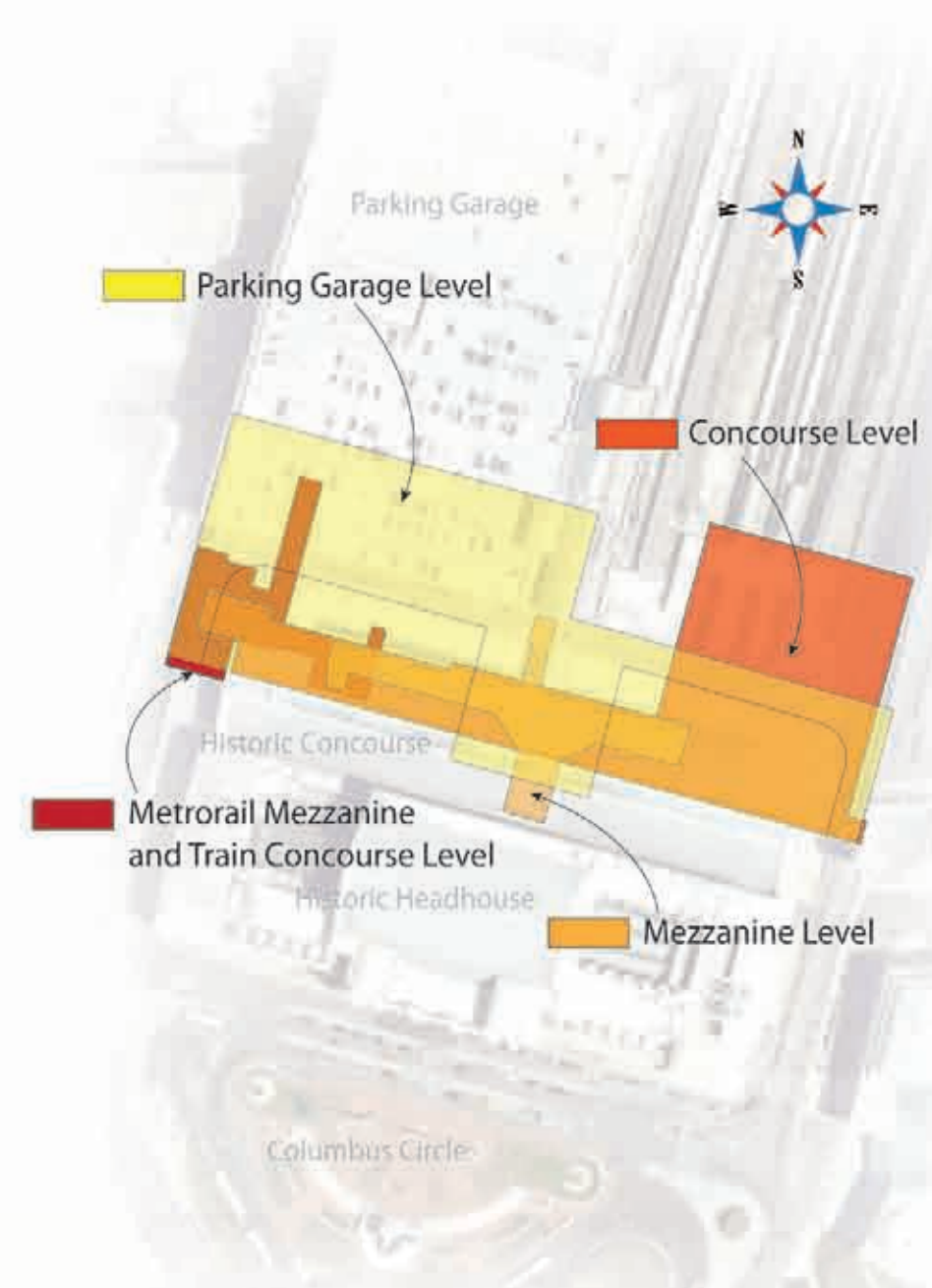
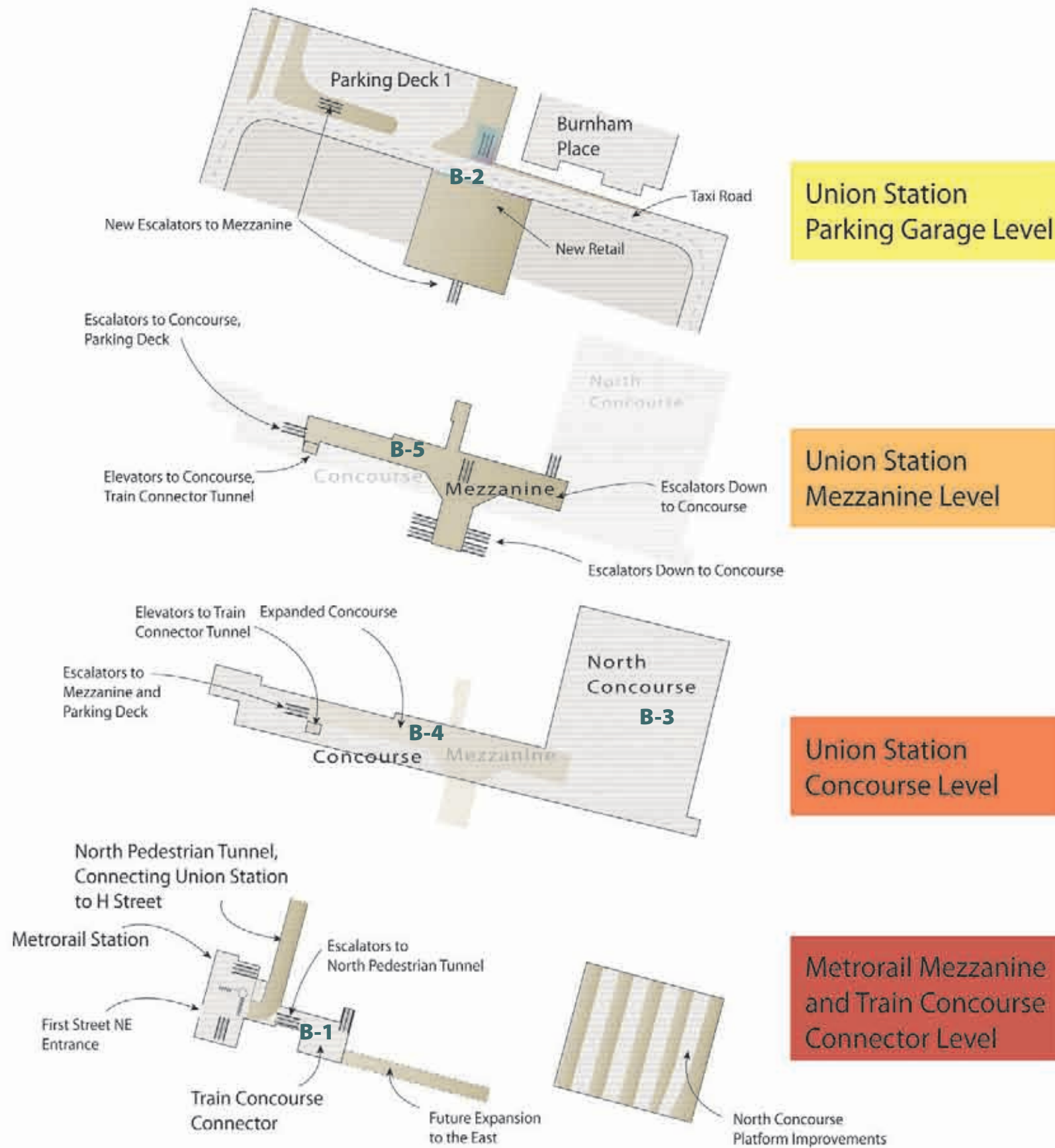


Figure 6-4 Area B - Train Concourse Pedestrian Elements



- B-1** Train Concourse Connector
- B-2** North Entrance/Taxi Lane
- B-3** Expand North Concourse to the North
- B-4** Expand East/West Concourse to the North
- B-5** Expand the Mezzanine Level



A view from inside the Train Concourse Connector, looking toward the entrance of the Metrorail station and the North Pedestrian Walkway.

Estimated planning-level construction costs for the Train Concourse Connector and associated vertical transportation elements are shown in **Table 6-2**. Note that these costs do not include property costs.



A view of the Train Concourse Connector from the North Pedestrian Walkway.

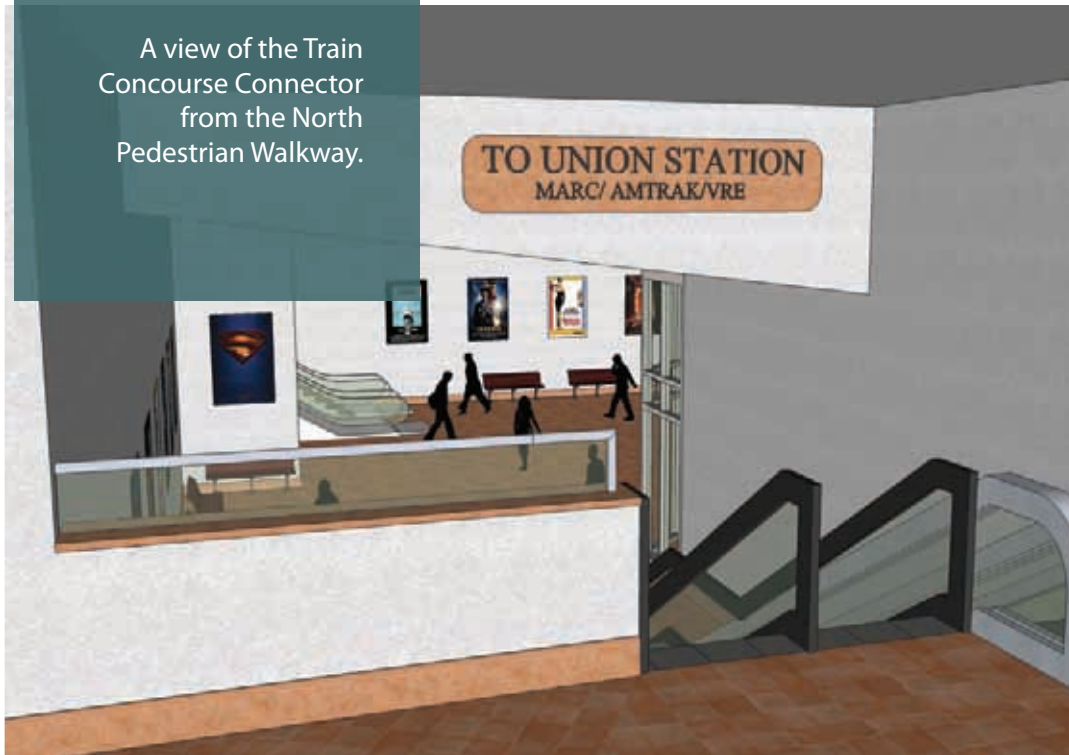


Table 6-2 Train Concourse Connector Construction Cost

Description	Estimated Cost*
Construct connector tunnel eastward from the juncture between the Metrorail station and the North Pedestrian Walkway..	\$4,598,125

*Detailed cost elements may be found in Appendix C

Improvement B-2: Develop along North Entrance/Taxi Lane

Currently, passengers who enter Union Station from the parking garage use a bank of escalators north of the taxi road. In preparation for future development along the Union Station tracks, it is proposed that the frontage along the taxi road be developed as an additional station entrance, with retail facing a new taxi stand between the station and the parking garage (noted on **Figure 6-4** as B-2). In addition to the existing bank of escalators on the north side of the taxi road, passengers would be able use a new bank of escalators on the south side of the taxi road.

Specifically, this improvement (costs shown in **Table 6-3**) would include the addition of 40,000 square feet of retail and pedestrian space located to the south of the taxi drive. Inside the retail area, two escalators would travel down to the mezzanine level, directly adjacent to the escalators traveling from the existing mezzanine level to the concourse levels.

Table 6-3 North Entrance/Taxi Lane Construction Cost

Description	Estimated Cost*
Construct retail and pedestrian space south of the taxi drive.	\$949,000

*Detailed cost elements may be found in Appendix C

Improvement B-3: Extend North Concourse to the north

Needs met:

- Expand rail operations space.

Underneath the proposed Burnham Place development, an expanded passenger concourse and improved train-boarding platforms are envisioned to be built above the easternmost tracks (signified by B-3 in **Figure 6-4**). This concourse would include approximately 45,000 new square feet of passenger boarding areas and passenger waiting areas.

The new North Concourse would significantly enhance the experience for passengers using trains on through-tracks-- currently Amtrak long-distance trains and VRE commuter trains-- and would unify the existing network of escalators that travel to the platforms, creating a single concourse waiting

room that would have retail options and vertical connections to Burnham Place. This connection will facilitate pedestrian movement to H Street. In addition, the platforms below the concourse would be significantly upgraded.

Improvements for an expanded passenger concourse would include:

Table 6-4 Expanded Passenger Rail Concourse Improvements

Description	Estimated Cost*
Extend North Concourse to the North	
Architectural and structural work	\$13,810,000
Vertical transportation (escalators and elevators)	\$5,600,000
Mechanical/Electrical/Plumbing systems	\$2,250,000
Expand East-West Concourse to the north	
Architectural and structural work	\$7,730,000
Vertical transportation (escalators and elevators)	\$1,800,000
Mechanical/Electrical/Plumbing systems	\$2,100,000
Total estimated cost	\$33,290,000

*Detailed cost elements may be found in Appendix C, ** For costing purposes, this improvement was calculated within the cost of the North Concourse improvement.

Improvement B-4: Expand East-West Concourse to the north

Needs met:

- Expand rail operations space
- Separate inbound and outbound train passengers.

The façade of the current concourse facing the Union Station tracks is modulated in distances of 8 to 18 feet; a 1980s design element that was intended to add interest and channel customers to the station doors connecting to the metro passageway to the west. As part of a larger group of expanded passenger rail concourse improvements, the wall of the concourse would be moved a uniform distance from the tracks, allowing for more flexibility in gate arrangements and providing 2,200 additional square feet of space in the passenger rail concourse (represented in **Figure 6-4** by B-4; cost in **Table 6-4**). As part of the same improvement, the current concourse would be significantly reconfigured to provide a larger, brighter, and more open environment for passengers boarding trains and would include significant improvements to the passenger amenities and retail serving the concourse area. Some facilities, such as Club Acela, exist in the area to be reconfigured, and may need to be relocated. Stakeholders generally agree that reconfiguration will provide greater flexibility for train operators using the concourse.

Improvement B-5: Expand the Union Station Mezzanine Level

Needs met:

- Expand train station space vertically and horizontally
- Address major bottlenecks
- Improve and activate pedestrian corridors with retail uses and visual interest
- Provide for separating inbound and outbound train passengers
- Expand capacity of commuter rail to Metrorail pedestrian corridors

The current Union Station mezzanine serves as a transition area for passengers traveling to and from the parking garage to the concourse level. In its current configuration, it serves most effectively to channel passengers from the parking garage to the mezzanine level of retail. In the improvement envisioned by the study, the mezzanine would be greatly expanded to serve as an additional circulation space for all Union Station patrons. Central to the improvement are the additions of 4,000 square feet of pedestrian space to the west of the current mezzanine and 3,450 square feet of space to the east (portrayed in **Figure 6-4** as B-5). On either end of these additional pedestrian areas would be vertical circulation to the levels above and below:

- On the west side of the expanded mezzanine, passengers could travel down to the concourse level or use elevators to travel to the Train Concourse Connector.
- On the east side of the expanded mezzanine, passengers could travel down to the train concourse, as well as up to Burnham Place, once it is developed.

Along the existing concourse, an additional set of escalators would be added, alleviating the congestion experienced on the existing escalators above the Amtrak information booth. These costs are included in **Table 6-5**.

Table 6-5 Costs for Mezzanine Improvements

Description	Estimated Cost*
Add vertical access to H Street, MARC, Metro, and mezzanine bridge	\$327,500
Improve mezzanine level	\$4,305,000
Total estimated cost	\$4,632,500

*Detailed cost elements may be found in Appendix C

AREA C: FIRST STREET AREA

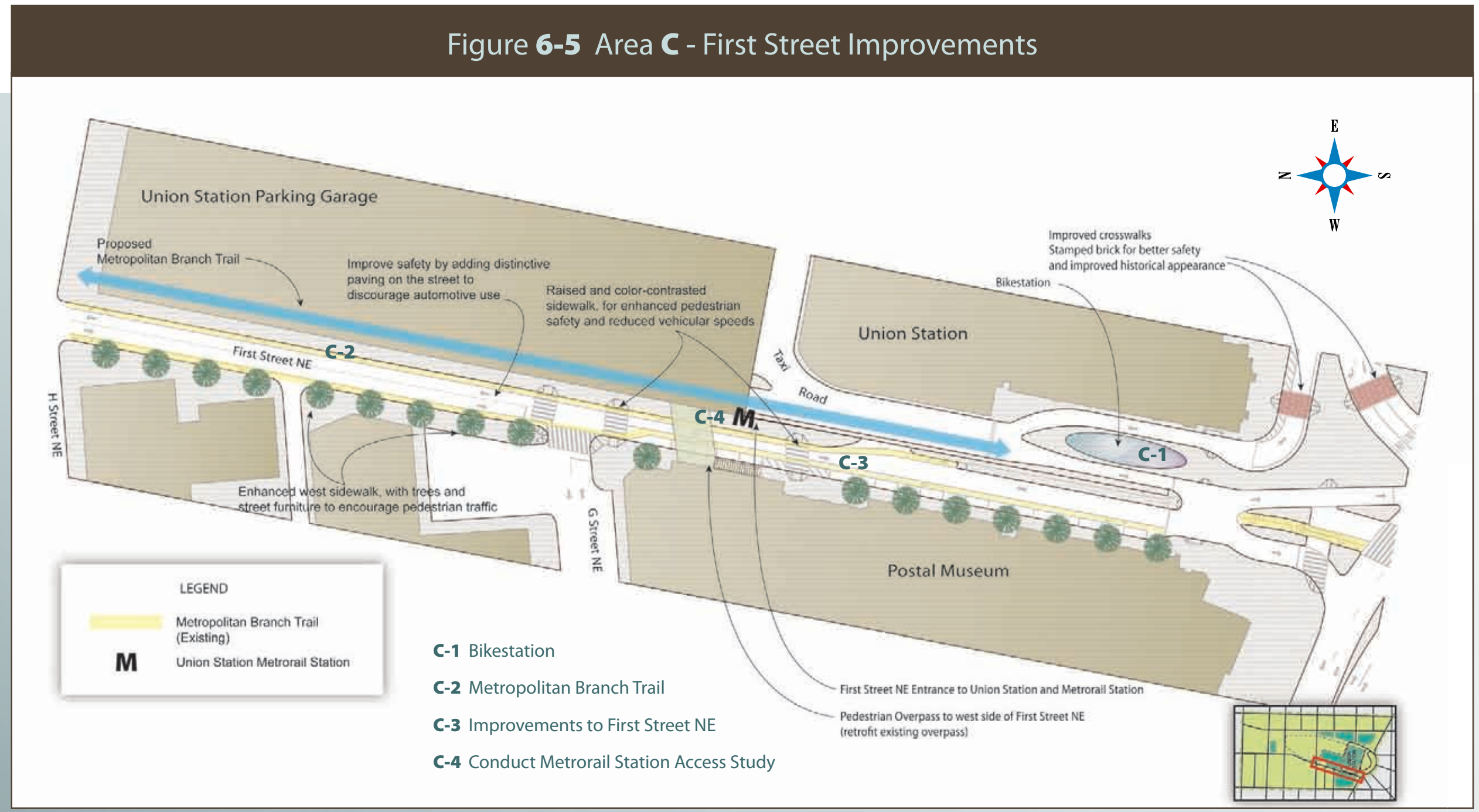
Improvement C-1: Bikestation

Needs met:

- Improve bicycle access to Union Station.
- Support a link between the Metropolitan Branch Trail and the new Bikestation.

The bike transit center recently completed at the southwest corner of Union Station will significantly improve bicycle facilities for Union Station patrons, as

Figure 6-5 Area C - First Street Improvements



well as workers in the surrounding Capitol Hill and NoMa neighborhoods. This bike transit center, known as Bikestation, is located at the south terminus of the Metropolitan Branch Trail and will supplement and encourage use of the trail (noted as C-1 in **Figure 6-5**). The costs associated with Bikestation have been assigned to a separate project by DDOT.

Improvement C-2: Improve Connections to the Metropolitan Branch Trail

Needs met:

- Improve connectivity between bike paths and travel modes at Union Station.



The new Bikestation under construction, with the U.S. Capitol in the distance (above). Rendering of the completed Bikestation (below).



- Separate modes where appropriate for safety.
- Create Metropolitan Branch Trail connections to Bikestation.

The Metropolitan Branch Trail (MBT) is an 8-mile trail that will extend from Silver Spring, Maryland, to the U.S. Capitol via Union Station. Integration of the MBT would be part of a larger effort to integrate bicycle pathways into Union Station, as several bicycle paths are envisioned to meet at a hub anchored by Bikestation, D.C.

Although substantial improvements to trail infrastructure have been made north of Union Station, the route from the New York Avenue Metrorail Station to Union Station remains at grade. Currently, First Street NE has extremely limited capacity to accommodate the trail. Thus, planners at DDOT hope to accommodate the MBT in an off-street right-of-way between I and H streets NE. From H Street NE to the Union Station Bikestation, the bicycle trail would travel along the existing garage ramps connecting H Street NE to Columbus Plaza (depicted in **Figure 6-5** as C-2). This improvement is estimated to cost \$27,000 and while the final configuration of the right-of-way between I Street NE and H Street NE has yet to be determined, it will be determined as a part of the Burnham Place final design

Improvement C-3: Improve Pedestrian Spaces along First Street NE

Needs met:

- Encourage more use of the west side of First Street, NE.
- Improve safety by adding distinctive paving on the street, such as cobblestones, to discourage use by automotive traffic.
- Create access to the First Street overpass, through an added stairway on the west side of First Street, NE.

First Street NE serves as one of the most important pedestrian spaces in the Union Station complex. For passengers exiting Union Station to reach NoMa, First Street is the primary street through the station exit on the Metrorail mezzanine. Both pedestrian and streetscape improvements, such as cobblestone paving and improving existing sidewalks, would encourage pedestrians to use the west side of the street, adjacent to the recent developments of NoMa. Central to these improvements would be paving the street differently, to discourage use by automotive traffic; cobblestones are one paving option that would help achieve this result. Also, the addition of a set of stairs providing access to the overpass over First Street (that connects the Postal Museum with the Union Station concourse level just south of G Street) would provide a much needed connection between the west side of First Street NE and Union Station. This overpass was designed for pedestrians, although it is currently used only for storage. Ideally, as part of this improvement, the overpass would connect with the existing metro passageway in Union Station, allowing train passengers to bypass the often congested Union Station Metrorail station mezzanine level when trying to reach First Street NE (illustrated as C-3 in **Figure 6-5**). Activating and implementing adaptive reuse of the overpass would add an additional 6,000 square feet of circulation area to the Union Station complex. As with construction of the Bikestation, costs associated with this improvement have been assigned to another project.

Improvement C-4: Conduct Metrorail Station Access Study

Many of the proposed changes in this document would impact the existing Union Station Metrorail Station, and would need to be carefully coordinated with WMATA to minimize adverse effects. Conducting an Access Study for the Union Station Metrorail Station would help DDOT and WMATA better identify the exact issues that may arise when improvements to Union Station happen, allowing planners to anticipate and minimize adverse effects to operations and optimize improvements. Because this recommendation centers geographically on the Metrorail station, it is noted as C-4 on **Figure 6-5**.

Details:

- Survey patronage
- Survey connecting transit services (Metrobus, VRE, MARC)
- Incorporate existing studies on parking, Union Station train travel

Table 6-6 Conduct WMATA Station Access Study

Description	Estimated Cost*
Conduct WMATA Station Access Study.	\$250,000

*Detailed cost elements may be found in Appendix C

AREA D: H STREET AREA

Improvement D-1: Complete North Pedestrian Walkway

The North Pedestrian Walkway recommendation would entail activating the existing unused WMATA north-south pedestrian walkway (the entrance is visible on the east wall of the existing Metrorail station, immediately behind the bank of fare gates) and extending it from its current northern terminus to H Street NE. The walkway was partially completed at the time of Metrorail station construction, pursuant with plans to move the passenger rail concourse north to H Street, and the constructed portion of the walkway reaches approximately 500 feet north of the existing Metrorail station, sloping down gradually from approximately 40 feet above sea level to approximately 20 feet above sea level. As part of the proposed improvement, an additional (approximately) 125 feet of walkway would need to be excavated north of the existing walkway and finished in a manner complementary to it. Detailed plans and cross sections including the North Pedestrian Walkway, appear in **Figures 6-6 and 6-7**. The walkway improvement is denoted as D-1.

The proposed work is estimated to cost \$1,850,325; however, the viability of implementing this lower-level pedestrian connection is greatly enhanced by the fact that the walkway is largely complete and its connection to the Metrorail station is in place (although the walkway access is currently provided through a locked door). Estimated planning-level construction costs for the North Pedestrian

Figure 6-6 Area D - Plan View and East-West Cross-Section at H Street

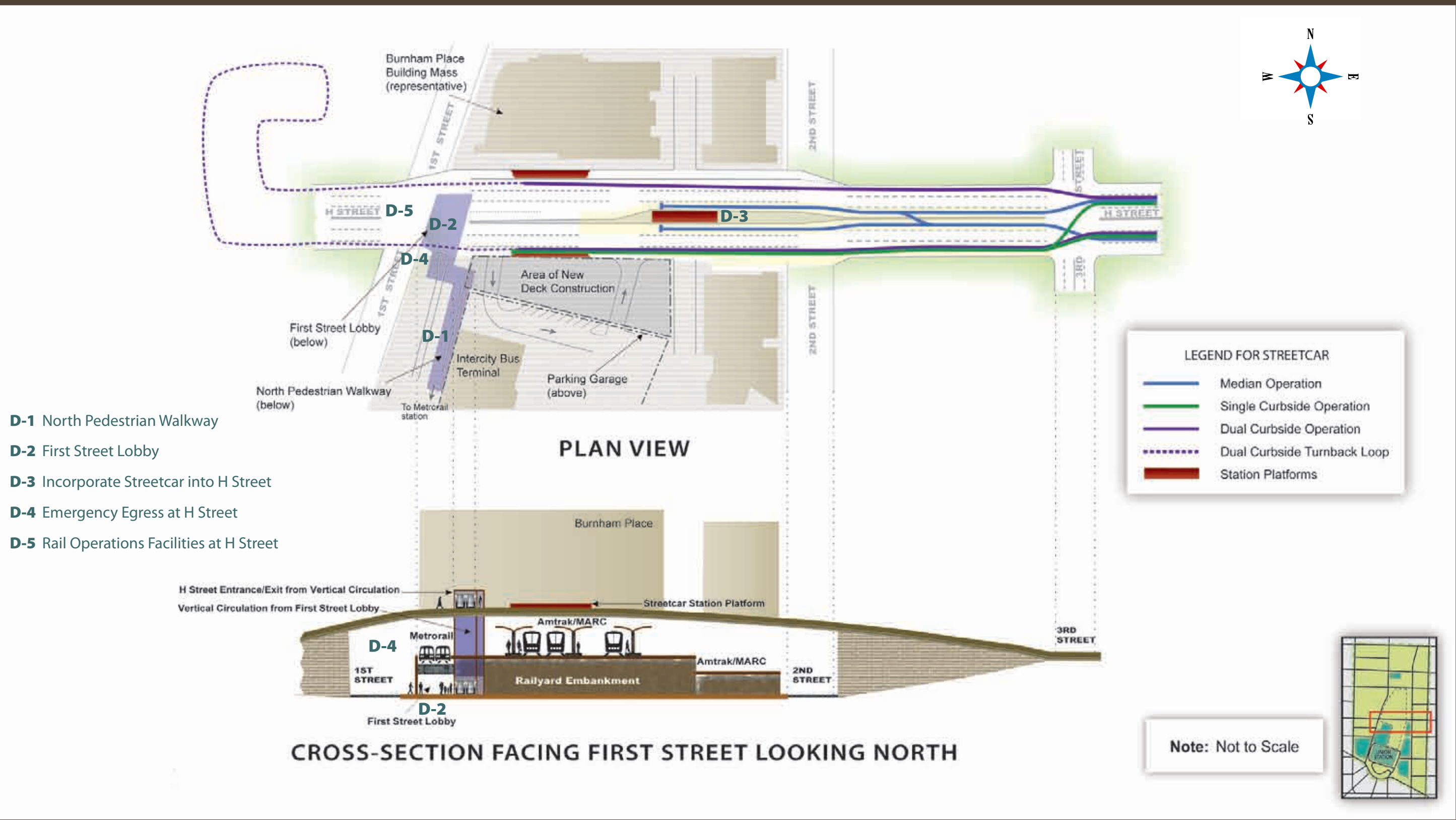
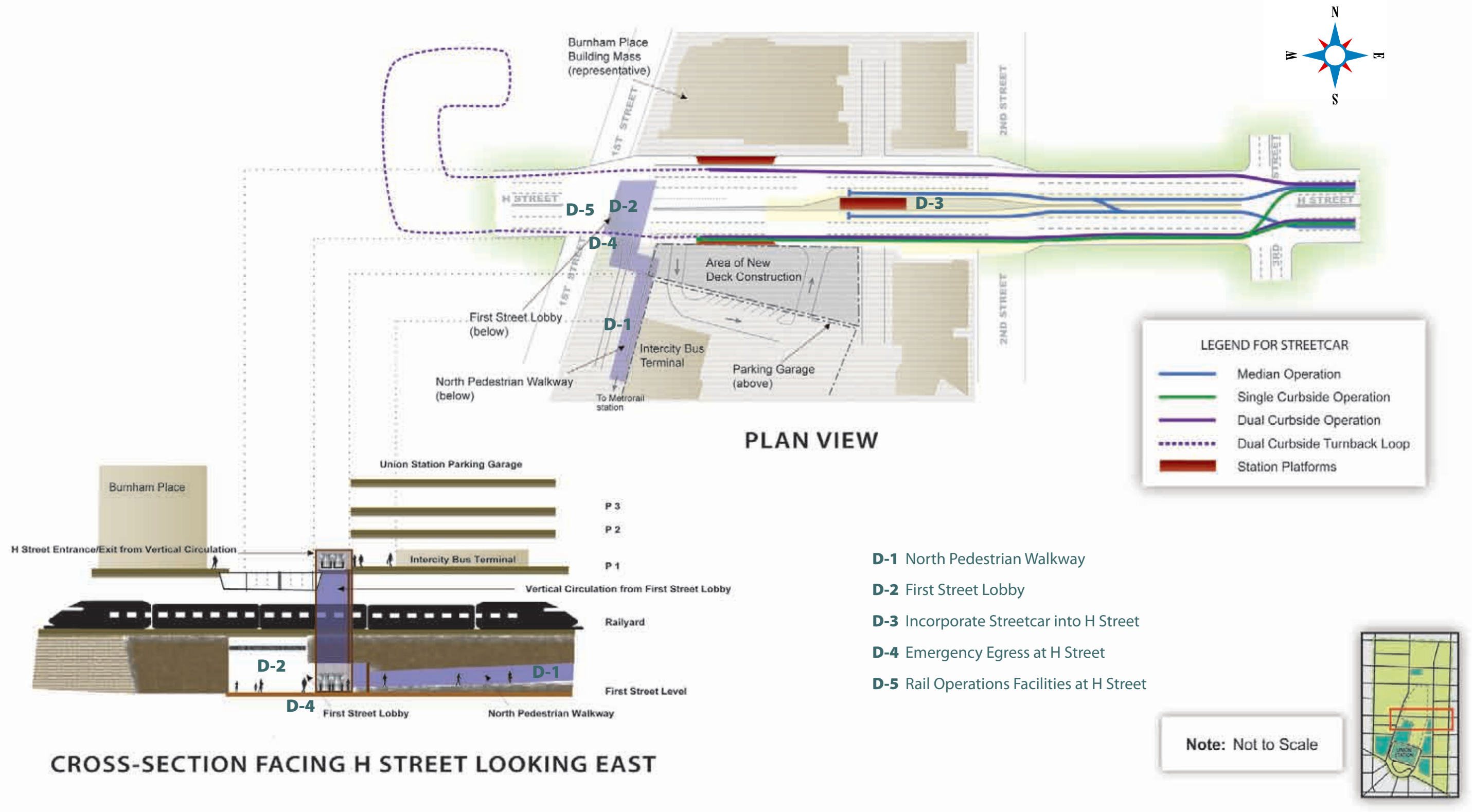


Figure 6-7 Area D - Plan View and North-South Cross-Section at H Street





Conceptual view inside the North Pedestrian Walkway.

Walkway are shown in **Table 6-7**. It is important to note that these costs do not include property or rights-of-way, or any costs related to rights-of-way from the old H Street roadway tunnel, which would need to be vacated.

Table 6-7 North Pedestrian Walkway Construction Cost

Description	Estimated Cost*
Complete currently unused north-south WMATA walkway.	\$1,850,325

*Detailed cost elements may be found in Appendix C

Improvement D-2: Construct First Street Lobby

To complete lower-level pedestrian connections, a portion of the space that was previously the H Street right-of-way would be finished to serve as a lobby area for passengers entering and exiting Union Station from First Street NE (shown as D-2 on **Figures 6-6 and 6-7**). The 28,500-square-foot lobby space, including 2,000 square feet of retail, would have doors opening to First Street NE and vertical circulation connecting the lobby to the surface of H Street NE. This vertical circulation would be located just to the south of the lobby at the north end of the North Pedestrian Walkway.

First Street Lobby improvements would cost approximately \$6,203,750 to build and would include retail opportunities, connections to the North Pedestrian Walkway, and vertical circulation to the H Street overpass/Burnham Place level. This space is currently used for parking and storage by Amtrak; the westernmost portion (the space that would be converted into the lobby) was modified in 1970 to accommodate Metrorail, which required clearance as the Metrorail tracks travel up the grade from the Union Station Metrorail station.

The North Pedestrian Walkway is owned by WMATA, which has a vertical easement that connects to H Street. Currently, Amtrak occupies a portion of that easement at track level. It is recommended that in addition to the identification and delineation of respective easements and management, the USRC, WMATA, and DDOT work together to come to an agreement for the maintenance, security, and retail management of both the walkway and lobby areas.

Table 6-8 First Street Lobby Construction Cost

Description	Estimated Cost
Build a lobby at First and H Streets NE	\$5,035,00

*Detailed cost elements may be found in Appendix C

Improvement D-3: Incorporate Streetcar into H Street

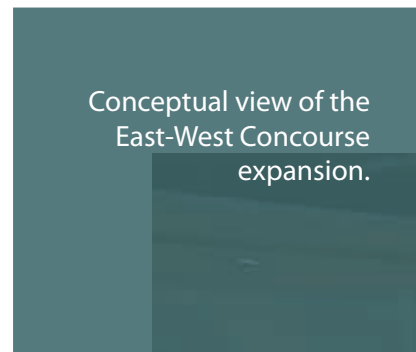
Needs met:

- Integrate the H Street streetcar into the Union Station complex.
- Improve and activate pedestrian corridors with retail uses and passengers.
- Expand active space to H Street with modal and pedestrian connections and activities.
- Serve new land uses with transit.

The USITC Feasibility Study suggests an extension of the proposed H Street Streetcar to serve Union Station (marked as D-3 on **Figures 6-6 and 6-7**).

A design with dual-curbside alignments is suggested due to its minimal impact on traffic conditions on the H Street overpass. From its terminus at H and Third Streets NE, a line would travel westbound on the north side of the bridge to a curbside station just beyond the peak of the H Street overpass. On the south side of the H Street overpass, a curbside station would serve the vertical circulation node that was discussed in the First Street Lobby improvement description.

Although this option includes the cost of a streetcar maintenance facility to the south of H Street on a non-developed parcel, real estate costs were not included in the estimate. Equally important to note is that a loop or turnback to the west would be necessary for the streetcar to complete its circuit and return back to H Street. This loop or turnback would ultimately be determined as part of future efforts to expand the streetcar west.



Conceptual view of the East-West Concourse expansion.

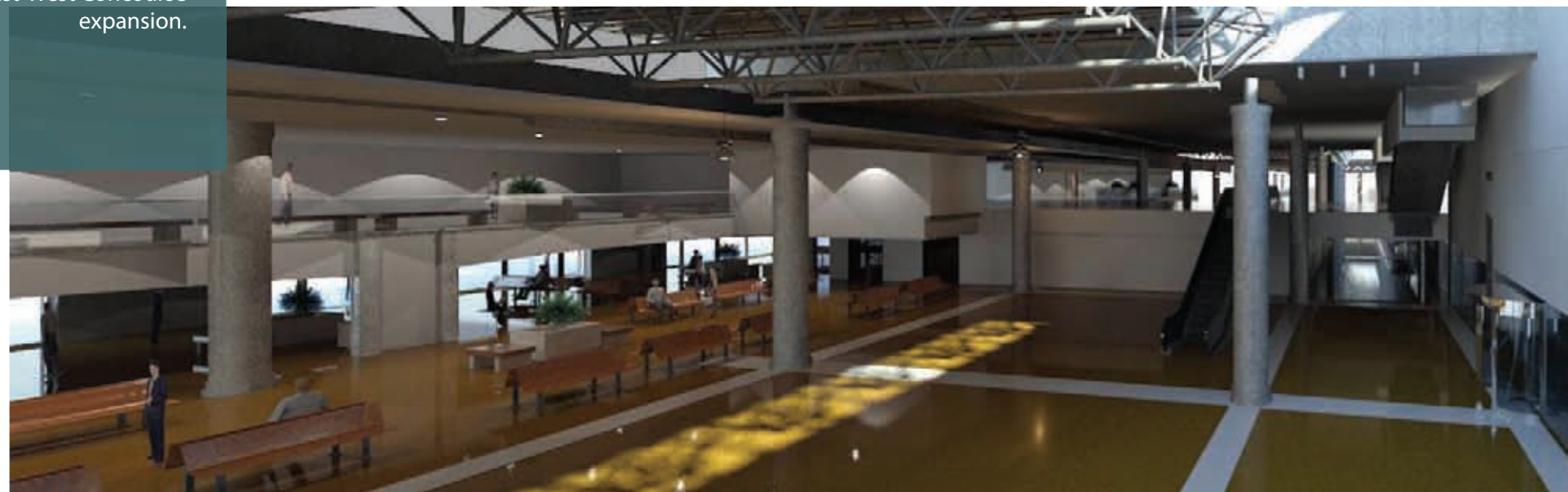


Table 6-9 Costs for Streetcar Expansion to Union Station

Description	Estimated Cost*
Dual curbside alignment, with turnback loop west of station	\$2,591,600
Streetcar maintenance facility	\$2,700,000
Total estimated cost	\$5,291,600

*Detailed cost elements may be found in Appendix C

Improvement D-4: Construct Emergency Egress at H Street

Needs met:

- Improve integration with intercity bus service.

The study proposes installing three escalators on high level platforms and two on low level platforms (equally spaced on platforms serving active tracks), descending from the platforms to the H Street Tunnel (currently used by Amtrak as operations space) to improve emergency egress from rail platforms (signified in **Figures 6-6 and 6-7** by D-4). The costs associated with this improvement include excavation from existing platforms to the H Street Tunnel and installation of escalators.

Table 6-10 Costs for Emergency Egress Construction at H Street

Description	Estimated Cost*
Excavate to H Street Tunnel and install elevators on three high level and two low level platforms	\$3,277,170
Excavate to H Street Tunnel and install elevators on two low level platforms	\$1,709,340
Enhance Rail Operations Facilities at H Street (Including finished commissary space)	\$12,868,000
Total estimated cost	\$17,854,510

*Detailed cost elements may be found in Appendix C

Improvement D-5: Enhance Rail Operations Facilities at H Street

Needs met:

- Expand rail operations space.

When the H Street overpass was constructed, the tunnel that had previously carried H Street underneath the Union Station tracks was sealed from traffic and became Amtrak operations space. Although this space is very large, it is also somewhat inaccessible – access is gained through roll-up doors to the east and west sides of the train tracks. Proposals have been suggested throughout the years to move various Amtrak operations facilities to this space, primarily the commissary functions that are located on the western edge of the Union Station tracks. With the need for vertical circulation between the surface of the H Street overpass and First Street clearly identified in the First Street Lobby improvement, it would be prudent to explore the use of this space for commissary functions or other similar functions that require proximity to the tracks, but not immediate adjacency. In the event of a more formalized use, the space will require improvements, including but not limited to lighting, paving, and signage. However, these improvements are recommended to be completed even before a formal use is identified as the space is ideal as an emergency egress route from rail platforms to the proposed First Street Lobby. This recommendation is noted on **Figures 6-6 and 6-7** as D-5 and its estimated costs are noted in **Table 6-10**.

AREA E: PARKING GARAGE AND TRACKS AREA

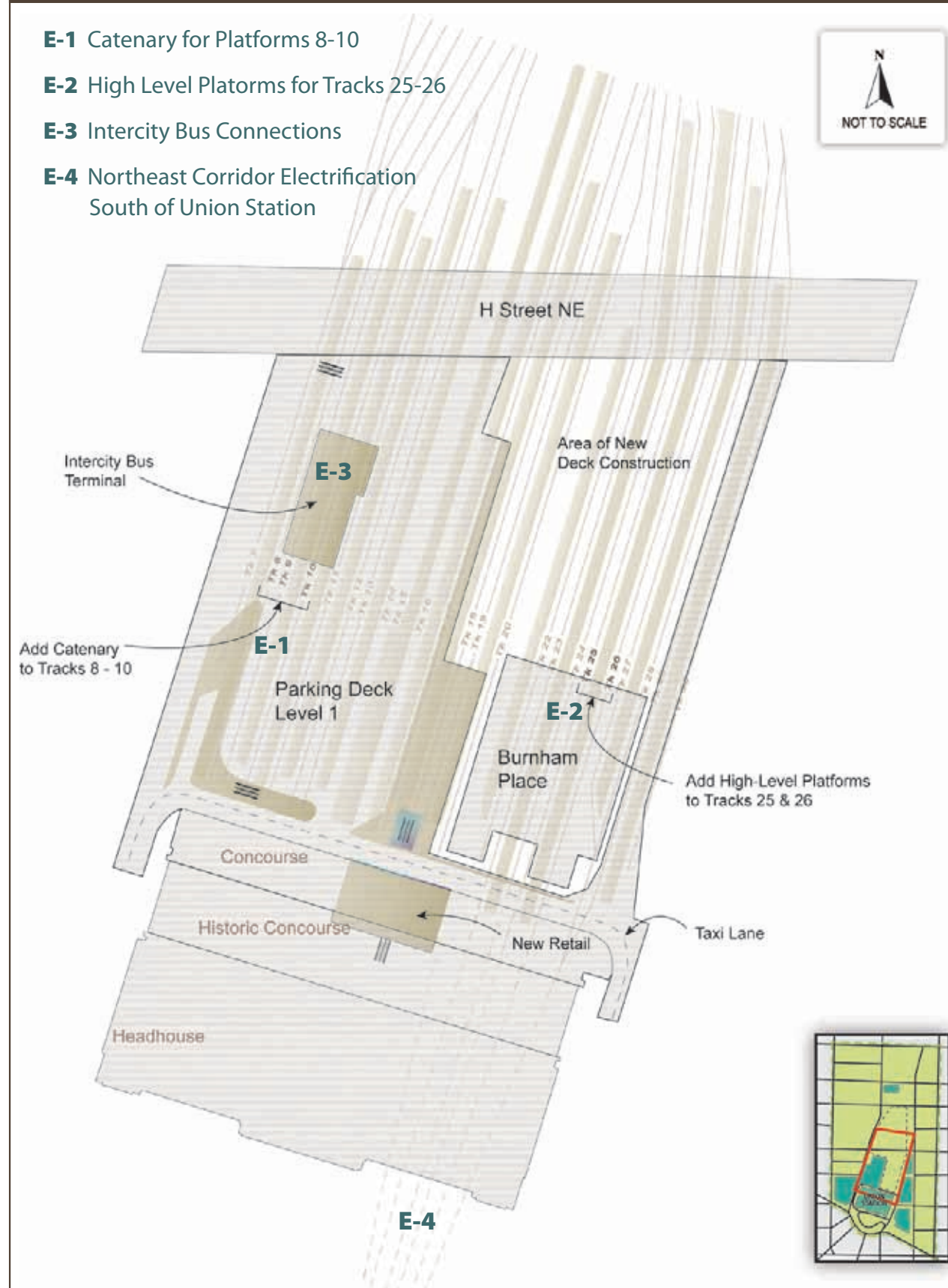
Improvement E-1: Return Catenary to Platforms 8 through 10

Needs met:

- Expand rail operations space.

This improvement (marked as E-1 on **Figure 6-8**) would return overhead catenary, the power distribution system for trains using electric locomotives, to tracks 8 through 10, as currently, these tracks can only be used by diesel powered MARC trains. This improvement is estimated to cost \$320,000 and is an important capacity requirement for year 2050 planning purposes on the Northeast Corridor. Currently, all Amtrak trains in the Northeast Corridor use electric locomotion, while some MARC Penn Line trains do not. To accommodate increased train volumes on the Northeast Corridor in 2050, all MARC Penn Line trains will need to use electric locomotives to meet the acceleration requirements that increased volumes will necessitate. MARC trains, which use tracks 8 through 16, will need the operational flexibility to store

Figure 6-8 Area E - Improvements to Tracks and Parking Garage



and operate all types of trains on all types of tracks and overhead catenary will help to create this operational flexibility.

Improvement E-2: Construct High-level Platforms for Tracks 25 and 26

Needs met:

- Expand rail operations space.

Currently, all through-tracks at Union Station (the tracks used by Amtrak long-distance trains to Atlanta and Miami, Amtrak trains to Virginia, and VRE trains to Virginia) have low-level platforms, which generally extend to the same level as the top of the rail and require passengers to use stairs to reach the car level. Because passengers must travel stairs to enter the cars, low-level platforms are slower to board than high-level platforms.

Currently, low-level platforms, while not ideal, are not an operational problem, as all trains using the through-tracks remain at Union Station for at least 15 minutes. However, to accommodate future electrification and high-speed rail to points south, several high-platform tracks will be needed in the lower-level track area, allowing for faster boarding and alighting. To meet this need over the next few years, it is recommended that high-level platforms be constructed starting with Tracks 25 and 26 (shown in **Figure 6-8** as E-2). This improvement is estimated to cost \$540,288.

Improvement E-3: Improve Intercity Bus Connections through Construction of an Intercity Bus Station at the north end of the Parking Garage

Needs met:

- Improve integration between intercity bus service and transportation modes currently found at Union Station.

Intercity bus is the only regional transportation mode that does not operate directly from Union Station. Greyhound and other intercity bus providers propose operating bus services from a new intercity bus station at the north end of the parking garage at Union Station (designated E-3 on **Figure 6-8**) to create easier connections to other modes in the regional system for intercity bus patrons. The construction of this bus station is estimated, by rough order of magnitude, to cost between \$1 million and \$6 million, depending on the type and permanence of the structure. In addition, intercity bus providers have identified operational needs for approximately 11 bus loading positions, 3 ready bus parking spaces, as well as a need for ticket sales, passenger queuing, and operation support spaces. The total square footage needed would be between approximately 11,000 square feet of interior space and 30,000 square feet of total space.

While most stakeholders welcome the addition of intercity bus service to Union Station, the exact configuration of spaces on the parking garage is under discussion amongst the Union Station stakeholders, particularly the USRC, who has leased the parking garage. The addition of intercity bus services would necessitate displacing some users of the existing parking garage, which include tour buses, Zipcar, the D.C. Circulator, and in the future, Metrobus.

Improvement E-4: Complete Electrification of the Northeast Corridor South of Union Station

Needs met:

- Expand rail operations space.

The lack of electrification south of Union Station forces Amtrak to switch locomotives at the station when providing service in this direction. This operational constraint affects all services operating on the through-tracks of Union Station (22-27, shown as E-4 on **Figure 6-8**). Electrification of the corridor for up to five miles, complete with locomotive exchange yard facilities, will allow for additional Amtrak and VRE trains and possible future through-tracking of MARC trains to Virginia, eliminating congestion on the Red Line. Estimated costs for this improvement total \$43,145,800.

6.3 Other Recommended Improvements

Add and Improve Union Station Interior Signage / Conduct a Comprehensive Signage Program

Signage in Union Station, particularly in the train waiting areas, is aging and poorly placed, often not serving its intended function. Enhancing and upgrading signage throughout Union Station would significantly reduce pedestrian congestion issues at various points throughout the station facilities.

It is recommended that new signage be consistent with DDOT brands outside of Union Station, such as bicycle path signage.

Details:

- Replace outdated signs
- Improve sign placement
- Supplement existing signs with new signs
- Incorporate ADA and international symbols on new signs
- Achieve uniformity in the signage throughout Union Station

Table 6-11 Comprehensive Signage Program Cost

Description	Estimated Cost*
Implement Comprehensive Signage Program	\$720,000

*Detailed cost elements may be found in Appendix C

Implement TOD Principles

Needs met:

- Incorporate transit-oriented development (TOD) principles.
- Develop guidelines for TOD in and around multi-modal transit centers.

One of the most important steps that can be taken to ensure the continued success of Union Station as a transportation hub is the continued development of transit-oriented land-use plans, such as the Great Streets Program and other DDOT initiatives. Additionally, guaranteeing that TOD principles and criteria are used in the review of proposed developments can begin immediately. Meeting these objectives involves ensuring that adjacent developments and land-use codes encourage and promote development that is transit-supportive, requires mixed-use adjacent development, and makes certain that sidewalks and other pedestrian amenities are developed to foster high pedestrian activity and safety.

Some actions that could be taken to accomplish this recommendation include:

- Stage a community design workshop on TOD principles as they apply to the Union Station Study area.
- Develop a community design workbook and guidelines for development around multi-modal transit centers, possibly including visual preference surveys and other design tools.
- Review and compare neighborhood plans to develop design typologies for a Union Station overlay zone.
- Develop a checklist including elements such as pedestrian amenities, car sharing, and transit access plans to use when evaluating adjacent developments.
- Enhance existing transit and transportation amenities, such as bike lane markings, transit shelters, and street furniture, including lighting and signals.

Table 6-12 TOD Implementation Cost

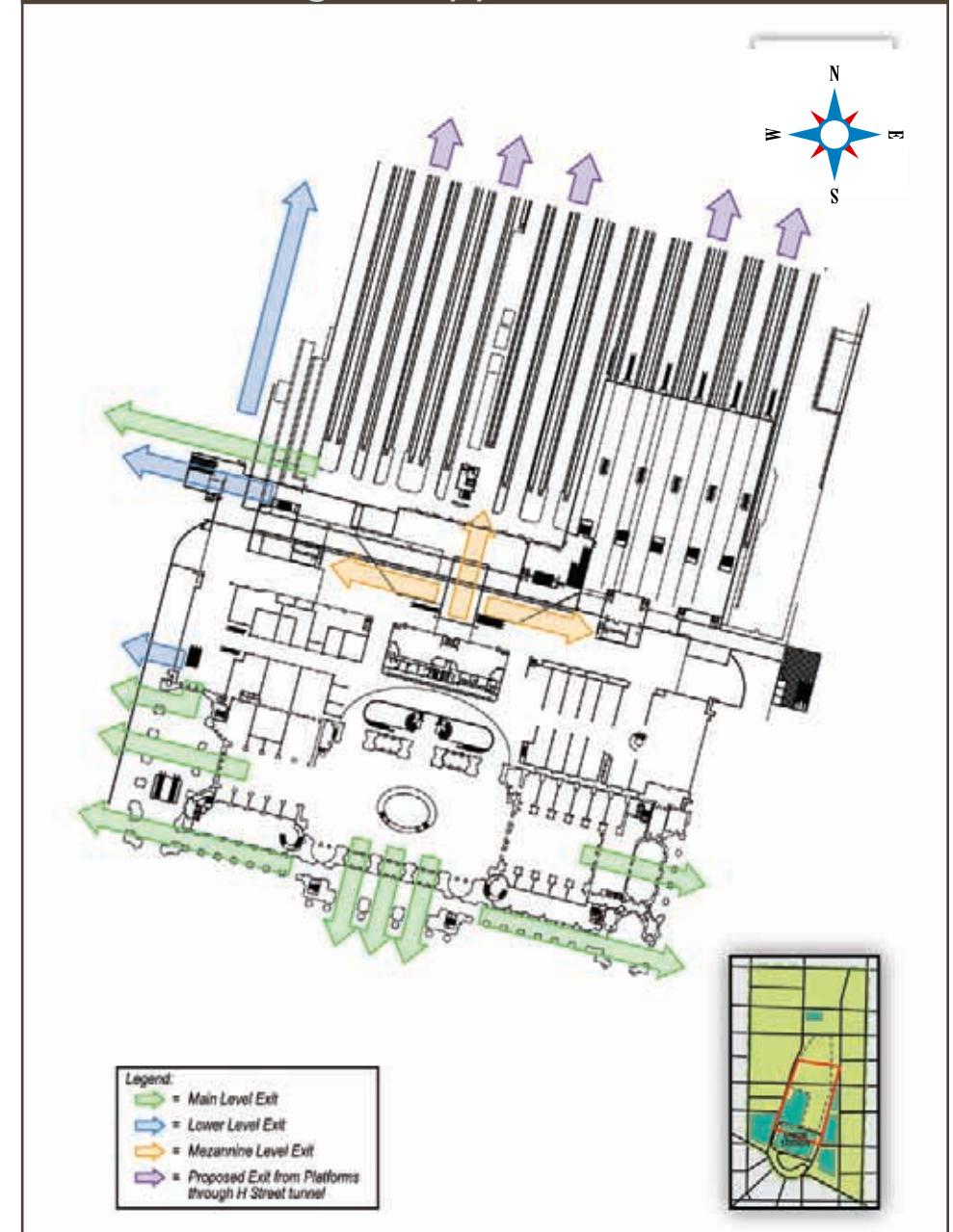
Description	Estimated Cost*
Implement TOD Guidelines	\$300,000

*Detailed cost elements may be found in Appendix C

Implement Emergency Access and Egress Strategies

In the event of an emergency near Union Station, it is critical to have well-planned emergency access from surrounding neighborhoods and buildings,

Figure 6-9 Emergency Access and Egress Opportunities



as well as Metrorail, to the station to facilitate evacuation from the area. In the event of an emergency within the station itself, it is equally as important to have planned evacuation routes from the passenger platforms and waiting areas, Metrorail station, and Headhouse and concourse areas into surrounding neighborhoods and beyond.

Emergency Access

If recommended pedestrian improvements are implemented, Union Station will be more accessible from all directions. This is significant, given that in the event of an evacuation of neighborhoods directly adjacent to Union Station

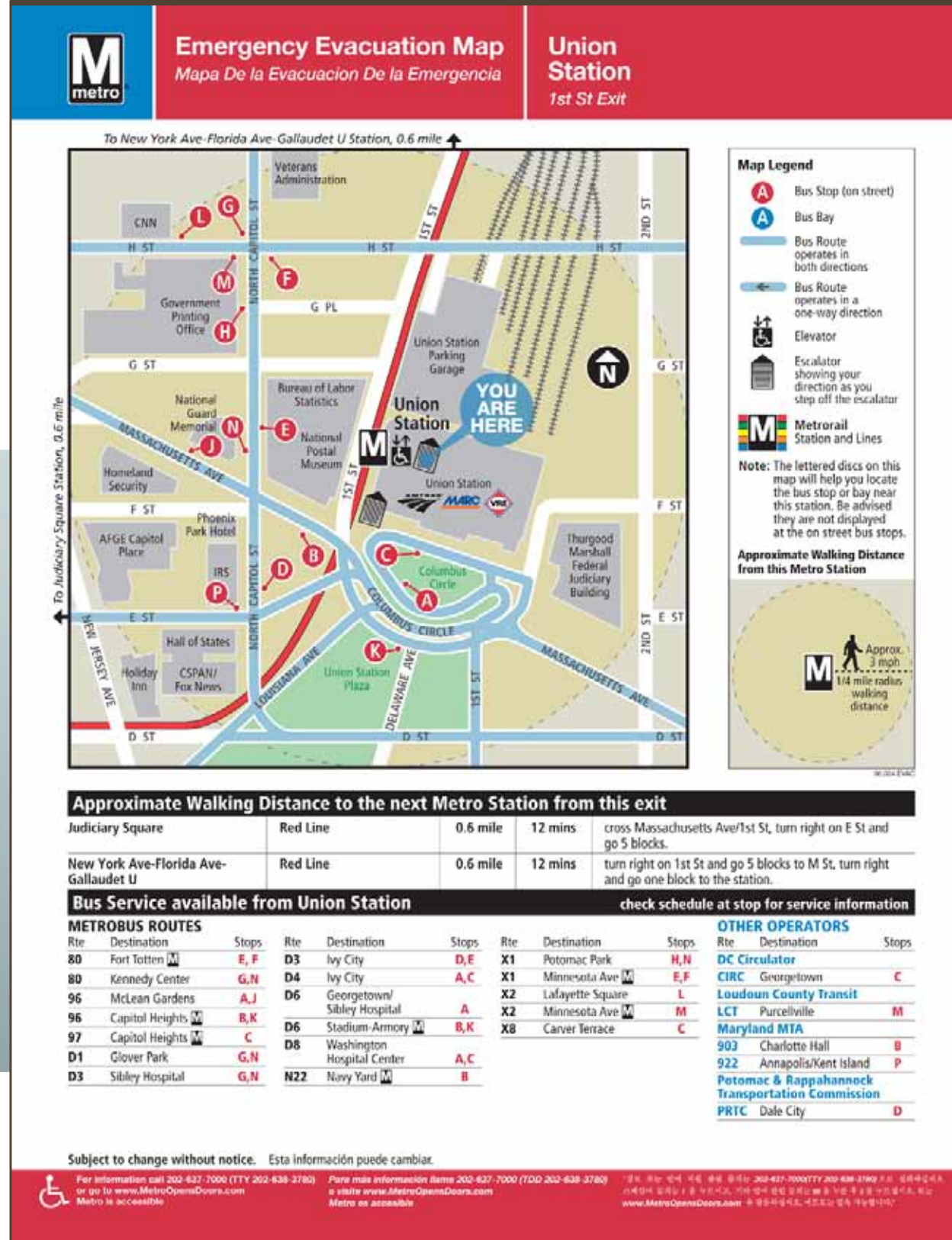
is necessary, Union Station will likely be utilized as a gathering and staging area for evacuations. Under these circumstances, the North Pedestrian Walkway, First Street Overpass, First Street Lobby, H Street Tunnel, and an expanded mezzanine connecting the station with the parking garage will all help to provide pedestrian access from areas north and west of Union Station. The Train Concourse Connector will help facilitate smooth passage between rail tracks and the Metrorail Station. And improvements to Columbus Plaza and First Street NE will help to alleviate pedestrian-vehicular conflicts south of the station. Immediately east of the station, options are more limited; an access road was discussed and dismissed as infeasible based on security concerns that were highlighted during the charrette phase of the study. However, no matter which improvements are implemented, the Union Station Emergency Plan will continue to be the document used for all emergencies.

Emergency Egress

As stated in Chapter 4, there are currently limited emergency egress routes from the station, especially from passenger platforms. In emergencies, passengers are directed to evacuate from the platforms through the front of the station toward Columbus Plaza. Passenger egress routes to the north (to H Street) and east (through the Metrorail station to First Street) require going into the Amtrak concourse, which is typically congested. From there, passengers can use the escalators leading up to the mezzanine over the Amtrak concourse (which can create a bottleneck very quickly) or the escalators going down into the Metrorail station (which are always crowded). Another potential evacuation route would lead toward the SEC Building and could be used in emergency conditions, but this route also goes by a relatively congested area in front of the McDonalds within the Amtrak concourse.

New vertical circulation elements that are proposed as part of the North-South Concourse expansion and Mezzanine extension could help to alleviate congested conditions within the station and provide more evacuation options in the event of an emergency. On the west side of the expanded mezzanine, passengers could travel down to the concourse level or use elevators to travel to the Train Concourse Connector. On the east side of the expanded mezzanine, passengers could travel down to the train concourse, as well as up to the bus/transit deck. Along the existing concourse, an additional set of escalators would be added, alleviating the congestion experienced on the existing escalators above the Amtrak information booth. It would also be beneficial for Amtrak to study the potential for additional vertical circulation options

Figure 6-10 Union Station Emergency Evacuation Map



leading from the upper tracks to Burnham Place at strategic locations, as once the Burnham Place deck is constructed, there will be substantially more accessibility to H Street. The creation of these as well as the aforementioned pedestrian connections will more than double emergency egress capacity within the station.

Evacuation of Union Station

WMATA has created emergency evacuation maps for all metro stations, complete with proximate Metrobus stops and routes and other service provider stops and routes identified. Were Union Station and the surrounding neighborhoods to be evacuated, pedestrians could utilize one of fourteen different bus stops within a quarter mile of the First Street Metrorail exit, as shown on Figure 6-10.

Additionally, in an evacuation study completed by Precision Systems, Inc. as part of this larger feasibility study effort, New York Avenue, H Street, Pennsylvania Ave SE, I-395 and North Capitol Street are suggested vehicular evacuation routes, as shown in Figure 6-11.

Figure 6-11 Vehicular Evacuation Routes Near Union Station



6.4 Recommendations and Framework Goals

Throughout this chapter, recommended improvements have been linked with geographical location (context area), nature of the improvement (system), and identified needs. However, recommended improvements also tie in with framework planning goals presented in Chapter 1 and it is important to define which framework goals are supported and would be achieved through implementing particular improvements (as shown in **Table 6-13**).

Table 6-13 Planning Framework Goals and Related Improvements

Framework Goal	Related Improvements
<p>1 Maintain and enhance Union Station as a multi-modal transportation hub.</p>	<ul style="list-style-type: none"> ● Construct Bikestation ● Incorporate Streetcar into H Street ● Return Catenary to Platforms 8-10 ● Construct High level platforms for Tracks 25-26 ● Improve Intercity Bus Connections through Construction of an Intercity Bus Station ● Complete Electrification of the Northeast Corridor South of Union Station ● Improve Connections to the Metropolitan Branch Trail
<p>2 Promote Union Station as a fluid pedestrian environment that supports comprehensive connectivity.</p>	<ul style="list-style-type: none"> ● Construct Train Concourse Connector ● Develop along North Entrance/Taxi Lane ● Expand East-West Concourse to north ● Extend North Concourse to north ● Expand the Mezzanine Level ● Improve Pedestrian Spaces along First Street NE ● Complete North Pedestrian Walkway ● Construct First Street Lobby ● Conduct Metrorail Station Access Study ● Add and Improve Interior Signage
<p>3 Ensure enhanced safety and security in and around the station.</p>	<ul style="list-style-type: none"> ● Improve Traffic Flow and Pedestrian Safety on Columbus Circle ● Construct Emergency Egress at H Street ● Complete Facilities Improvements at H Street ● Implement Emergency Access/Egress Strategies
<p>4 Respect the architectural, cultural, and regional significance of the historic station.</p>	<ul style="list-style-type: none"> ● Implement TOD Principles



View of multi-modal traffic from the east side of Union Station.