

Basis of Design Document

The Basis of Design (BOD) for this project was originally developed in accordance with the scope outlined in the Technical & Cost Proposal Washington Union Station Concourse A Phase 1a Conceptual Design, Contract #B046-15575, dated March 31, 2014. The scope of work for that project, as described in the narratives and plans provided by Amtrak, includes improvements to the station at **Washington Union Station (WAS), DC** and brought the design to a 25% completion level. The current project is an extension to the original project and is being advanced under Contract #9500001383. When completed the product will consist of 100% documents ready for bidding by Contractors.

The Systra Team's scope of services includes the development of an immediate action plan to address a group of issues in Concourse A of the station and form a single project to be carried out in the immediate or near term. In conjunction with the Basis of Design Report, the Systra Team has prepared 25% Schematic Design Documents, a Project Schedule, and a Construction Cost Estimate.

Final design solutions in accordance with Amtrak's Station Standards will be developed and presented on Construction Documents. These Construction Documents will be used to procure General Contractors, and to construct the proposed improvements.

Project History

The Washington Union Station Concourse "A" Phase 1a Conceptual Design (Conceptual Design) study, commenced in June 2014, builds upon the Concourse Feasibility Study sponsored by Amtrak, the Union Station Redevelopment Corporation and Akridge (The Master Plan Partners). The Union Station Master Plan envisions improvements and redevelopment of Union Station in three phases. Amtrak has targeted immediate improvements to the existing Concourse "A" as part of the first phase of implementation of the Master Plan. The main goal of the project is:

"Develop an immediate action plan to address a group of issues in Concourse "A" of the Washington Union Station and form a single project to be carried out in the immediate or near term"

The project's specific objectives are to:

- Satisfy the intent of the Master Plan and Feasibility Study
- Expand and/or improve designated program from the west end of Concourse "A" and relocate space in the best possible alternate locations.
- Address the larger scale related issues such as overall mechanical system replacement and egress requirements.
- Develop concepts for the western end of Concourse "A" to provide a space that will serve as a template for the future.

This Conceptual Design study recommends "clearing the concourse" to the greatest extent possible (see Figure 3 below). This proposed strategy provides an additional 17,400 SF of passenger-dedicated space on the western end of the Concourse "A" for an improved Amtrak passenger, rail commuter (VRE, MARC and WMATA) and visitor experience within the station,

while also preserving and enhancing retail spaces in the study area. These recommendations are a result of a robust coordination process Amtrak conducted within its own departments as well as with its partners, USRC and Akridge, project teams; and other Union Station stakeholders including VRE, MARC, WMATA and Ashkenazy & USI. The five-month iterative process included a series of workshops, meetings, presentations and discussions.

Clearing of the Concourse for this project has required finding new and improved spaces to accommodate existing Amtrak uses as well as identifying design and construction challenges to realize the design vision opportunities. As part of the expansion plan, the existing functions within the Amtrak police offices/fitness center, Club Acela Lounge, and the two mechanical equipment rooms need to be relocated as they are in prime passenger locations (see figure 2 below). Adjacent to each of these mechanical equipment rooms is an electrical room. These electrical rooms contain numerous panels which serve not only the mechanical equipment involved in this project, but also Concourse “A” lighting and power devices. This project, which is the first phase of this plan, involves relocating the functions served by the equipment within these two mechanical rooms. As the existing equipment is at the end of their service life, it is recommended new equipment be provided. This need to address the east and west mechanical rooms, associated mechanical equipment and HVAC ductwork emerged as key issues requiring further investigation. In addition, the relocation of the north wall, while not a weight-bearing wall, does incorporate a utility bulkhead which runs along the entire northern edge of the Concourse. This bulkhead contains supply ductwork, chilled water/hot water pipe mains, domestic water and storm piping, and electrical conduits which serve Concourse “A”. In order to minimize disruption to on-going usage of the concourse, only the chilled water/hot water distribution can be dis-engaged now, being replaced with new piping located within the Concourse “A” truss space. The remainders of the services as well as the bulkhead itself are to be removed in a future phase. Figure 1 (below) shows the existing wall and how the duct and pipes are concealed within the soffit of the wall.

Figure 1. Existing Mechanical Bulkhead



The consideration of mechanical room location, required consideration of several factors including:

- Timing of the Master Plan implementation (roof replacement);
- Capital cost for the ten year project lifespan;
- Ability to obtain fresh air intake; ability to construct new ductwork to service the eastern portion of the concourse;
- Structural integrity of potential rooftop locations; and
- Constructability in the face of maintaining regular Amtrak operations.

Four options for the mechanical rooms and equipment were developed for the project. The Systra Team proposed four possible new locations for the Concourse “A” air handling equipment.

Option 1 involved placing all the air handling equipment within what would be a newly created equipment room below McDonald’s Restaurant on the east end of Concourse “A”. Although this location has some positive attributes such as equipment location out of public view and close proximity to existing chilling water and steam pipes, it had numerous disadvantages which included having the fresh air intake location close to the Taxi Road (as well as associated vehicle exhaust) and that the location could conflict with either future demolition of the road or future construction of the Concourse on the east side. In addition, routing of air ducts from this far-east location is restricted, both at the Lower Level and along the Main Level. In consideration of the above, the team elected not to develop this location any further.

Option 2 would have sited the east mechanical equipment on the rooftop just north of the Taxi Road and adjacent to the “hangar” roof. The west mechanical room and hydronic equipment would be located on the west side of the yard above the ramps to the Lower Level. For the east half of Concourse “A”, being served by a roof-mounted air handling unit located north of the Taxi Road, had a major disadvantage of potentially being demolished in the upcoming Phase 2 of the Master Plan. The west half of Concourse “A” would be served by equipment located on a newly constructed platform above the vehicle ramp that leads from the Lower Level up to the Train Platform Level. New supply and return ductwork would be routed within and throughout the west half of Concourse “A”. Preliminary equipment and ductwork sizes were made. Based on the large duct sizes, the team felt the duct routing being immediately north of the expansion area of the West Concourse would significantly obstruct or at the very least distract from the architectural vision of being able to view the incoming trains from the retail and seating areas. In consideration of the above, the team elected not to develop this location any further.

Option 3 located all the air handling units and hydronic equipment above the yard access ramps to the Lower Level on the western side of the yard and adjacent to the proposed APD structure. Siting the units and hydronic equipment in one location has the advantages of using space over the ramps that is under-utilized and not in high demand, provides a potential long term solution by allowing the air handling unit for the eastern concourse to remain in place during construction of the central concourse and other phases of the Master Plan implementation as currently envisioned. Another benefit of this option included the nearby location of the existing fresh air intake for servicing conditioned air to the western concourse. Preliminary equipment and ductwork sizes were made. Based on those duct sizes, which involved multiple larger ducts, the team felt the west to east routing would significantly obstruct or at the very least distract from the architectural vision

of being able to view the incoming trains from the retail and seating areas. In addition, in the east half of Concourse A, the Pedestrian Bridge, connecting the Concourse to the garage has limited vertical clearance at the track level. Based on section studies, the team determined that the addition of these ducts associated with this option, would unacceptably encroach into the required vehicular and cart storage vertical clearance. In consideration of the above, the team elected not to develop this location any further.

Option 4 involved placing the air handling units on the roof directly above the area which each respective unit would serve. This approach minimizes duct lengths both now and in the expansion phase of the project, thereby not interfering with the architectural vision. The roof locations, being south of the Taxi Road will enable the units to remain undisturbed during subsequent expansion construction phases. In consideration of the above inherent advantages, this is the option that is now being developed to the 100% level.

Figure 2. Existing Floor Plan

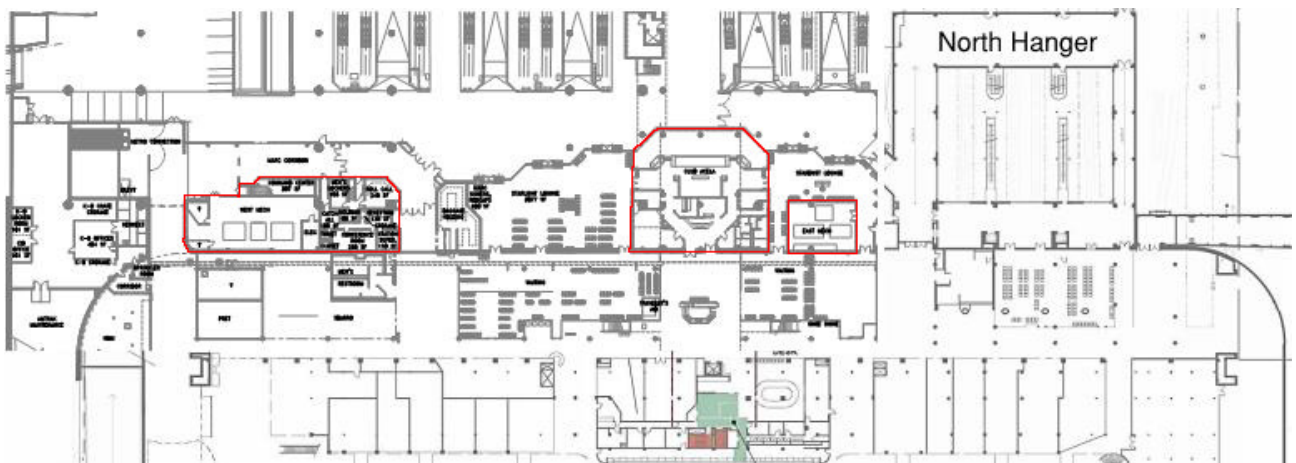
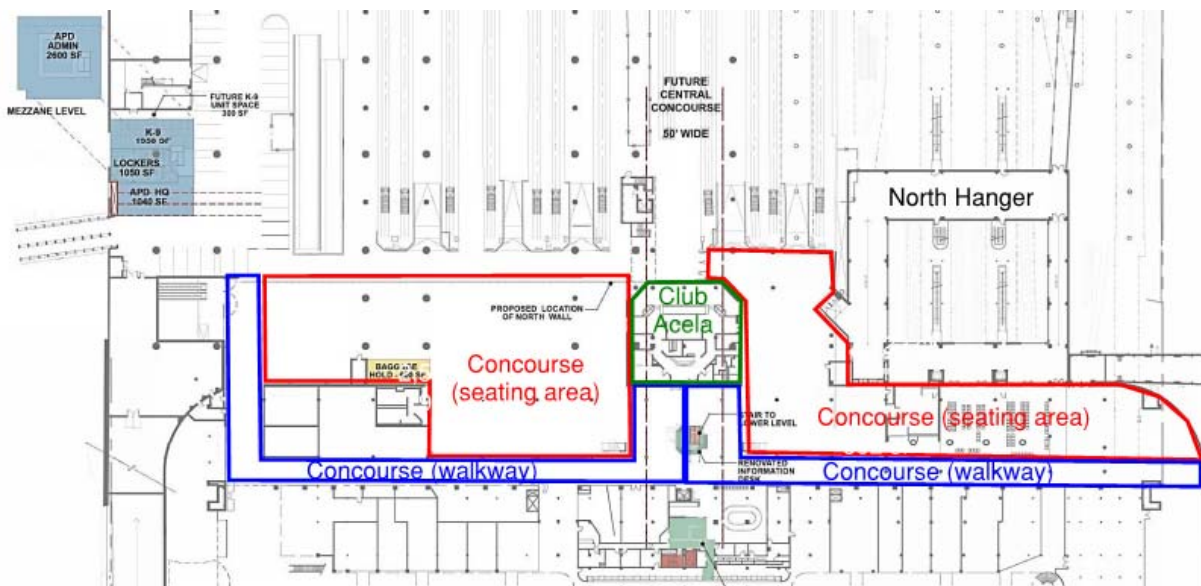


Figure 3. Proposed Expansion Floor Plan



Analysis of Program, Functional and Technical Requirements – in the previous phase of this project key locations were analyzed including the Amtrak Station Manager office space, the Amtrak Police Department space, the Canine Unit, the Baggage Manager space, and the east and west mechanical rooms. The purpose of analyzing these spaces was to relocate and use the subsequent free space to provide better passenger facilities, waiting room and ancillary facilities.

In the current phase, which forms this Basis of Design document, the scope of work includes providing new HVAC equipment, tying the equipment into the existing bulkhead and reusing the existing vents, and the demolishing both existing mechanical rooms.

The Systra Team conducted a visual site field investigation at the above referenced facility to collect existing conditions data on several dates between April and December 2014. The team performed a visual survey of the station. This facility consists of a historic major building, multiple platforms, extensive public facilities including stores and services, a multi-level parking garage, and a taxi roadway.

Basis of Design

a. Detailed Discipline-Specific Scope Definition:

SCOPE OF WORK:

Mechanical

Air Distribution

The west mechanical equipment room contains AHU-21 and AHU-22 which serve the western half of the Concourse. This room also contains hydronic equipment which was discussed above. In this first phase, new air handling units, located on the concourse roof, will connect to and re-use existing ductwork located within a bulkhead. The next construction phase, involving the actual expansion, will involve demolition of the bulkhead and will require new ductwork distribution but with no change to the new roof-mounted equipment or roof penetrations.

The east mechanical equipment room contains AHU-24, AHU-25, and AHU-26 which serve the eastern half of the concourse along with the north hanger. In this first phase, new air handling units, located on the concourse roof, will connect to and re-use existing ductwork located within a bulkhead. The next construction phase, involving the actual expansion, will involve demolition of the bulkhead and require new ductwork distribution but with no change to the new roof-mounted equipment or roof penetrations.

Club Acela Lounge, Amtrak police offices and Fitness Center, and Concourse main restrooms along with their associated air handling equipment, shall remain in this first phase. New branch chilled water and hot water piping shall interconnect those existing AHU's with the new distribution mains to be located within the Concourse "A" truss space.

Existing Steam, Hot and Chilled Water Distribution

District chilled water service is provided by the Architect of the Capitol via pipes entering the east side of Union Station at a lower level mechanical room. The incoming chilled water supply and return pipes entering Union Station are 16-inch. Within that room, the chilled water piping splits, with the 16-inch serving the historic portions of Union Station (i.e. Main Hall, Mezzanine Retail Concourse, First Floor Concourse, and Lower Level Food Court Concourse). The remainder of the entire facility, being Concourse A (passenger waiting areas), is served by an 8-inch branch. From that room, the 8-inch chilled water travels within the sub-basement and lower level from east to west, terminating at the West Mechanical Room on the main level of Concourse A where the existing AHU-21 and AHU-22 are co-located. Within this main level west mechanical room are chilled water booster pumps which serve the Concourse A existing air handling units. The existing pumps and associated piping will be removed within the existing west mechanical room. New pumps, serving the same purpose, will be located on an elevated platform over the vehicle ramps within the train platform area.

The existing drawings (Link Structure 46.23, Northwall M-9 & M-4A) indicate an existing CHW load on the existing 8-inch pipe as 674 gpm. The new CHW load will be 1099 gpm. Distribution is shown in the following table:

Chilled Water Load		
	gpm	
Program Space	Existing	New
AHU-21	113	222
AHU-22	124	222
AHU-24	124	222
AHU-25	113	222
AHU-26	54	57
AHU-44	74	79
AHU-45	42	45
AHU-APD	16	16
FCU-APD	2	2
FCU-Men's Room	6	6
FCU-Women's Room	6	6
Totals	674	1099

The existing 8-inch CHW pipe is sufficient for the new load, per pipe sizing criteria listed in ASHRAE 90.1-2013 Table 6.5.4.6. Insofar as the incoming 16-inch from the street, ASHRAE 90.1-2013 Table 6.5.4.6 lists a maximum flow of 5100 gpm. This Concourse A expansion is rather modest compared to the overall Union Station, in terms of load (an increase of 417 gpm). Union Station has a main CHW booster pump and a booster pump in the West Mechanical Room on the main level of the Concourse A Level, which the operating staff says has not needed to run in years. Therefore, we are confident that the existing incoming street main of 16-inches is of

sufficient size and residual pressure. All new piping will be sized per criteria described on page 10 paragraph 'Equipment Sizing Criteria'.

District high pressure steam service (120 psig) is provided by the Architect of the Capitol to a steam pressure reducing station within the Post Office Building. From that location, medium pressure steam (60 psig) travels via pipes within the sub-basement and basement of the Post Office Building to the elevated bridge connecting the Post Office Building and the west side of the main level of Union Station. Within the lower level and sub-basement from west to east, exiting at the east side of Union Station at a lower level mechanical room, from which point it continues underground to serve the Federal Judiciary Building. Branch mains occur at the west side lower level and feed steam to a steam-to-hot water heat exchanger within the lower level west steam mechanical room and to a steam-to-hot water heat exchanger within the main level west mechanical room of the Concourse "A" where existing AHU-21 and AHU-22 are co-located. Within this main level west mechanical room are heating hot water pumps which serve the Concourse "A" existing air handling units. Within the lower level west steam mechanical room are heating water pumps which serve the remainder of Union Station.

The supply steam and condensate return pipes serving the entire Union Station are a 10-inch medium pressure steam and a 6-inch condensate. The existing drawing (Link Structure 46.23) indicates an existing HW load for the Concourse "A" portion as 3,686 MBH (AHU-21 thru AHU-26). The new peak heating load will be 8,226 MBH (AHU-21 thru AHU-26 at full build-out cfm, maximum ventilation demand/people density, and minimum outside air temperature), which translates to an increase of 4540 MBH or an increase 5040 pounds of steam at 60 psig, which is about a 15% increase of the midrange design capacity of the steam pipe main (design capacity ranging from 25,000 to 40,000 pounds per hour). The operating staff has not reported any difficulty in providing sufficient heat. As this Concourse "A" expansion is rather modest compared to the overall size of Union Station and adjacent Federal Judiciary Building, we are confident that the existing incoming medium steam pressure street main pipes are of sufficient size. In the unlikely event of issues arising in the future, the setting of the steam reducing station in the Post Office Building could be adjusted to deliver an outlet pressure a few psi higher than 60 psig. The existing heat exchanger, pumps and associated piping will be removed within the existing west mechanical room. New heat exchangers and pumps, serving the same purpose but sized for the future Concourse "A" expansion, will be located on an elevated platform over the vehicle ramps within the train platform area. All the hot water piping will be new and sized per criteria described on page 10 paragraph 'Equipment Sizing Criteria'.

Electrical

There are two electrical rooms in the scope of work area: one located inside the west mechanical room and one located near the east mechanical room. Both electrical rooms will stay as they contain multiple electrical equipment that serve numerous equipment and devices throughout the entire concourse. There are two motor control centers (MCC), one per room that will be replaced. New distribution panels will be installed to replace these MCCs.

LDP-1 is the MCC located in the west electrical room. It serves AHU-21, AHU-22 and other loads that are not in the scope of work (escalators, fans, transformers). All existing loads as well as the

new mechanical units on this side of the building will be reconnected back to the new Distribution Panel (DP-1).

LDP-2 is the MCC located in the east electrical room. It serves AHU-24, AHU-25, AHU-26 and other loads that are not in the scope of work (escalators, fans, transformers). All existing loads as well as the new mechanical units on this side of the building will be reconnected back to the new Distribution Panel (DP-2).

Two electrical panels are currently located inside west mechanical room. These panels do not have any schedule so we do not know what exactly they are serving. These panels will be relocated to a new coordinated location. Their circuits will be field verified by electrical contractor and all circuits that serve existing loads in the mechanical room will be demo. Also, a telephone board is currently in the west mechanical room. This will be relocated if still active at a new coordinated location. If it is not active it will be removed.

One security panel is currently located inside east mechanical room. This panel will be relocated to a new coordinated location. A telephone board is currently in the west mechanical room. This will be relocated if still active at a new coordinated location. If it's not active it will be removed.

The electrical and security panels that are to be relocated shall be coordinated with Building Management and Amtrak Security to ensure that the work does not affect the functionality of the station and does not compromise security.

Codes and Standards

The systems described herein will be designed to conform to the following applicable codes and standards, and authorities having jurisdiction. The code or standard with the more stringent requirement will be followed:

- International Building Code (IBC) 2012, with 2013 DCMR Supplements
- International Mechanical Code (IMC) 2012, with 2013 DCMR Supplements
- National Electrical Code, current edition
- NFPA standards, current edition
- OSHA construction regulations, current edition
- SMACNA standards, current edition
- ASME code for pressure piping, current edition
- ASHRAE standard 90.1 – 2013, energy standard for buildings except residential buildings
- ASHRAE standard 62 – 2013, ventilation for acceptable indoor air quality
- American society of heating, refrigeration and air conditioning engineers (ASHRAE) handbooks and standards, current edition

Design Conditions

Outdoor Design Conditions

ASHRAE 90.1 Climate Zone:	Zone 4A
Location:	National Airport, Wash. DC
Latitude/elevation:	38.85°N/66 FEET
Cooling	92°F DB, 76°F WB
Heating	15°F

Indoor Design Conditions

SPACE	HEATING	COOLING
Concourse A (walking areas)	70°F DB	78°F DB, 50% RH
Concourse A (seating areas)	70°F DB	78°F DB, 50% RH
Club Acela Lounge	70°F DB	78°F DB, 50% RH

Cooling/Heating Load Criteria

- Heating, ventilating, and air conditioning loads will be calculated in accordance with the methods outlined in the ASHRAE Handbook of Fundamentals.
- Load calculations will be prepared using the current, and not to be modified, existing curved skylight u-value, shading coefficient, and existing roof u-value.
- The existing areas within the concourse, utilized for women’s and men’s restrooms, Sbarro, and Pret A Manger restaurants will remain and not be re-configured into high density passenger seating. Sbarro, and Pret A Manger restaurants are served by independent tenant provided split air-cooled HVAC units.
- Up to 1,500 SF of additional skylights may be added to the concourse in the final design.
- The following safety factors will be employed in the design calculations:
 Cooling calculations: 5%
 Heating calculations: 15%

Internal heat gains from lighting, electric powered or other heat generating equipment and from people occupying the spaces for design (peak load) calculations and sizing of the HVAC and mechanical systems will be based on the criteria listed below.

Lighting and Power

Stated values will be utilized for design load calculations and equipment sizing.

SPACE	LIGHTING	POWER
Concourse A (walking areas)	0.9 W/FT ²	-
Concourse A (seating areas)	0.9 W/FT ²	-
Club Acela Lounge	0.9 W/FT ²	-

People

Stated values will be utilized for design load calculations and equipment sizing. The following heat gain factors will be assumed for air conditioning load calculations: 250 (sensible), 200 (latent) btu/hr/person. Based on the actual usage of the overall Concourse area, the maximum people density along the walkway areas will not occur at the same time as the maximum people density within the seating areas. The walkway area, being immediately adjacent to the seating areas, serves as a break-out area for those seating. Therefore people diversity will be applied to the walkway at the AHU level. The floor area and people density for the seating areas are far greater than the walkway. No diversity will be applied against the seating area’s people count.

SPACE	OCCUPANCY SQ. FT. / PERSON
Concourse A (walking areas)	25
Concourse A (seating areas)	10
Club Acela Lounge	15

Ventilation

Outside air requirements will be determined per the methodology and formulas defined in ASHRAE Standard 62 – 2013, including combining an outdoor air quantity per person and an outside air quantity per floor area.

SPACE	CFM / PEOPLE	CFM / SQ. FT.
Concourse A (walking areas)	7.5	0.06
Concourse A (seating areas)	7.5	
Club Acela Lounge	7.5	0.18

Minimum Supply Air Circulation

SPACE	AIR CHANGES / HOUR
Concourse A (walking areas)	6.0
Concourse A (seating areas)	6.0
Club Acela Lounge	3.0

Equipment Sizing Criteria

Air Handling Units

- New AHU’s sized for future concourse expansion, but supply and outside air quantities turned down for current (pre-expansion) concourse.

- AHU cooling coil face velocity limit of 525 fpm
- Minimum cooling supply air temperature of 55F
- Maximum heating supply air temperature of 95F
- Horizontal draw thru, double wall construction, direct drive plenum fan array, UV-C emitter, chilled water cooling coil, hot water heating coil, MERV 8 pre filter, MERV 13 main filter, carbon filters for vehicle/train exhaust gas, MERV 8 post filter
- Constant air volume AHU
- Return/relief air fan
- Positive pressurization will be achieved by measuring and maintaining a fixed air quantity offset between the outside air and the exhaust/relief air quantity. This offset is determined during the design and is set up during the commissioning, which will take into account toilet exhaust and any adjacent make-up air requirements.
- Full air-side economizer
- CO₂ monitoring of return air will be provided in order to provide demand-controlled ventilation to reduce outside air ventilation rates to actual requirement levels.

Steam and Hydronic Equipment

- Each of two heat exchangers sized at 2/3 peak heating system load.
- Chilled water, heating hot water and steam condensate pumps shall be designed with N+1 redundancy, controlled by variable speed drives.
- Hydronic equipment shall be provided with 2-way control valves.
- Steam control valves configured for 1/3, 2/3 capacity of each served heat exchanger.
- Pumps and heat exchangers sized to include the future Concourse “A” expansion.

Ductwork

- Supply and return air ductwork will be medium pressure ductwork, sized utilizing an equal friction method at 0.25 in. w.g. friction per 100 feet of duct. Maximum main duct velocities will not to exceed 1800 fpm. This criteria will be adjusted if and when the maximum fan power, per ASHRAE 90.1-2013 Table 6.5.3.1-1, is exceeded.

New Heating Hot Water and Chilled Water Pipe

- Pipe sizing will be based in accordance with ASHRAE 90.1-2013 Table 6.5.4.6.
- Chilled water gpm based on 44F/58F, which is compatible with A.O.C.’s existing service, and those AHU coils remaining in this phase (i.e. AHU serving Club Acela, AHU serving A.P.D., and fan coil units serving the concourse restrooms).
- Heating hot water gpm based on 180F/160F.
- Any piping exposed to freezing conditions and which could hold stagnant water shall be insulated and heat traced.

Controls

Currently Union Station is provided with a central control system (Tac I/Net Seven). In the

future, under a separate contract, the entire control system will be replaced by a direct digital control system (Bacnet language) with either a copper or fiber backbone. This AHU replacement contract shall include AHU-associated direct digital control panels (DDCP). In addition, this contract shall include any/all gateways required to provide control and monitoring from the existing central control system to the extent required to provide the sequences listed within these contract documents, except as indicated not in contract (NIC). It is the intention that the DDCP installed under this contract shall remain in the future, retain the sequences under this contract and provide those sequences indicated as not in contract (NIC), with no modifications to these direct digital control panel (DDCP), controllers, and without the need for gateways or hardware, and be completely compatible with the future Bacnet-based DDC central system.

Additional Design Criteria:

1. The HVAC system is being sized for the Final conceptual design for the station.
 2. The new HVAC units and ducts will tie into the existing bulkhead. The tie-in point at Gate “A” has been shifted so as not to require the sign to be moved.
 3. The ducts will not be concealed in the public space. They will be run as close to the ceiling as possible.
 4. Round double walled ducts will be used. This style is pre-insulated resulting in less noise transmission within the public space. This style is already in use in other areas of the station.
 5. Return ducts will have silencers.
 6. Required work above the Sbarro space can be performed by construction of a temporary work platform.
- b. Schematic Design Documents:**
- See attached 95% Schematic Design Documents prepared by the Systra Team, and dated November 2015.
- c. Preliminary Development Budget:**
- See attached cost estimate.
- d. Preliminary Project Schedule:**
- See attached schedule.
- e. Discussion of Project impact to Pedestrian and Vehicular Flow:**
- The work at these stations will require coordination with the Station Stakeholders, including Amtrak, Marc, Metro, APD and tenants.
 - Additional coordination with adjacent design projects may be required including a current project involving Grimshaw/Arup/KGP.

- Station is in active use and cannot be closed for construction. General Contractor is responsible for creating an appropriate phasing plan for the work and coordinating all construction activities with Amtrak personnel, host railroad(s) and other stakeholders.
 - No work within 15 feet of active tracks is anticipated.
 - Work may be performed only during hours of operation that will not conflict with train schedules.
 - The coordination shall be covered under the Summary of Work section of the project specifications.
- f. Amtrak will provide RPM with existing plans:**
- Amtrak provided the Systra Team with various sets of plans depicting existing conditions. Plans are not necessarily up-to-date, complete or accurate.
- g. Discussion of Site Constraints:**
- The site is fully developed and space is extremely limited.
 - Work must be coordinated with interested parties such as host railroad, building owner, tenants, lessees/lessors and Amtrak operations.
 - The project specifications will further discuss constraints imposed on the work.
- h. Schematic Floor Plans:**
- See the 25% Schematic Design Documents.
- i. Mechanical and Electrical Utility Estimates:**
- ii. Included in the Cost Estimate.
- j. Structural Requirements:**
- Proposed alterations include structural work. The new air handling units will be located on the concourse roof, supported by the trusses. The trusses were analyzed by Finite Element Method and were determined to be able to support the required loads.
 - AHUs are supported by C-Channels welded to the existing plate located on top of the tubes of the trusses.
- k. Security Requirements:**
- All Contractor personnel will require photo ID at all times. Security clearance documentation may be required and all requirements will be included in the final project specifications.
 - Security panel in electrical room shall be relocated only after approval and signoff from Amtrak Security Department.

I. Track Work Requirements:

- Not Applicable.

m. Detail Discussion on Third Party Constraints:

- The work may affect some tenants. The phasing plan will identify who is affected, when they are affected, for how long they will be affected and the extent of impact to their operations, if any.

End of document.