Capital Projects Development Group

Gary McGuigan
Senior Vice President

Eric Johnson
Vice President

Maryland Stadium Authority
The Warehouse at Camden Yards
351 W. Camden Street, Suite 500
Baltimore, MD 21201
410-223-4150
1-877-MDSTADIUM
Fax: 410-333-1888

cpdginfo@mdstad.com
www.mdstad.com

Voice: 800-201-7165
TTY: 800-735-2258

July 6, 2018

The Honorable Catherine E. Pugh
Mayor, City of Baltimore
100 Holliday Street, Room 250
Baltimore, Maryland 21202

RE: Baltimore Convention Center Renovation/Expansion Feasibility Study Phase 1

Dear Mayor Pugh,

The Maryland Stadium Authority (MSA) is pleased to present Phase 1 of the Baltimore Convention Center Renovation/Expansion Feasibility Study. The study was undertaken at the request of Mayor Rawlings-Blake on July 28, 2016 and with the review of the budget committees of the Maryland General Assembly.

The study considered a stand-alone convention center as well as a hybrid facility inclusive of a hotel and/or arena and included the following items.

- Programming based on market studies
- Due diligence studies
- Blocking/stacking/engineering systems studies
- Conceptual design
- Updated economic impact analysis specific to a renovated/expanded convention center

The following consultants were engaged on the project.

- Ayers Saint Gross provided programming, design and engineering services.
- Clark Construction provided constructability services.
- Crossroads Consulting provided market, economic and business consulting services.

The study is comprised of the following reports.

- Baltimore Convention Center Renovation/Expansion Phase 1 by Ayers Saint Gross dated July 2018
- Baltimore Convention Center Renovation/Expansion Phase 1 by Clark Construction dated July 2018
- Baltimore Convention Center Expansion Study Update by Crossroads Consulting Services dated July 2018
- Market and Economic Analysis Update for a Proposed New Arena in Baltimore by Crossroads Consulting Services dated July 2018.

Key findings and conclusions include the following.

- Renovating/expanding the convention center to achieve the program outlined in the market study is warranted from an economic and fiscal perspective.

- An expansion of the convention center and the resulting increase in business will require an increase in the overall hotel room supply in the area proximate to the facility. Expanding the facility will require the use of the land currently occupied by the Sheraton Inner Harbor hotel located at the corner of Conway Street and Charles Street. The 337 rooms lost from the removal of the Sheraton should be replaced with a new 500-room full service hotel.
- There are significant operational and construction related challenges associated with incorporating a new arena into the overall development. Incorporating a new arena into the renovation/expansion of the convention center is not recommended.

The Executive Committee, comprised of members from the City, State and MSA, recommends further study of the development scenario that includes renovating/expanding the convention center and a new hotel.

Please contact this office with any questions or concerns.

Yours,

Michael J. Frenz
Executive Director

BALTIMORE CONVENTION CENTER

RENOVATION / EXPANSION
PHASE I

AYERS SAINT GROSS | LMN | POPULOUS | PERKINS EASTMAN

July 2018

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USA

1

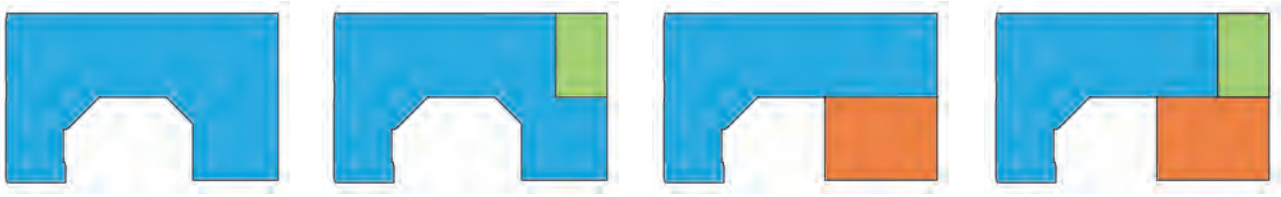
EXECUTIVE SUMMARY

Report summary and conclusions

EXECUTIVE SUMMARY

The BCC Expansion Market & Economic Analysis Report, dated February 2012, made the case for the economic benefit of renovating and expanding the BCC. The Report recommended a preliminary building program that increases the existing Exhibit Hall space by 200,000 SF, Ballroom space by 50,000 to 60,000 SF and meeting space by 40,000 to 45,000 SF. The report also commented on the benefits of planning the site to accommodate a new 15,000 fixed-seat Arena and a new 500-room Hotel as potential Private Sector developments.

Integrating the BCC expansion with the existing facility together with a new Hotel and/or new Arena required additional study to understand site constraints and the physical, programmatic, and operational requirements for each individual component. To this end, the Maryland Stadium Authority (MSA) engaged the design team Ayers Saint Gross/LMN/Populous/Perkins Eastman to provide Programming and Due Diligence services to study four different development scenarios.



DEVELOPMENT SCENARIO 1:
BCC Renovation/Expansion only

DEVELOPMENT SCENARIO 2:
BCC Renovation/Expansion with a new Hotel

DEVELOPMENT SCENARIO 3:
BCC Renovation/Expansion with a new Arena

DEVELOPMENT SCENARIO 4:
BCC Renovation/Expansion with a new Hotel and a new Arena

Ex/Flex Hall
Arena
Hotel

To assess the feasibility of these different development scenarios the team embarked on a Programming and Due Diligence effort including:

1. A brief assessment of the existing facility to understand the project conditions, site constraints, and deficiencies,
2. Refining the expansion program from the 2012 BCC Expansion Market & Economic Analysis Report into a more detailed spatial program,
3. Studying the capacity of the site through blocking and stacking of individual as well as aggregate project components, with and without the Sheraton Hotel site,
4. Identifying the physical feasibility of the various development scenarios,
5. Studying the operational impacts and potential synergies of the combined programs and identifying expansion issues and impacts affecting the scope of the project,
6. A due-diligence review of other factors affecting feasibility including:
    - Infrastructure Analysis of the BCC
    - Environmental Impact Analysis
    - Archeological Impact Analysis
    - Geotechnical Analysis
    - Traffic Studies
    - Community/Business impacts

As the study progressed a framework of guiding principles emerged as an outcome of the Programming and Due Diligence work.

GUIDING PRINCIPLES

1. The site should accommodate a spatial program of 1,663,000 SF for the BCC; of 565,000 SF for the Arena; of 474,000 SF for the Hotel.
2. Any renovation or expansion scenario should optimize the use of existing space and address deficiencies in the current BCC facility.
3. The East Building is not practical to renovate or expand and so it is proposed to be demolished in each development scenario.
4. The BCC must provide 400,000 SF of contiguous Exhibit Hall space to meet market demands. The 400,000 SF target for contiguous Exhibit Hall area can only be met by options which utilize the Sheraton Site and the Southbound Charles Street lane.
5. The site must provide access for truck access for load-in, load-out and for service.
6. Even though we combine these things, there is a need and desire for operational autonomy.

The team created conceptual solutions for each development scenario and then analyzed them for meeting the project criteria and for feasibility. Three stages of analysis were developed to determine how well each scenario addressed the basic project parameters.

Fatal Flaw Analysis: Where an option could be eliminated by possessing a shortcoming that prevented it from meeting one of the primary project goals.

Quantitative Analysis: Where each option is evaluated for its ability to meet the basic programmatic requirements.

Qualitative Analysis: Where each option is evaluated against a series of qualitative criteria.

The conclusion of this analysis was that each of the four development scenarios presented in this report meet the basic criteria for physical feasibility and have the potential to dramatically improve and transform the site with an exciting mix of uses.

2

EXISTING CONDITIONS

An assessment of the setting and current facilities

EXISTING CONDITIONS

NEIGHBORHOOD CONTEXT

The Baltimore Convention Center (BCC) is in the Downtown West neighborhood. The Downtown West neighborhood is centrally located in the City and is near to many historic, cultural, and entertainment venues including the Inner Harbor, Camden Yards, M&T Bank Stadium, and the National Aquarium. The Downtown West neighborhood is bounded by downtown to the north; the Inner Harbor to the east; Otterbein, Federal Hill, and Sharp/Leadenhall neighborhoods to the south; and the Stadiums, Ridgely's Delight, and University of Maryland Baltimore neighborhoods to the west.

The Downtown West neighborhood is of mixed use and scale. Large office buildings and generally smaller, often historic commercial buildings dominate the neighborhood, though many new and remodeled residential buildings are to be found. Downtown West also contains the Royal Farms Arena and Charles Center. The Inner Harbor neighborhood to the east contains many museum and cultural uses organized around the waterfront park and pedestrian promenade. Prominent uses include the National Aquarium, the Maryland Science Center, and the American Visionary Arts Museum. All of the Inner Harbor neighborhood is less than a 10-minute walk from the BCC.

The neighborhoods to the south are primarily residential in nature, though they contain many institutional buildings as well. These neighborhoods contain many historic row houses as well as a mix of larger apartment buildings.

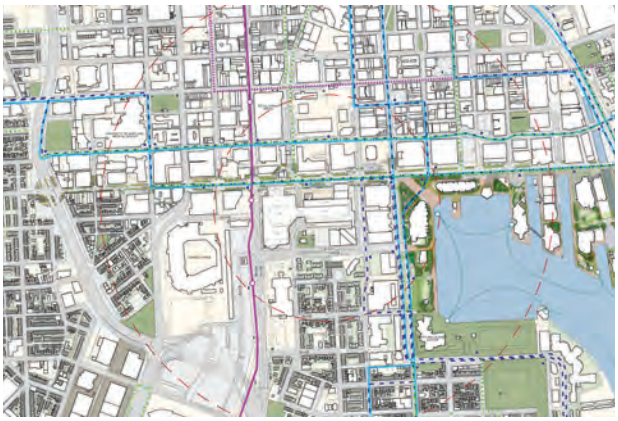
The neighborhoods to the west of the BCC are dominated by large institutional uses, namely Camden Yards, M&T Bank Stadium, and the University of Maryland Medical Center. Between these large uses is the historic Ridgely's Delight neighborhood, which is primarily residential in use.

CONVENTION CENTER SITE

The BCC site is bounded by Pratt Street to the north, Charles Street to the east, Conway Street to the south, Howard Street to the west. The site is bisected by Sharp Street, which is bridged by the BCC West Building. Immediately south of the BCC is the Old Otterbein United Methodist Church. The chapel was constructed in 1785 and was added to the National Register of Historic Places in 1969 and is protected by a perpetual historic preservation easement. The church site includes historic walls and gardens as well as two related buildings. The Otterbein Church is not included within the scope of this study, and is intended to remain in place through construction of the project. Immediately east of the Church and south of the original BCC East Building is the Sheraton Hotel. In addition to the Sheraton, there are five other Hotels in the immediate vicinity: the Hyatt Regency to the east across Charles Street; the Days Inn, Holiday Inn, and Marriott Hotels to the north across Pratt Street; and the Hilton Hotel and Event Center to the west across Howard Street. Also across Pratt Street and adjacent to the BCC is the Transamerica Tower, currently the tallest building in the city. In addition to the Hotels, there are more than 20 above-grade parking structures within a half-mile radius of the BCC site.

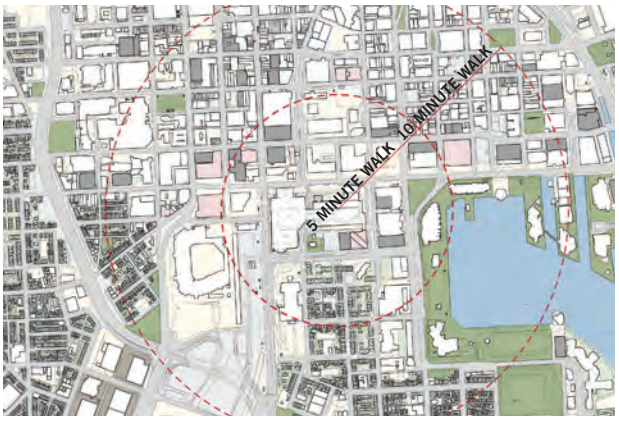
The BCC is well served by the local street network, direct access to/from I-395, transit access, and bicycle and pedestrian infrastructure. West Pratt Street is the east-bound half of a one-way pair (with Lombard Street) that connects Patterson Park in the east to Frederick Avenue in West Baltimore. Similarly, South Charles Street is the northbound half of a one-way pair (with Light Street) that connects across the entire city through the historic Mt Vernon Place. Conway, Sharp, and Howard Streets all provide direct vehicular access to I-395.

The BCC is also well connected to the City's transit infrastructure. The "Convention Center" stop provides direct access to Light Rail at the southwest corner of Howard and Pratt Streets. Numerous City Link, Local Link, and Charm City Circulator bus stops are within 1 block of the site. MARC heavy rail access connecting to Washington, DC, and the MTA Light Rail, connecting BWI Airport through downtown to Hunt Valley, is provided adjacent to the site at Camden Station. The Baltimore Metro can be accessed two blocks to the north at Charles Center.



SITE CONNECTIVITY

- Light Rail
- Metro
- Bicycle Facility
- Link Bus
- Water Taxi
- Charm City Circulator Bus



AREA HOTEL + PARKING GARAGES

- Hotel Building
- Parking Structure

Currently, there are three primary pedestrian load/unload zones around the BCC. Both the East and West Buildings provide street-separated load/unload zones along Pratt Street shared with bus transit. Along Sharp Street there is a counter-flow lane which heads north and rejoins Sharp to provide a buffered drop-off zone along the east side of the West Building. All the streets surrounding the BCC provide sidewalks and crosswalks sufficient for pedestrian traffic. Pratt Street is currently a major east-west pedestrian corridor linking many of the city's major amenities, and there are plans in place to further strengthen this connection. The Maryland Avenue cycle track is the City's newest bicycle infrastructure: it provides two-way buffered bike lanes from the BCC through Downtown. Pratt and Lombard streets provide on-street bicycle facilities traveling east and west. These connect the mixed-use paths around the Inner Harbor and the Martin Luther King Jr. Blvd side path. There is limited bicycle parking on site.

Utility Infrastructure

The existing BCC site vicinity has extensive utility infrastructure which includes public Baltimore City systems (DOT – conduit, traffic signals and street lighting and DPW – storm drain, sanitary, and water) and private utility systems (Verizon – telecom; BGE – gas and electric; and Veolia – steam and chilled water). Records were collected to compile a base map showing the approximate locations of existing utilities within the vicinity of the project site. Existing utility corridors that are identified as project challenges due to anticipated utility conflicts needing relocation include Charles Street, Perry Street and the existing City utility easement east of the Otterbein Church. Multiple BCC service connections and looped private utility distribution systems interface with the existing structure at various locations around the site. See Section 7 for additional observations.

Roadway Infrastructure

City roadway infrastructure consists of Pratt Street on the north side, Conway Street on south side, Howard street on the west side, Charles Street on the east side. Sharp Street goes through the site (structured deck with convention area floor level extending underneath roadway) connecting Pratt Street and Conway Street. Conway Street provides access to I-95 via Howard Street. Perry Street also runs through the proposed site connecting Charles Street and Sharp Street. See Section 7 for additional observations.

Landscape

The sidewalk design, materials, plantings, lighting and artwork are incoherent around the site and vary in their condition and maintenance. See Section 07 for additional observations.

The project site includes the East and West portions of the existing BCC, bounded by Pratt Street to the north, Charles Street to the East, Conway Street to the south and Howard Street to the West. Sharp Street marks the boundary between the Phase I portion to the East and the Phase II portion to the West. Immediately to the south of Phase I is the site currently occupied by the Sheraton Hotel. Expansion feasibility was investigated with and without the Sheraton site.

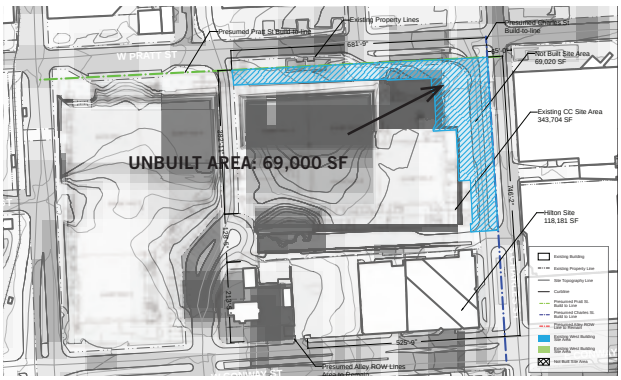


EXHIBIT HALL EXPANSION AREA: 69,000 SF

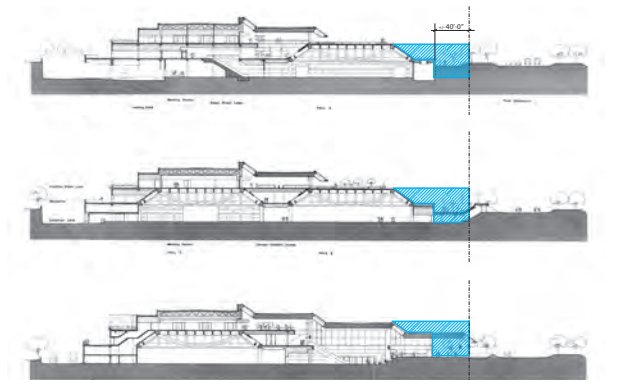


EXHIBIT HALL EXPANSION AREA: 69,000 SF

CONVENTION CENTER

The existing BCC was built in two phases. The oldest portion, the East Building, opened in 1979 and is located east of Sharp Street. The West Building expanded the BCC to Howard Street in 1997. Immediately south of the East Building portion of the existing BCC lies the Sheraton Hotel, completing the block between Pratt and Conway Streets. Both portions of the existing BCC were analyzed to determine the best scenarios for their renovation and/or programmatic reuse while the East Building was analyzed along with the Sheraton Hotel site to determine the capacity of the site to accommodate the programmatic needs of the various development scenarios.

East Building

Though very innovative and trend setting when it opened, in many ways the expectations of the BCC industry have evolved significantly since East Building opened rendering it functionally challenged and non-competitive when compared to other more recent Exhibit Hall examples. In addition, the structural system of the building is very inflexible and difficult to expand.

The East Building does not utilize the site to the full extent possible. There is an unbuilt area along Pratt and Charles Streets totals approximately 69,000 SF. Much of this unused area is comprised of entry plazas and very wide sidewalks along Pratt Street and the counter-flow traffic lane along Charles Street. The Pratt Street Masterplan calls for narrowing and activating the Pratt Street sidewalks while the Charles Street counter-flow lane produces a very wide and not very pedestrian-friendly corridor along Charles Street. Therefore, the expansions of the building footprint toward both Pratt and Charles Streets would seem to be consistent with land use policies currently being implemented in Baltimore, while capturing very valuable footprint within the property lines of BCC property.

West Building

The western portion of the existing BCC has been operating successfully for over 20 years. As the program of the expansion takes shape it will be important to update the operations infrastructure and interior finishes of the existing BCC along with balancing the program distribution between the two portions of the facility.

Support Space: There is a general shortage of support space in the West Building, particularly flexible storage. There is also a need for better acoustic separation between support areas and function spaces. This is particularly troublesome at the Ballroom/kitchen interface.

Public Spaces: The flow of the circulation system, the functionality of the pre-function and registration areas and the adequacy of all the lobby spaces will need to be evaluated in later design phases. In general, the current Otterbein Lobby is too narrow to function as one of the primary access routes to the Ballroom while in most instances, the Conway Lobby is too large in proportion to the amount of meeting space it serves. Currently, the Howard Street Concourse is interrupted by public restrooms and the Pratt Street Registration space is generally larger than it needs to be.

Program Distribution: As the expansion takes shape, it will be important to ensure that the ratio of meeting space to exhibit space to public and back-of-house support space is balanced between the east and west portions of the facility.

Finishes: Interior finishes will be upgraded in the existing West Building and integrated with the finish palette created for the expansion, to create a seamless connection between the two portions of the project.

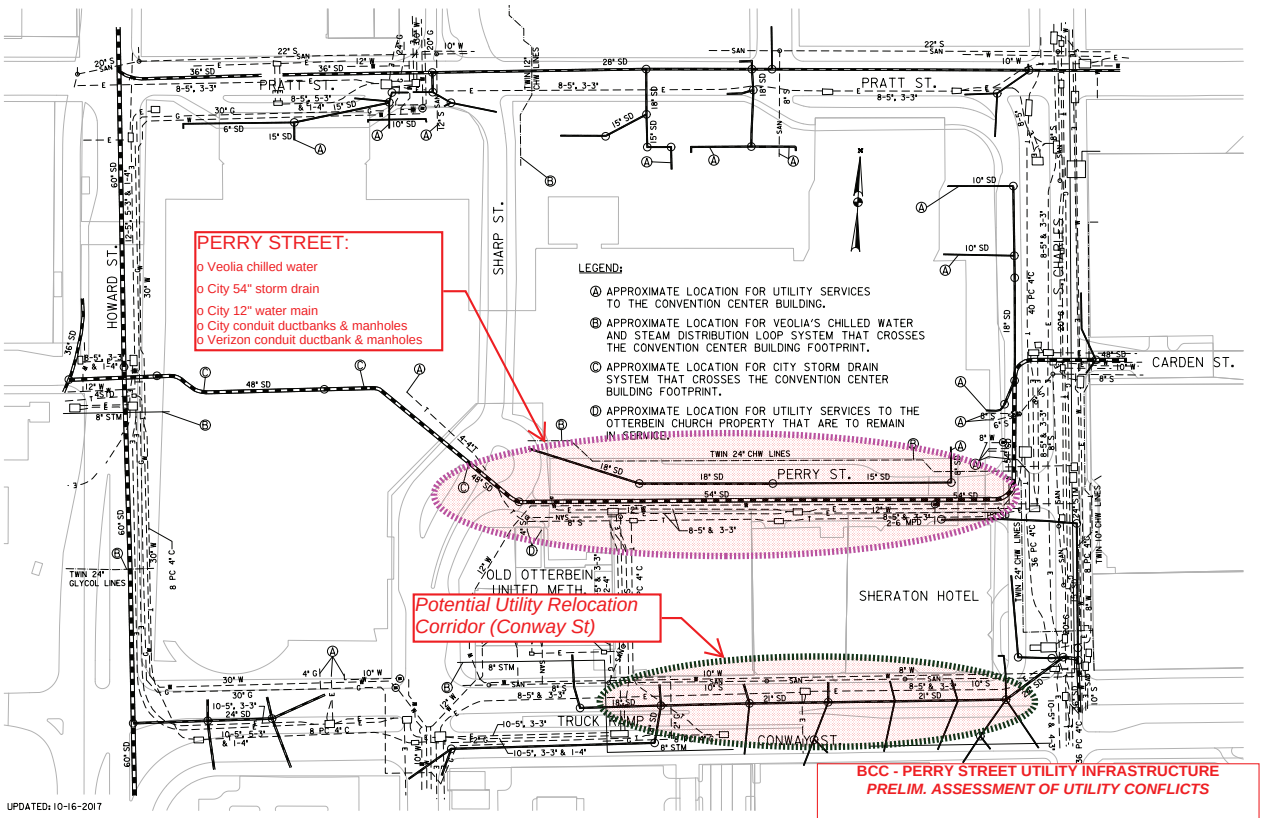
Convention Center Systems

The MEP systems are fundamentally separate between the West and East sides of the BCC Where common systems do exist, the central equipment, with a few exceptions, is in the West building. This configuration allows for a clean break when considering a demolition concept for the East Building.

The only exception to this are the head ends of the Building Management System (BMS), Fire Alarm and Security which will have to be re-located to maintain operations during demolition and construction. The head ends for Fire Alarm, Security and BMS are in the East Building and so concepts that incorporate demolition of the East side will have to consider either a temporary or permanent relocation of these functions. Options include relocation to the West building, a temporary "brain center" that accommodates phased construction, or a new permanent facility built as an early phase of the east renovation or rebuild.

Veolia's District Chilled Water Plant #4 is located within the East wing of the BCC. In the concepts where the East Building is demolished, negotiations will be required as to how to accommodate the loss of the plant. This plant does not serve the current BCC, so if it were lost, it would not impact the BCC operation. However, Plant #4 serves other District buildings and Veolia would need to supplement lost capacity is some manner. Depending on the program, we envision a new Plant #4 could be incorporated into either the existing West Building or the new East side program. If the East Building is to be maintained and renovated, the existing plant could be maintained in its current form and location.

A due diligence study concluded that the existing MEP systems in the West Building are for the most part the original systems as installed in 1996. Electrical distribution, air handling and piping systems appear to have been well maintained and are in good working order. These major components have significant serviceable life left due to their infrequent use and do not require immediate replacement or refurbishment. Other system components and equipment used on a regular basis, such as fan coils, valves, pumps, water heaters, grease traps and sewage ejectors are showing signs of corrosion and are approaching the end of their typical service life. These components/equipment should be considered for replacement in upcoming years either during the renovation activities or as part of a planned service/replacement program/budget.



ENVIRONMENTAL HAZARDS

A Preliminary Phase I Environmental Site Assessment concluded that the impact to the project from any environmental findings is expected to be low.

Due to the age of construction of each of the buildings on site, materials containing asbestos may be present in the East Building. One example of a suspect asbestos-containing material observed in the East Building was mastic applied ceiling tile. Lead may be present on structural steel and metal components throughout the buildings. Sheet lead caps were observed on the roof top vents on the Sheraton Hotel building. Smoke and fire detectors observed in each structure may contain a low level radioactive source that must be salvaged prior to demolition for proper disposal. Fluorescent lamps and mercury thermostats may contain mercury and/or small quantities of lead. The BCC is currently changing all lighting from fluorescent to LED minimizing the amount of universal hazardous waste that will be generated by removal and disposal of light fixtures. The Sheraton Hotel and garage use a variety of incandescent, fluorescent and LED lamps. Above ground storage tanks for fuel, oil and grease are present. Numerous pieces of refrigerant containing equipment that may contain charges of chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants were observed. PCBs may be present in the East Building as this section of the BCC was completed the same year as the EPA ban on manufacturing of PCBs. An AT&T cell tower is present on the roof of the Sheraton Hotel. The cell tower poses a risk of exposure to electromagnetic radiation should a person walk within the near field of the antenna.

The above noted conditions warrant a comprehensive Phase II Environmental survey to inform any major building renovation or demolition planning, and to assess the costs of renovations.


RIPTIDE BY THE
Riptide by the Bay
SEAFOOD RESTAURANT & CRAB HOUSE

3

FACILITY PROGRAM

The spatial requirements for the project

FACILITY PROGRAM

A summary of the spatial requirements for the project is provided. A more complete breakdown of program areas is provided in the Aditional Considerations section.

SITE CAPACITY

North site boundary at the West Building line

East site edge matches north and south context

FAR of 8

Approximately 343,700 SF without Sheraton site

Approximately 461,900 SF with Sheraton site

OPERATIONS

Separate entrances for each facility

Separate vertical circulation for Arena & CC & Hotel

Dedicated loading docks for each program element

CONVENTION CENTER (500,000 SF EXHIBIT HALL)

400,000 SF contiguous

60,000 SF Ballroom (new)

16,200 SF Junior Ballroom (new)

108,800 SF Meeting Rooms (total)

100,800 SF Flex Hall (mixed-use hall)

Lobbies, Concourses & Registration	190,652
Exhibit Halls	500,000
Assembly Spaces	223,272
Front of House Support Areas	77,950
Back of House Service Areas	340,240
Food Service Areas	59,150
Venue Management	10,830
Vertical Circulation	104,500
Unconditioned / Outdoor Areas	156,500
GROSS SF	**1,663,094**

ARENA (15,000 FIXED-SEATS)

(15,000 basketball, 13,000 ice, 17,500 concerts)

8-10 luxury suites

4,000 SF loge club box

Spectator Facilities	111,565
Food and Retail Facilities	36,139
Circulation	187,626
Event Facilities	21,937
Team Facilities	27,269
Media Facilities	15,257
Operations Support	88,517
Administration	2,750
Net to Gross Multiplier 15%	73,659
GROSS SF	**564,719**

HOTEL (500 KEYS)

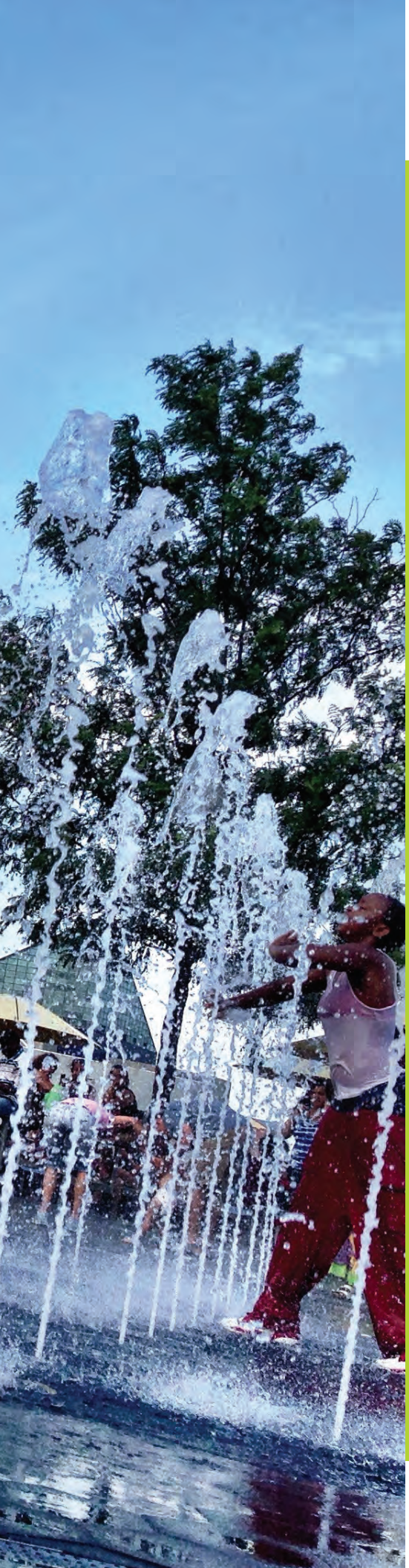
Full Service

Dedicated Lobby/Food & Beverage Level

2 x 9,600 SF Junior Ballroom

12,000 SF Meeting Rooms

Accommodations	280,590
Public Spaces	157,664
Support Areas	31,995
Exterior Covered Areas	4,000
GROSS SF	**474,249**



4

ANALYSIS

Discovering the guiding principles for the project

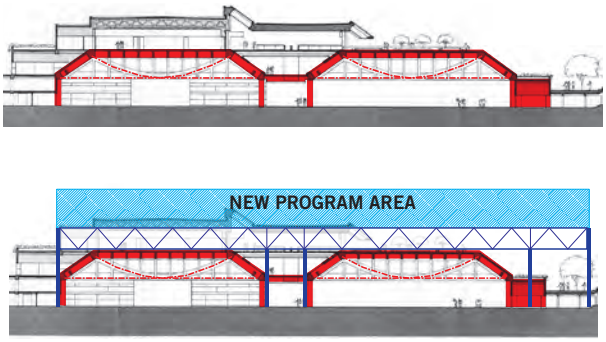
ANALYSIS

EAST BUILDING RENOVATION / EXPANSION

Increasing the floor area of the existing Exhibit Halls would require capturing approximately 40 feet of contiguous area along the north and east perimeters of the existing Exhibit Halls, as previously discussed in the Existing Conditions section. This additional area would need to be an expansion of the high-bay ceiling portion of the halls. The primary impediment to achieving an East Building Exhibit Hall expansion, at the required ceiling heights, is the nature of the existing long-span structural system itself. The existing structural system is a poured-in-place, post-tensioned, truncated concrete pyramid. While a very innovative structural system that captures large volumes of space with column-free long spans, it is not very flexible and virtually impossible to expand, as the bays adjacent to the pyramid structures laterally brace the pyramids. Contiguous expansion solutions would also produce low ceiling zones between halls. Building above the existing Exhibit Halls would be very expensive and would not produce contiguous Exhibit Hall area.

Finally, industry expectations have evolved in many areas affecting the existing Exhibit Halls that would be very difficult to correct and would place the existing facility in a disadvantaged position relative to its competition. The industry is trending towards more open and inviting Exhibit Halls, including introducing natural light.

The industry expectation for Exhibit Hall ceiling height is to provide at least 30 feet clear height throughout the Exhibit Halls. The truncated edges of the existing East Building Exhibit Hall structure result in approximately only 40% of the existing Exhibit Halls meeting this requirement. In addition, many of the existing floor utility boxes are corroded and are non-functional.



LIMITED STRUCTURAL FLEXIBILITY

Conclusion

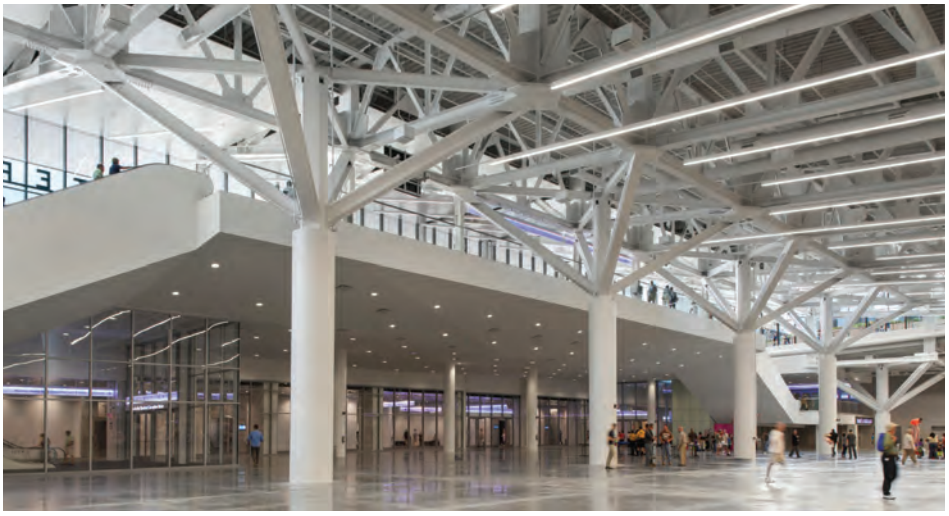
The above analysis concludes that:

1. Considerable footprint is available around the perimeter of the existing Exhibit Halls, but:
2. The perimeter is difficult to manipulate as the structural enclosure is load-bearing.
3. It is difficult to modify the bays adjacent to the pyramid structures as they laterally brace the pyramids.
4. The existing structure cannot take the load of additional levels – new structure would be required to span over the existing halls to accomplish expanding vertically.
5. Electrical floor box deficiencies require replacement of the existing utility boxes and the existing slab on grade.
6. Only a portion (40%) of the existing Exhibit Halls meet industry standards for Exhibit Hall ceiling clearance.
7. The industry is trending towards more open and inviting Exhibit Halls, including introducing natural light.

Therefore, the design team has concluded that renovating and expanding the East Building is impractical. The highest and best use of the site requires the demolition and replacement of the East Building Exhibit Halls with new Exhibit Halls that meet current market expectations.

Existing Exhibit Hall
East Building
Low ceilings, aging infrastructure, lack of natural light, and aesthetics present challenges for meeting industry expectations.

Convention Center Exhibit Hall
Nashville
Industry expectations for Exhibit Halls are leaning toward bright, inviting spaces with many now including natural light.



Convention Center Exhibit Hall
Cleveland
Natural light from the street level entry lobby floods the below-grade Exhibit Hall with natural light.


W LOMBARD ST
HOPKINS PL
S HANOVER ST
W PRATT ST
S HOWARD ST
S SHARP ST
S CHARLES ST
W CONWAY ST

SITE CAPACITY AND TEST FITS

With the conclusion to demolish the East Building portion of the existing BCC, the analysis of site capacity focused on the ability of the existing site to meet the programmatic needs of the various Development Options, with and without the Sheraton Site.

The area of the East Building BCC site is 343,704 SF, including the Charles Street counter-flow lane. The area of the Sheraton Site is 118,181 SF, including the alley to the east of the existing church property.

The following matrix illustrates the potential options for accommodating the above program on the site – with and without the Sheraton Site.

Option 1 addresses Development Scenarios for the Renovation/ Expansion of the Convention Center only.

Option 2 addresses Development Scenarios for the Renovation/ Expansion of the Convention Center and Hotel.

Option 3 addresses Development Scenarios for the Renovation/ Expansion of the Convention Center and the Arena.

Option 4 addresses Development Scenarios for the Renovation/ Expansion of the Convention Center, Arena and Hotel.

The “A” family of options locate the lowest Exhibit Hall at elevation +12', contiguous with the existing Exhibit Halls. The “B” family of options locate the lowest Exhibit Hall level at elevation -38', one level below the existing Exhibit Halls. The “C” family of options look at a variety of hybrid solutions.

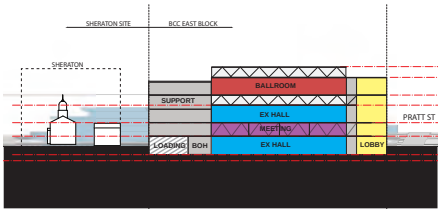
OPTION 1

WITHOUT SHERATON SITE
BCC PROGRAM ONLY

A

Lowest Level @ +12'

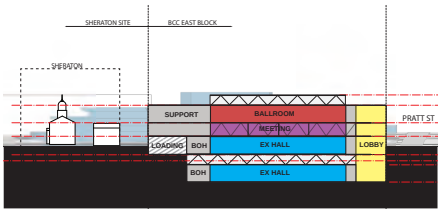
+1 LEVEL EX-HALL ABOVE GRADE



B

Lowest Level @ -38'

+1 LEVEL EX-HALL BELOW GRADE



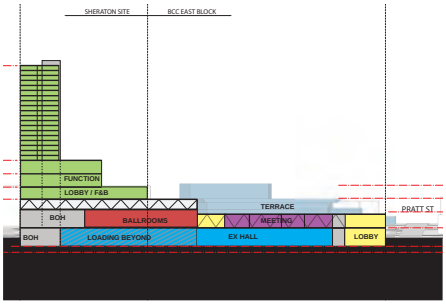
C

Alternatvie Schemes

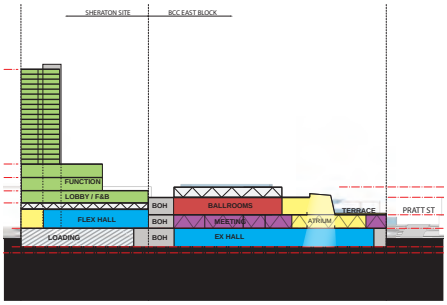
OPTION 2

INCLUDES SHERATON SITE
BCC + HOTEL

CONTIGUOUS EX-HALL (1 LEVEL)



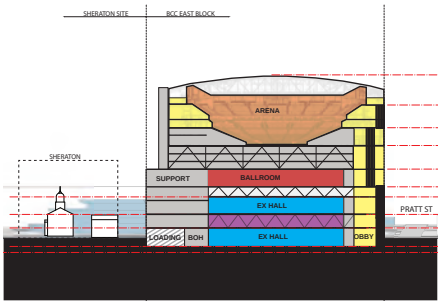
"LOOSE STACK" W/ ATRIUMS



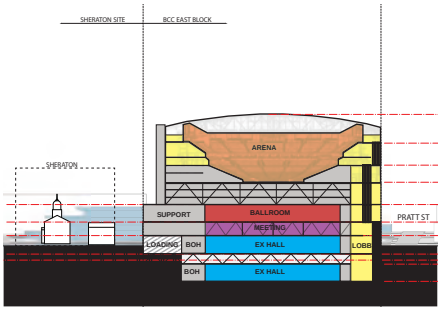
OPTION 3

WITHOUT SHERATON SITE
BCC + ARENA

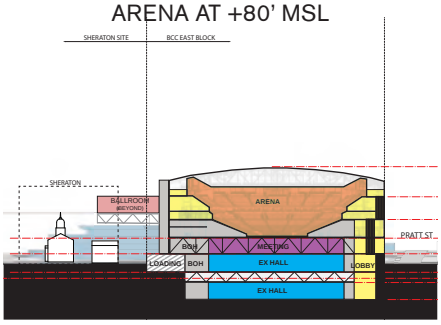
ARENA AT +207' MSL



ARENA AT +157' MSL



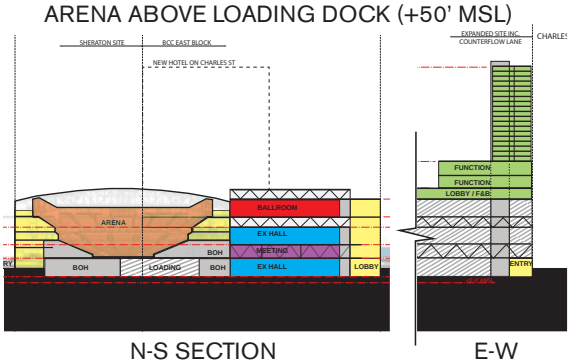
STACK BALLROOMS OVER EXISTING ARENA AT +80'



OPTION 4

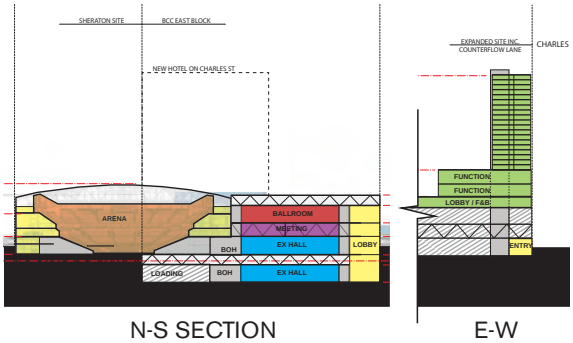
INCLUDES SHERATON SITE
BCC + ARENA + HOTEL

ARENA ABOVE LOADING DOCK (+50' MSL)



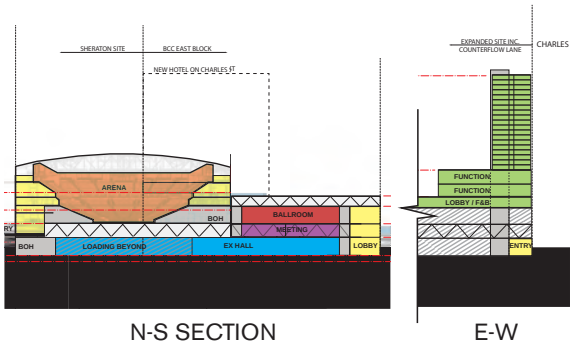
N-S SECTION E-W

ARENA AT GRADE (+12' MSL)



N-S SECTION E-W

ARENA OVER 1 LEVEL OF EX-HALL (+77' MSL)

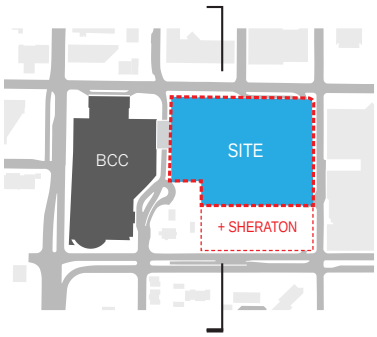


N-S SECTION E-W

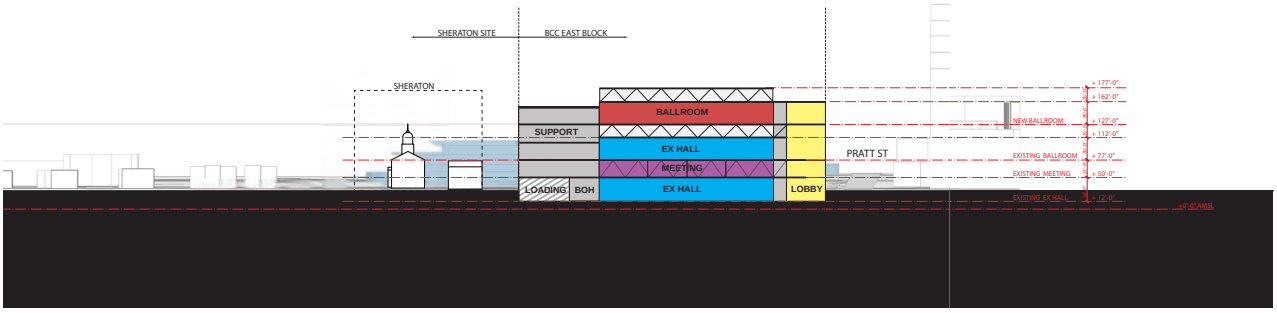
Option 1 – Convention Center Only

Option 1A locates the lowest Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located above it at elevation +77', which is contiguous with the existing Ballroom level. Meeting rooms are located in the interstitial trusses between the two Exhibit levels. The new Ballroom is located at elevation +127'. This option only achieves 347,000 SF of contiguous exhibit area without the Sheraton site, below the 400,000 SF target for contiguous area.

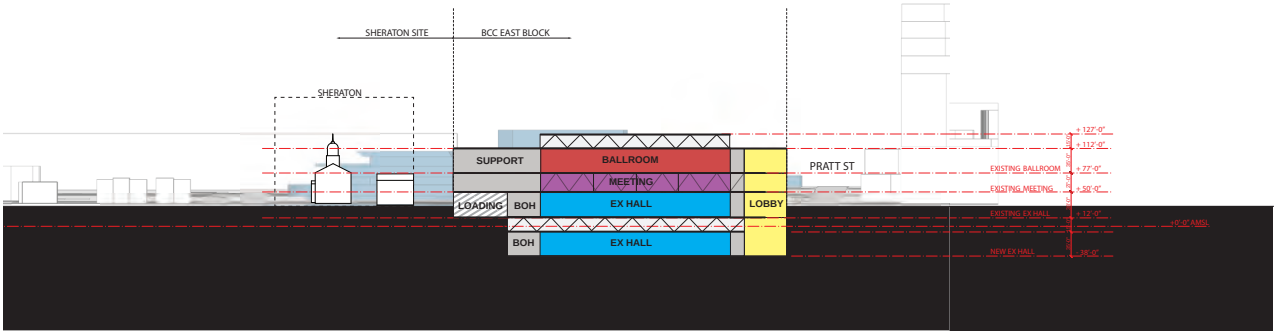
Option 1B locates the upper Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located immediately below it at elevation -38'. Loading would occur at the upper Exhibit Hall level with elevator service to the lower halls, which would be located below the water table. Meeting rooms are located in the interstitial trusses between the upper Exhibit level and the Ballroom level. The new Ballroom is located contiguous with the existing Ballroom at elevation +77'. All floor areas (except for the lower Exhibit Hall level) would align with existing floor levels. This option requires additional excavation and dewatering of the site, but without the Sheraton site only achieves 347,000 SF of contiguous exhibit area, below the 400,000 SF target for contiguous area.



OPTION 1 KEYPLAN



OPTION 1A



OPTION 1B

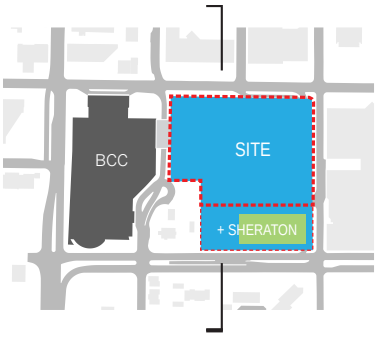
Option 2 – Convention Center and Hotel

Option 2A requires the Sheraton site. It locates all the Exhibit Hall program at Exhibit level at elevation +12', contiguous with the existing Exhibit Halls. Meeting rooms and the new Ballroom would be located immediately above it at elevation +50', which is contiguous with the existing meeting room level.

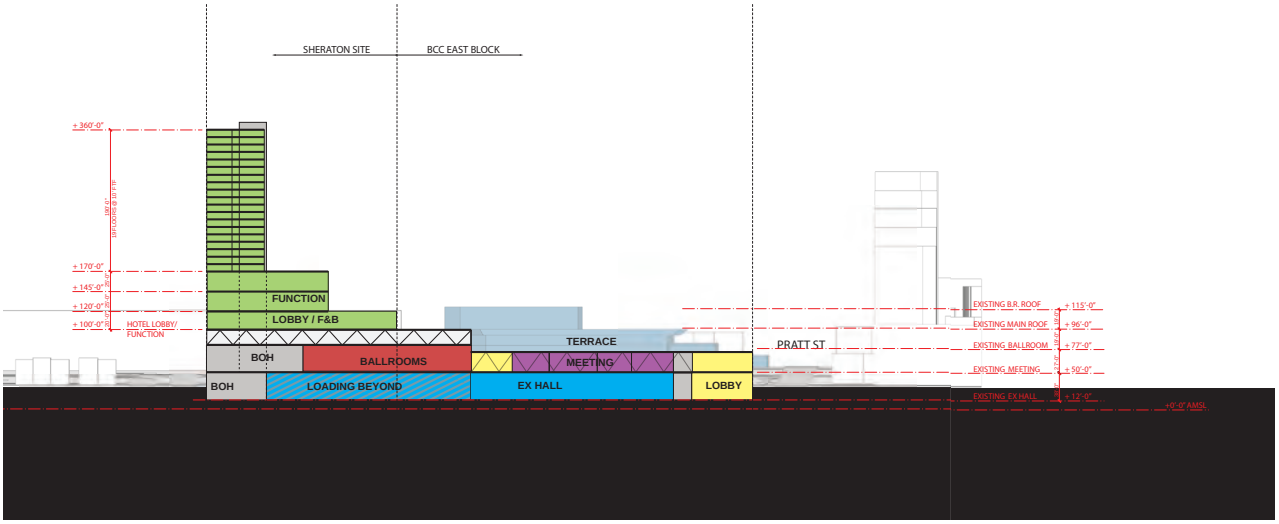
Option 2A adds the Hotel on the southern edge of the project above the Ballroom level at elevation +100'. This option requires the Sheraton Site but only achieves 430,000 SF of total exhibit area – short of the 500,000 SF albeit all contiguous with the existing Exhibit Halls.

Option 2C requires the Sheraton Site. It locates the lower Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located immediately above it at elevation +50'. The upper "Flex" Exhibit Halls woudl be located above the loading dock and beneath the Hotel. Loading would occur at the lower Exhibit Hall level with elevator service to the upper "Flex" Hall and Ballroom. Meeting rooms are located in the interstitial trusses between the lower Exhibit level and the Ballroom level. The new Ballroom is located at elevation +77'. All floor areas would align with existing floor levels.

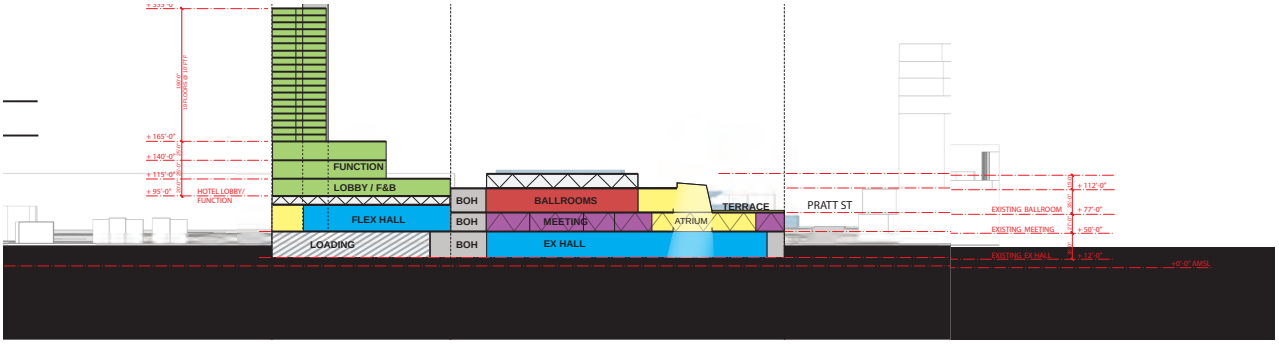
Option 2C adds the Hotel on the southern edge of the project above the upper Exhibit Hall level at elevation +95'. This option requires the Sheraton Site, achieves 405,000 SF of contiguous exhibit area and meets all other BCC and Hotel program targets.



OPTION 2 KEYPLAN



OPTION 2A



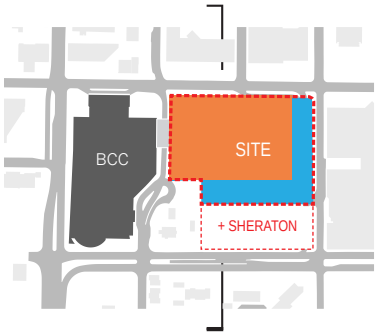
OPTION 2C

Option 3 – Convention Center and Arena

Option 3A locates the lowest Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located above it at elevation +77', which is contiguous with the existing Ballroom level. Meeting rooms are located in the interstitial trusses between the two Exhibit levels. The new Ballroom is located at elevation +127'. This option adds the Arena above the BCC. The Arena event level would be located at elevation +207', 195 feet above grade, above very deep interstitial trusses supporting the Arena and spanning over the Ballroom. Service would be by elevator. This option only achieves 347,000 SF of contiguous exhibit area without the Sheraton site, below the 400,000 SF target for contiguous area. There are many structural and vertical circulation challenges with this option.

Option 3B locates the upper Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located immediately below it at elevation -38'. Loading would occur at the upper Exhibit Hall level with elevator service to the lower halls, which would be located below the water table. Meeting rooms are located in the interstitial trusses between the upper Exhibit Hall and the Ballroom. The new Ballroom is located at elevation +77'. All floor areas (except for the lower Exhibit Hall level) would align with existing floor levels. This option adds the Arena above the BCC. By locating the lower Exhibit Hall beneath the upper hall level, Option 3B would locate the Arena event level 50 feet closer to grade at elevation +157', 145 feet above grade, above very deep interstitial trusses supporting the Arena and spanning over the Ballroom. Service would be by elevator.

Option 3B requires additional excavation and dewatering of the site, but without the Sheraton site only achieves 347,000 SF of contiguous exhibit area, below the 400,000 SF target for contiguous area.

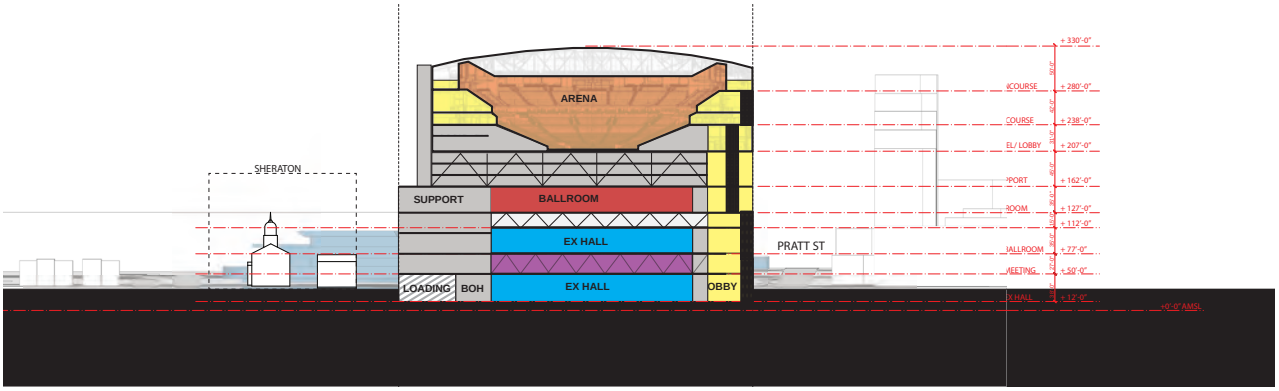


OPTION 3 KEYPLAN

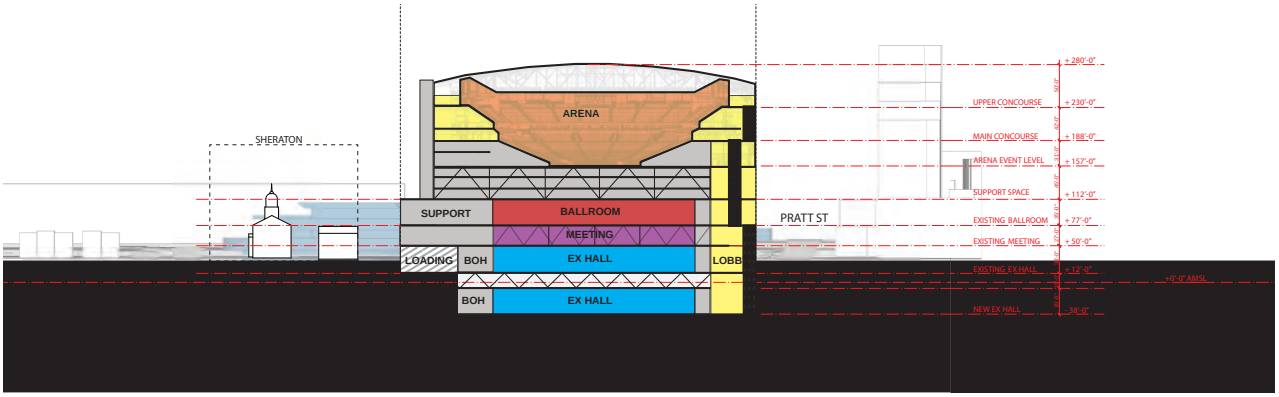
Option 3C is similar to Option 3B, except that it locates the new Ballroom on the west side of the project (above the West Building) and locates the Arena floor above interstitial trusses that would house the Meeting rooms. This brings the Arena event floor down to +80' feet, 68 feet above grade.

Option 3C locates the upper Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located immediately below it at elevation -38'. Loading would occur at the upper Exhibit Hall level with elevator service to the lower halls, which would be located below the water table. Meeting rooms are locted in the interstitial trusses between the upper Exhibit Hall and the Arena event floor. The new Ballroom is located above the existing Ballroom at elevation +130'. The upper Exhibit Hall and meeting room levels would align with existing floor levels. This option adds the Arena above the BCC. By locating the new Ballroom above the existing Ballroom in the existing West Building, Option 2B would locate the Arena event level at elevation +80', 68 feet above grade, above interstitial trusses housing the meeting rooms and supporting the Arena. Service would be by elevator.

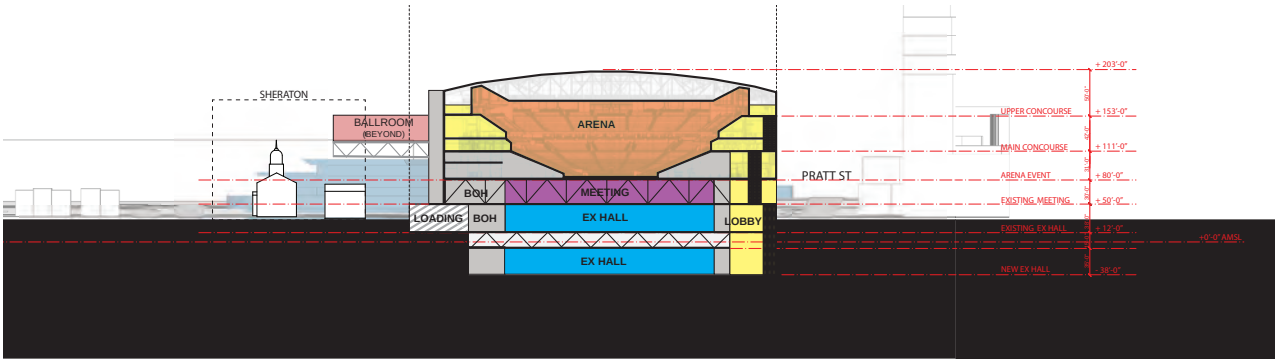
Option 3C requires additional excavation and dewatering of the site, but without the Sheraton site only achieves 347,000 SF of contiguous exhibit area, below the 400,000 SF target for contiguous area.



OPTION 3A



OPTION 3B



OPTION 3C

Option 4 – Convention Center, Arena and Hotel

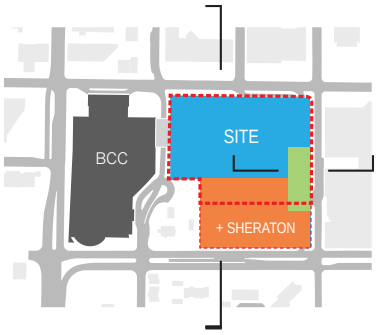
Option 4A requires the Sheraton Site. It locates the lowest Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located above it at elevation +77', which is contiguous with the existing Ballroom level. Meeting rooms are located in the interstitial trusses between the two Exhibit levels, at elevation +50' contiguous with the existing meeting rooms. The new Ballroom is located at elevation +127'.

Option 4A adds the Arena adjacent to the BCC. The Arena event level would be located at elevation +50', 38 feet above grade, above the BCC and Arena loading and service area. Service would be by elevator. This option requires the Sheraton site but only achieves 334,000 SF of contiguous exhibit area, below the 400,000 SF target for contiguous area.

Option 4B requires the Sheraton Site. It locates the upper Exhibit level at elevation +12', contiguous with the existing Exhibit Halls, with an additional Exhibit Hall level located immediately below it at elevation -38'. Loading would occur at both the upper and lower Exhibit Halls with elevator service to the upper levels. The lower level loading dock and loading level would be located below the water table. Meeting rooms are located in the interstitial trusses between the upper Exhibit Hall and the Ballroom. The new Ballroom is located at elevation +77'. All floor areas (except for the lower Exhibit Hall level) would align with existing floor levels.

Option 4B adds the Arena adjacent to the BCC. By locating the lower Exhibit Hall beneath the upper hall level and locating the Arena adjacent to the Exhibit Hall levels, Option 4B would locate the Arena event level at grade. Service would be by elevator. This option requires the Sheraton site but only achieves 334,000 SF of contiguous exhibit area, below the 400,000 SF target for contiguous area.

Option 4C requires the Sheraton Site. It is similar to Option 4A, except that it extends the Exhibit Hall level to Conway Street, under the Arena. It locates the Arena floor above interstitial trusses that would house the meeting rooms in the BCC. This locates the Arena event floor at elevation +77', 65 feet above grade. Option 4C locates the Exhibit Halls on a single level at elevation +12', contiguous with the existing Exhibit Halls.



OPTION 4 KEYPLAN

Loading would occur at the Exhibit Hall with elevator service to the upper levels. Meeting rooms are located in the interstitial trusses between the Exhibit Hall and the Ballroom. All BCC levels would align with existing floor levels.

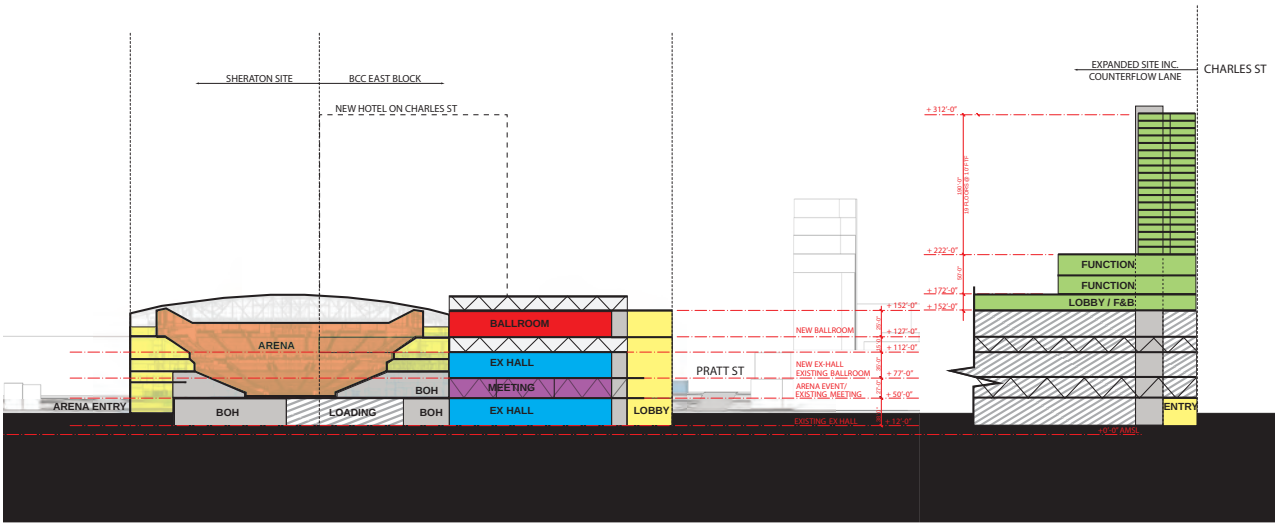
Option 4C requires the Sheraton Site but only achieves 430,000 SF of total exhibit area, albeit all contiguous with the existing Exhibit Halls.

Options 4A, 4B and 4C all locate the Hotel on Charles Street at mid-block with a porte-cohere and lobby at grade and a "sky-lobby" at the level of the Ballroom roof trusses. The Hotel room tower would be located above two Hotel function levels.

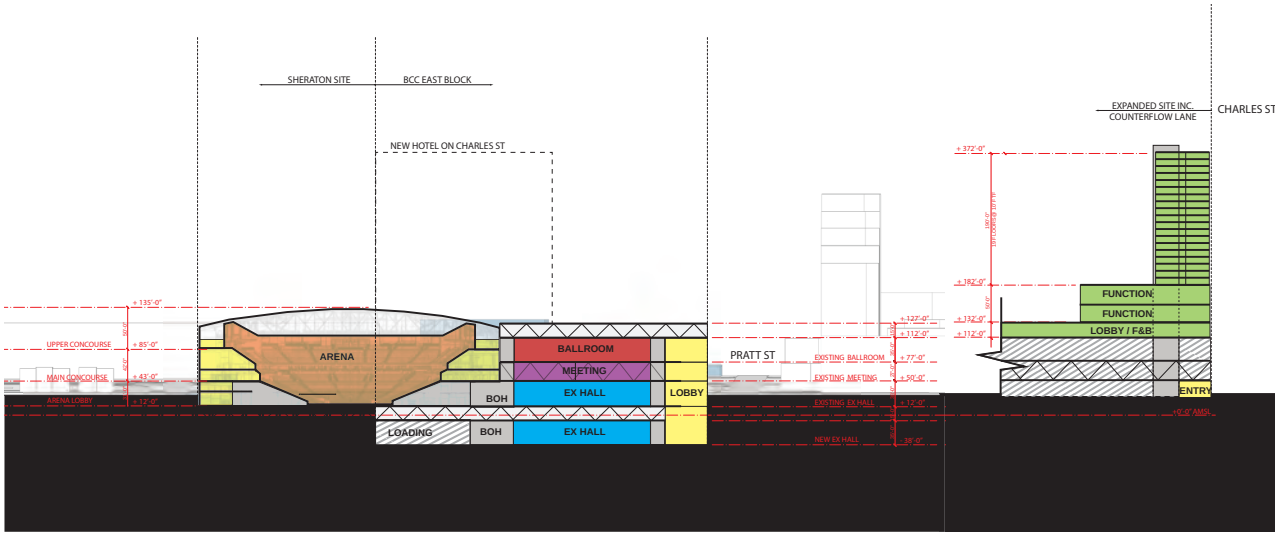
CONCLUSIONS

The above analysis illustrates that the 400,000 SF target for contiguous Exhibit Hall area can only be met by options which utilize the Sheraton Site, eliminating Options 1A and 1B, along with Options 2A, 2B and 2C. At 430,000 SF of contiguous Exhibit Hall area, Option 3A demonstrates that the Exhibit Hall program target of 500,000 SF cannot be met on a single level, eliminating it as a viable option. Option 3C meets all program objectives for the BCC and the Hotel. Options 4A and 4B demonstrate that the BCC program requirement of 400,000 SF of contiguous Exhibit area cannot be met without overlapping the Arena and the BCC – eliminating those options.

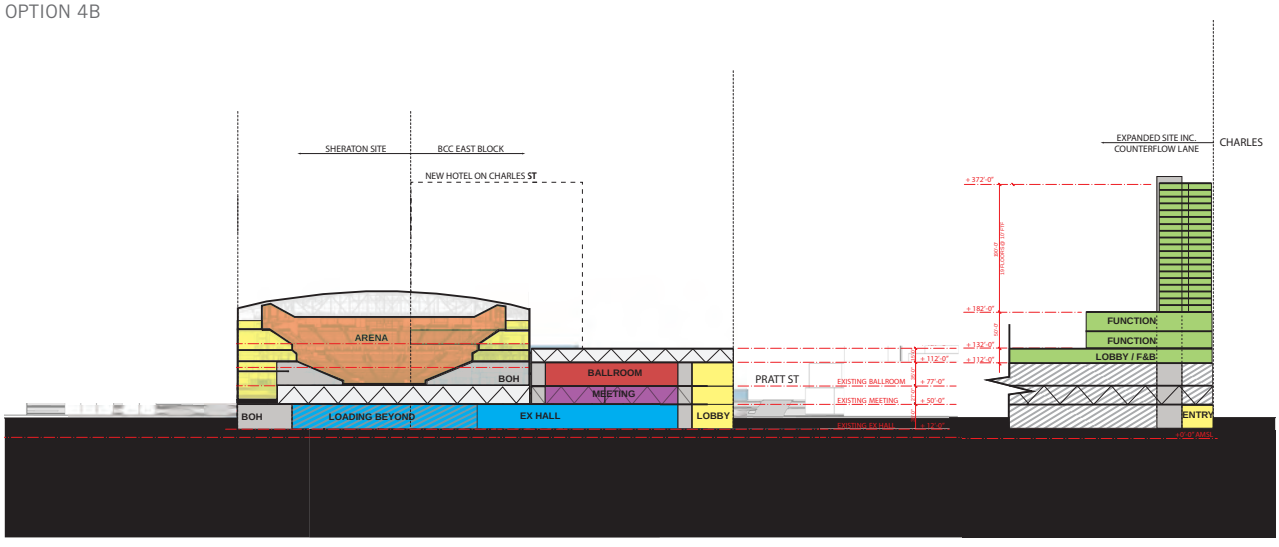
Option 4C illustrates that the BCC, Hotel and Arena program can be achieved on the site by extending the lower Exhibit Hall level under the Arena and adding an upper "Flex" Hall level above the Exhibit Hall level. Option 4B could take a similar approach. Therefore, the need for the Sheraton Site was confirmed and Options 3C and a 4B/4C hybrid were identified as the basis for further feasibility analysis.



OPTION 4A



OPTION 4B



OPTION 4C

WEST BUILDING RENOVATION / EXPANSION

The following illustrations suggest an approach to the Renovation of the West Building for increasing meeting room space and for a new Ballroom.

The Conway Lobby is too large for the adjacent meeting room program that it serves. The renovation proposes adding a "Signature Meeting Room" on the corner of Howard Street and Conway Street on the current Terrace. The meeting room would be predominantly glass and become a beacon on that corner of the facility. It could be subdivided for maximum flexibility. The space was originally structured for a theatre; therefore, the structural capacity exists for it to be transformed into meeting space.

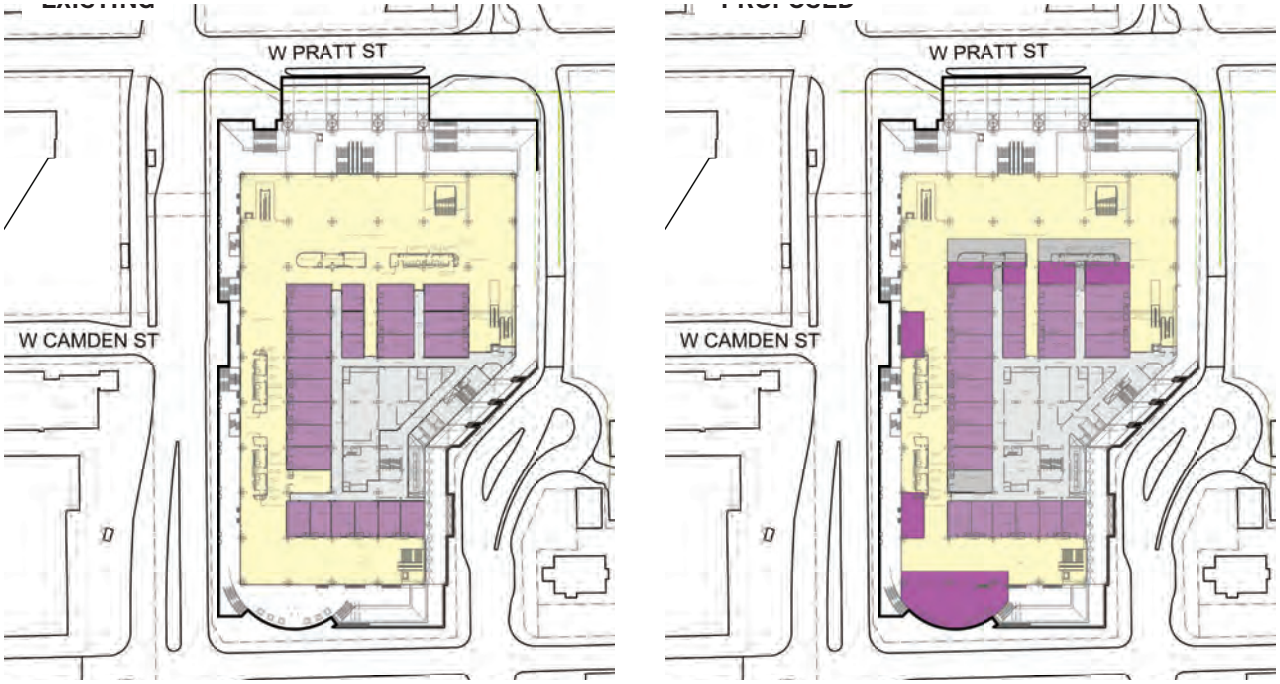
Restrooms are currently located in the Howard Concourse, reducing its width and blocking natural light from the meeting room entries. The renovation proposes relocating those restrooms into spaces currently occupied by meeting rooms. To compensate, two banks of meeting rooms would be located along the glass perimeter wall. These meeting rooms would also be "signature" in character, offering great views to the historic structures surrounding Camden Yards.

It is also possible to reduce the width of the Pratt Street registration lobby by adding a row of meeting rooms along the north edge of the existing meetings. These would incorporate the public restrooms as well. This area will require additional study later, when the surrounding program and circulation systems are better known.

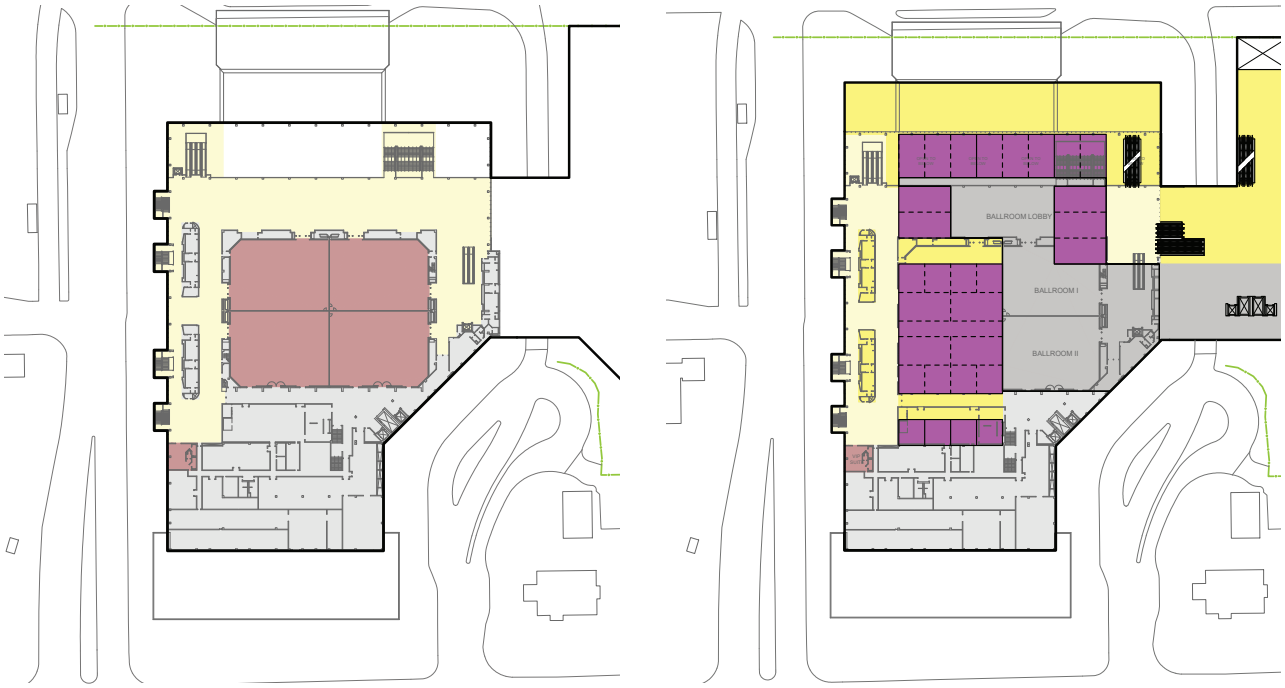
The L400 Ballroom Level houses the Ballroom and its support functions – both front and back-of-house. The industry expectations for Ballrooms have evolved significantly since the West Building opened, as size, ceiling heights and support requirements have all increased dramatically. As a result, the existing Ballroom will need significant upgrades to remain competitive.

To address some of these issues and simultaneously better balance the meeting room program between the existing building and the expansion, the illustrated renovation proposal would convert the existing Ballroom to meeting rooms and expand the footprint towards Pratt Street, expanding the back-of-house support areas and the pre-function space. In scenarios where this conversion would take place, the existing Ballroom would be relocated to a new upper level – contiguous with that of the new Ballroom, (see Structural Feasibility narrative in the Additional Considerations Section).

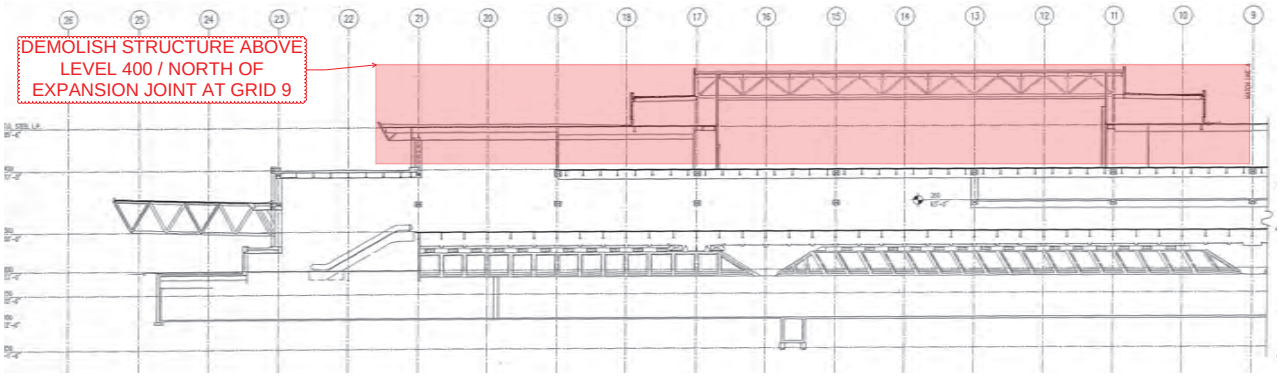
Depending on the development scenario, the existing Ballroom may not be located on the same level as the new Ballroom in the expansion, creating back-of-house complications and possibly the need for a second kitchen. Development scenarios that include the Arena (Options 3 and 4) illustrate a relocated Ballroom the same size as the existing, at the level of the new Ballroom.



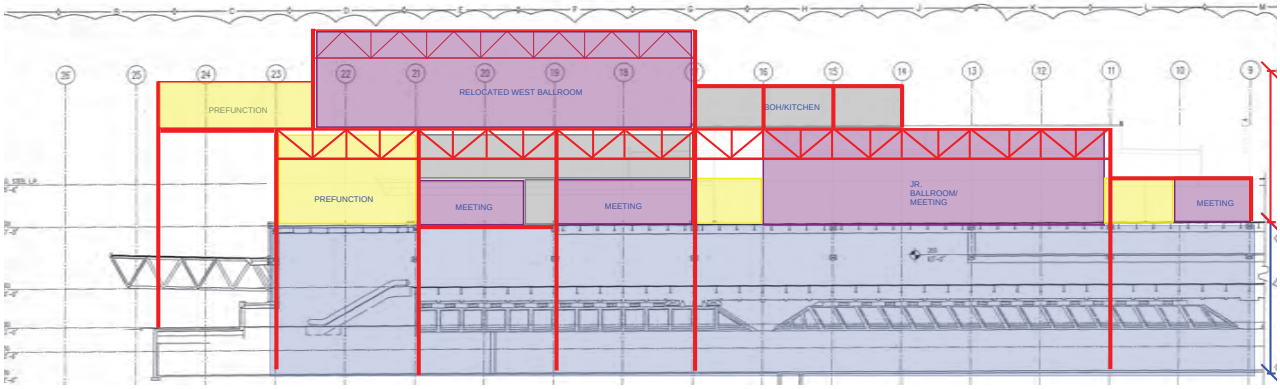
L300 MEETING LEVEL COMPARISON



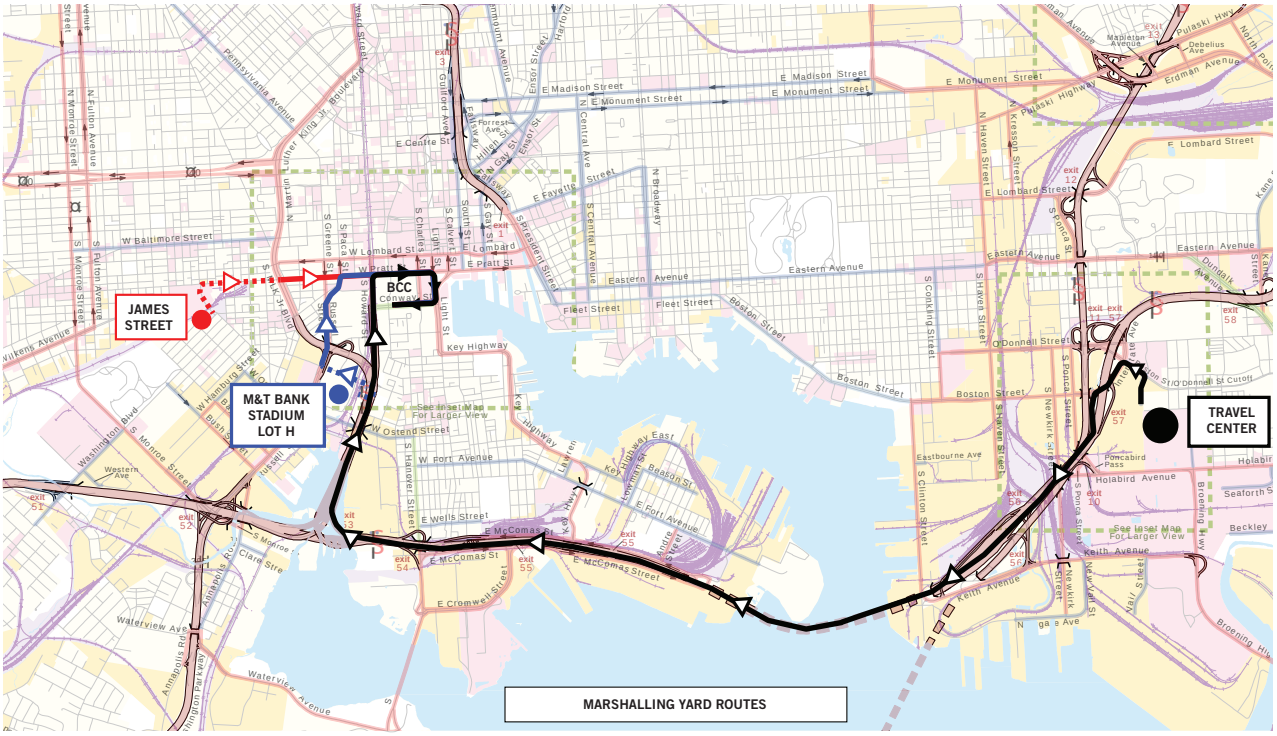
L400 BALLROOM LEVEL COMPARISON



EXTENT OF DEMOLITION FOR NEW BALLROOM



STRUCTURAL CONCEPT FOR NEW BALLROOM



CURRENT AND FUTURE ACCESS ROUTES

FREIGHT ACCESS

There are two issues related to BCC freight movement – the internal movement of freight within the facility, and access to the site for trucks delivering that freight.

Internal Freight Movement

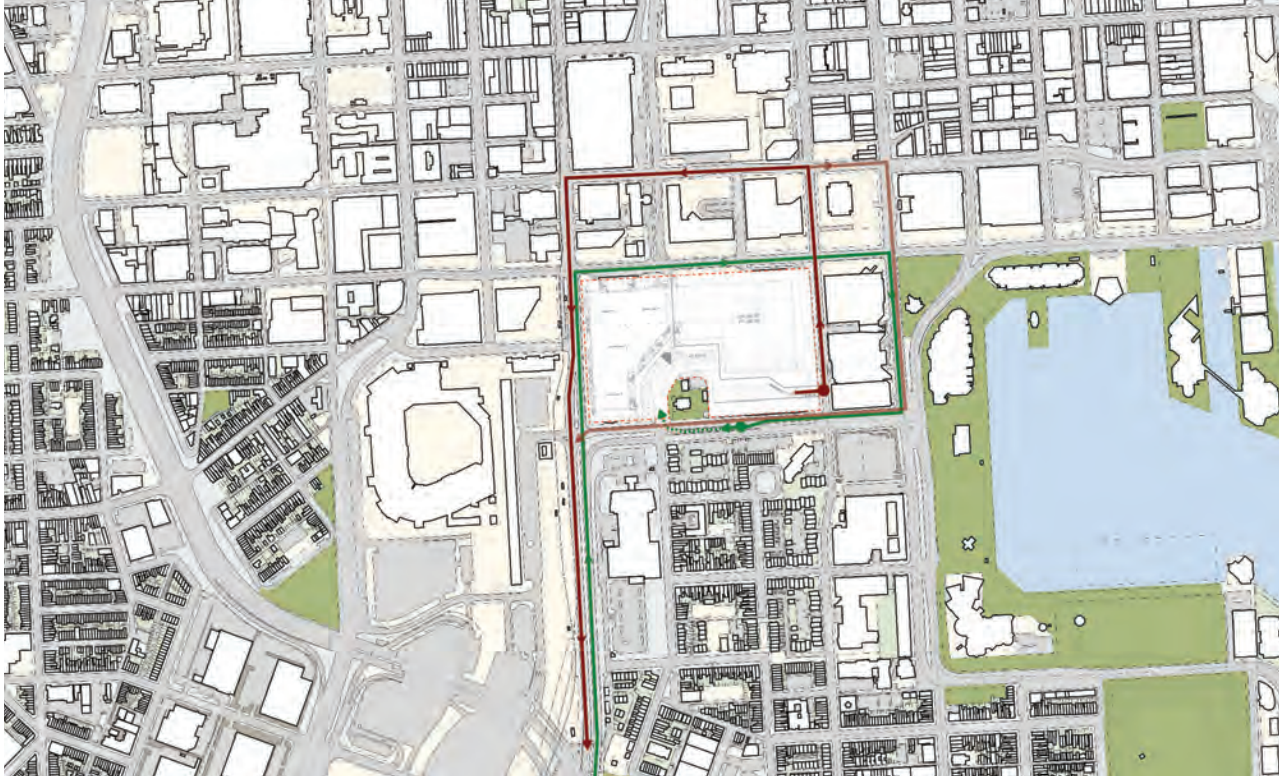
Expanding the Existing Exhibit Hall to 400,000 SF requires increasing the number of loading bays from the current 26 loading bays to a target of 40 loading bays. The configuration of the loading bays has a direct relationship to the shape and configuration of the Exhibit Halls. Loading access to the main Exhibit Hall would occur on the same level. Loading to the Flex Hall on the L300 level would occur through oversized freight elevators that connect to back of house spaces.

Access Routes

There are three marshalling yards in the vicinity that are currently used, and will be continued to be used for staging of convention hall events. One is on James Street in west Baltimore, approximately 1 mile due west of the BCC. M&T Bank Stadium Lot H is in the parking lot of the nearby stadium, just southwest of the site. The third location is the Travel Center, exit 57 off route 95, 6.5 miles to the east in Dundalk, off Holabird Avenue. Each route will necessitate driving east on Pratt Street, south on Light Street, then west on Conway Street, entering the loading level through the existing ramp accessed from the median on Conway Street.

Building Footprint Expansion At Charles Street

The building program dictates a 400,000 SF contiguous Exhibit Hall. To achieve this on the site, the building footprint will extend east to the property line. (See Section 02: Existing Conditions) This building expansion will eliminate the southbound counter-flow lane on Charles Street. Traffic will flow north only on Charles Street.



TRUCK ROUTE #1

Arrival Route

Departure Route

Truck Entrance

Truck Exit

TRUCK ROUTE/LOADING OPTIONS

The inbound routes to each of the options is described above, in the marshalling yards summary. Every loading option utilizes an existing inbound ramp located in the median of Conway Street, bringing trucks down to elevation +8' loading level. Each of the loading options are viable for the Development Scenarios prepared for the study.

Option 1

Trucks exit north onto Charles Street. While this traffic flow is closest to how the facility works currently, the location of the curb cut close to Conway Street creates an isolated "island" that is cut off from the rest of the building. This dock configuration yields 52 total truck bays.

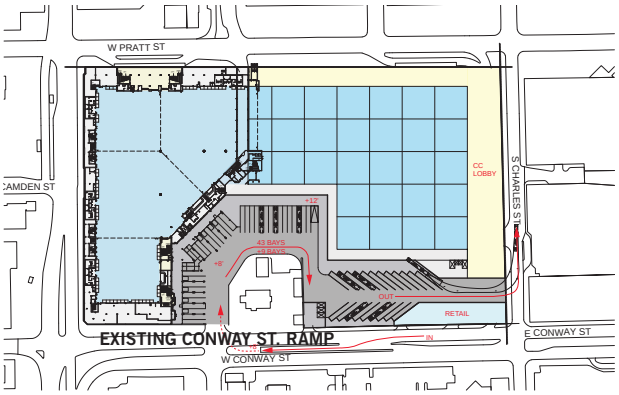
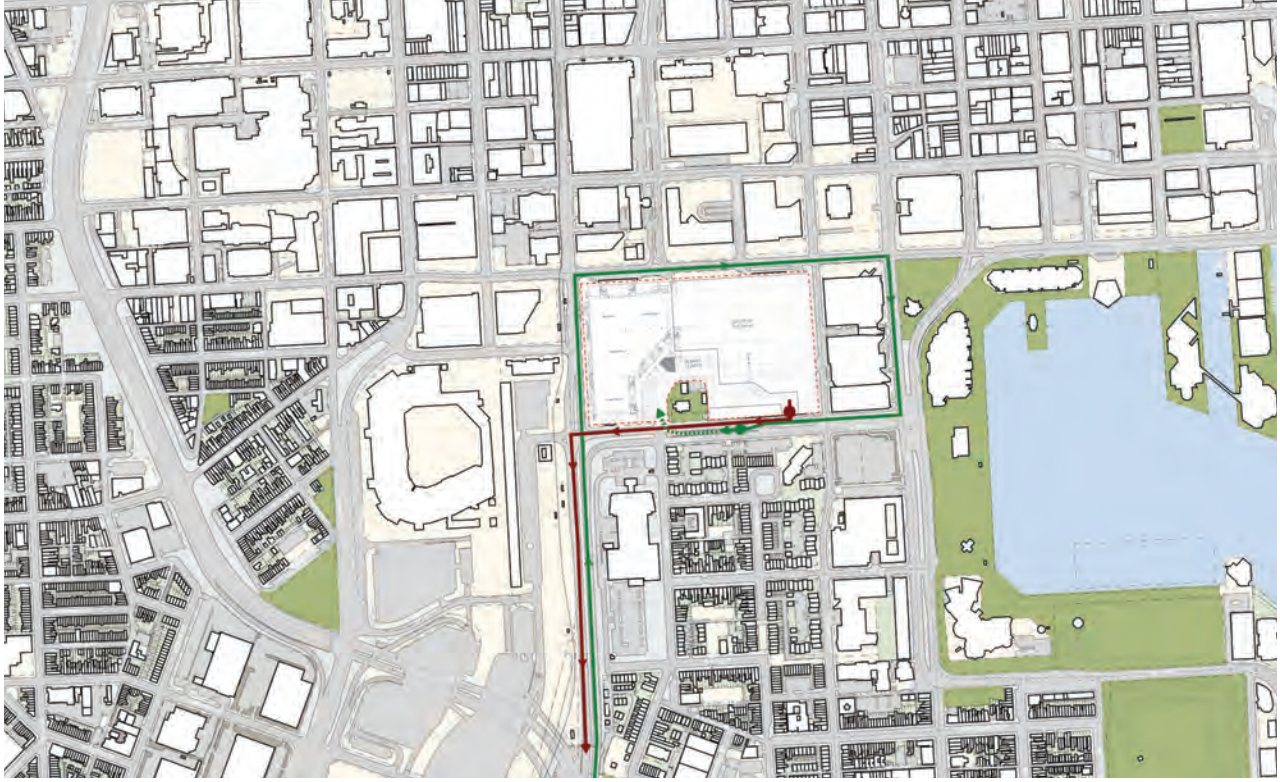


EXHIBIT HALL LOADING OPTION 1



TRUCK ROUTE #2

Arrival Route

Departure Route

Truck Entrance

Truck Exit

Option 2

In Option 2, trucks exit heading westbound onto Conway Street. Option 2A shows double-sided loading, with 46 full-length and 5 shorter bays. Option 2B allows for an open plaza on the corner of Charles and Conway Streets for the Arena, and provides 40 loading bays.

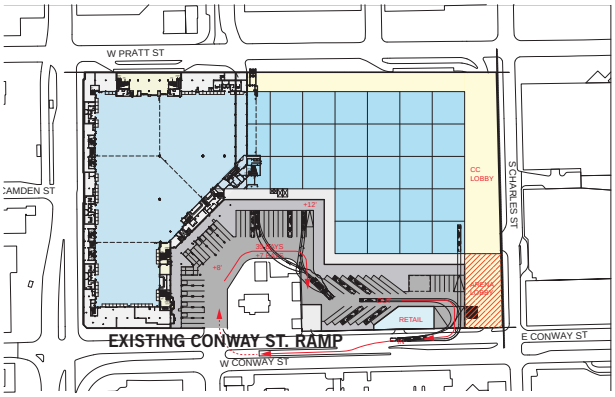


EXHIBIT HALL LOADING OPTION 2A

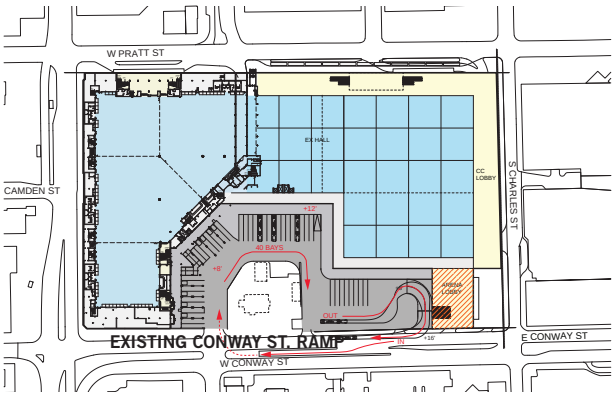
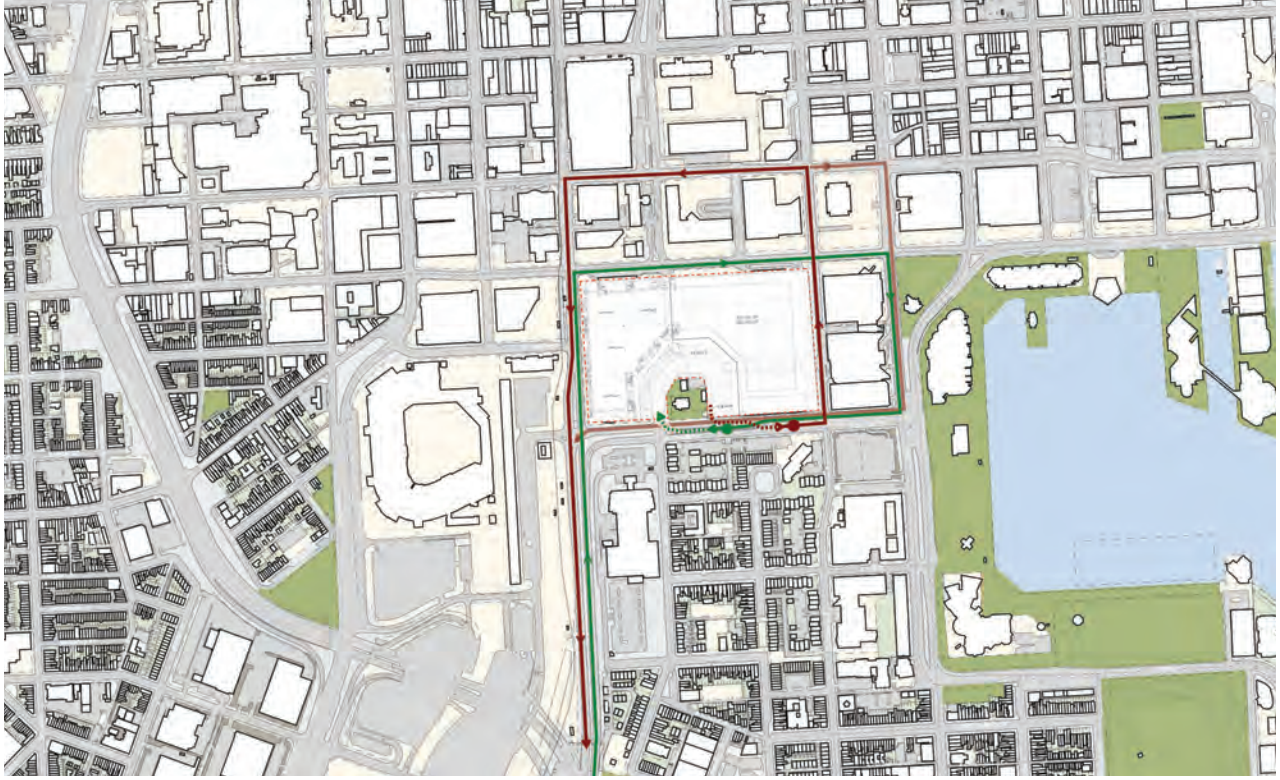


EXHIBIT HALL LOADING OPTION 2B



TRUCK ROUTE #3

Arrival Route

Departure Route

Truck Entrance

Truck Exit

Option 3

Option 3 illustrates an exit via a new ramp in the median headed east on Conway Street. While this option requires below grade truck access and a new median ramp, the truck apron is given maximum space for maneuvering and loading and the pedestrian impacts are reduced by eliminating the curb cut. This dock configuration yields 43 loading bays for the BCC.

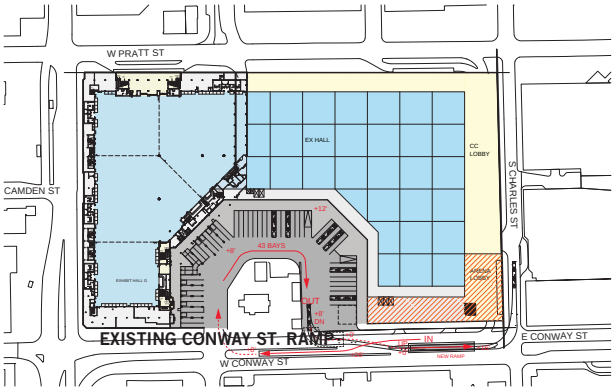
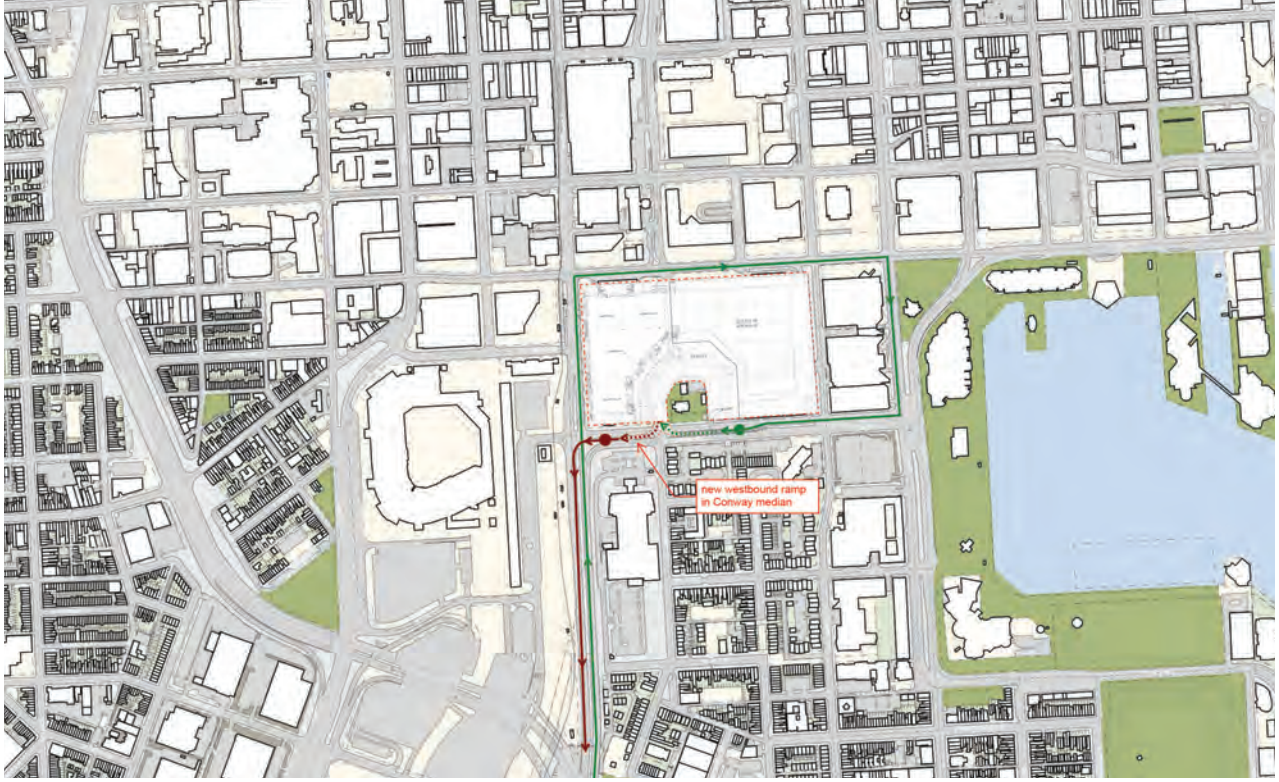


EXHIBIT HALL LOADING OPTION 3



TRUCK ROUTE #4

Arrival Route

Departure Route

Truck Entrance

Truck Exit

Option 4

Option 4 demonstrates two ways to exit west onto Conway. The first (Option 4A) involves a new ramp in the Conway median, exiting west towards the intersection of Howard Street. The second (Option 4B) utilizes a spiral ramp that falls within the building property line. Option 4A provides 43 bays, and Option 4B provides 39 bays.

The options with a new ramp exiting through the median on Conway Street (Option 3, Option 4A) yield the most loading bays directly servicing the Exhibit Hall while minimizing the impact of a curb cut on Conway Street pedestrians. Exiting west on Conway Street facilitates a more direct route back onto the highway.

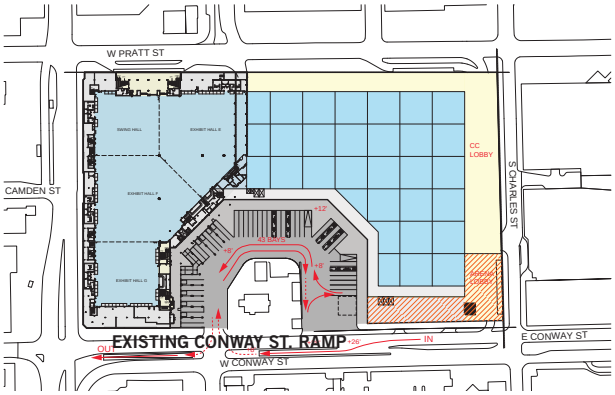


EXHIBIT HALL LOADING OPTION 4A

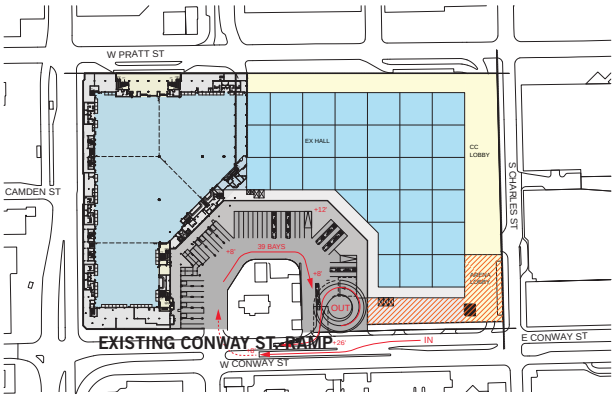
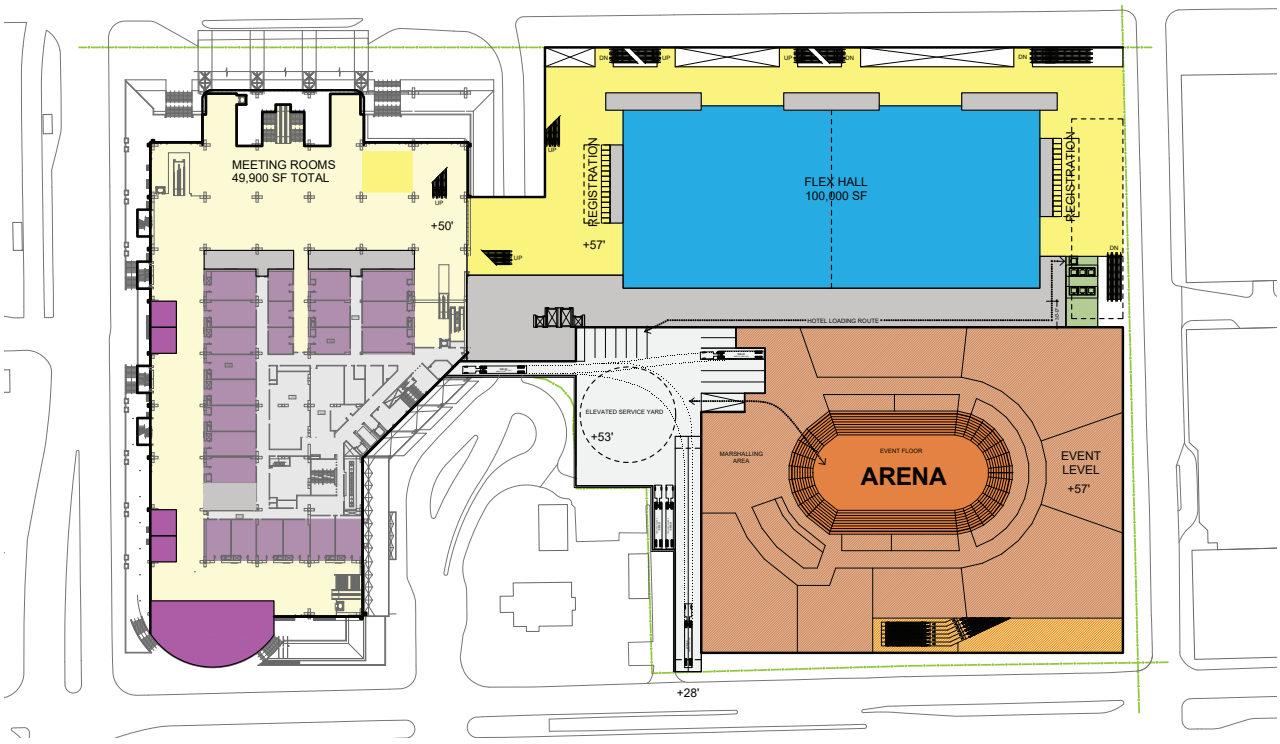


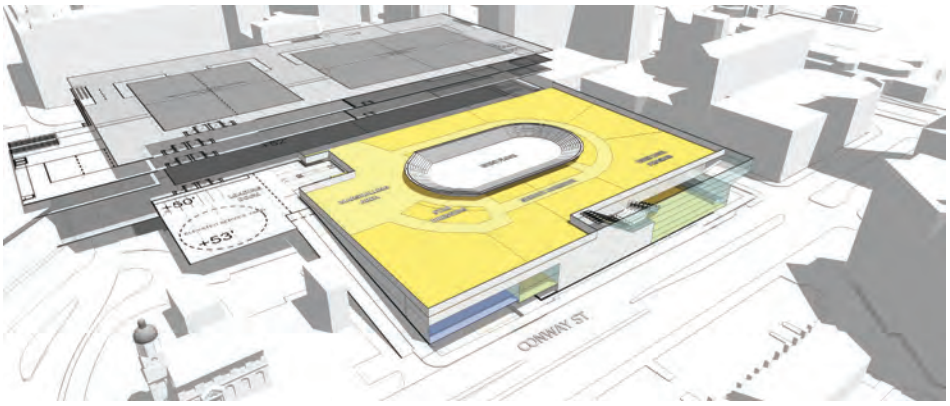
EXHIBIT HALL LOADING OPTION 4B



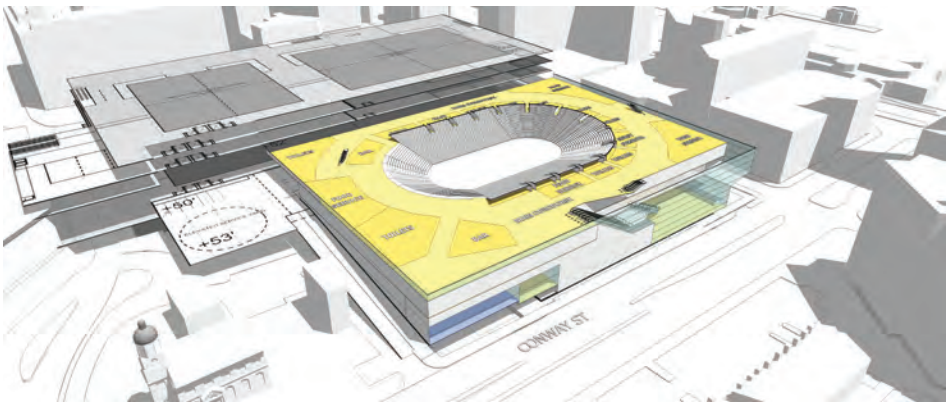
ARENA LOADING: DEVELOPMENT SCENARIOS 3 + 4

ARENA LOADING

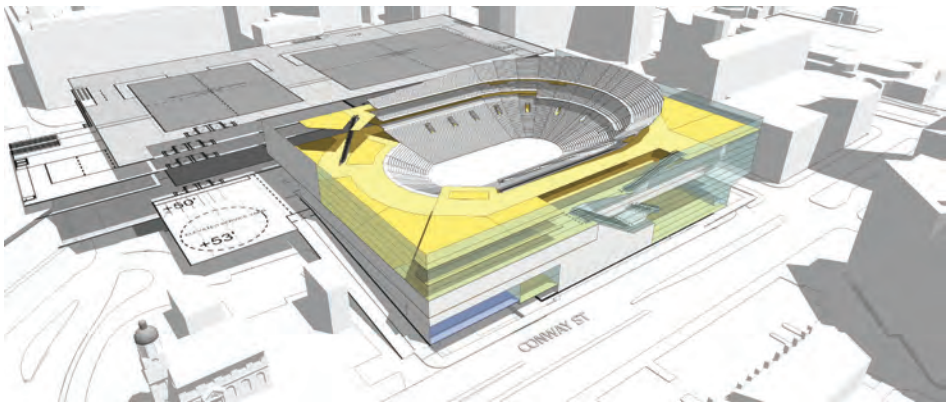
With the Arena event level at elevation +57', loading will take place in an elevated service yard at elevation +53' level. Trucks loading the Arena will access the service yard via a ramp accessed from Conway Street. This loading area would also serve as Hotel loading, with a service corridor connecting to Hotel elevators located behind the Flex Hall. If staging area needs to be increased, service yard extension options are indicated in the hatched area.



ARENA L300 EVENT LEVEL



ARENA L400 MAIN CONCOURSE



ARENA OVERALL


SUNTRUST
BB&T

5

DEVELOPMENT SCENARIOS

Conceptual planning of four development scenarios

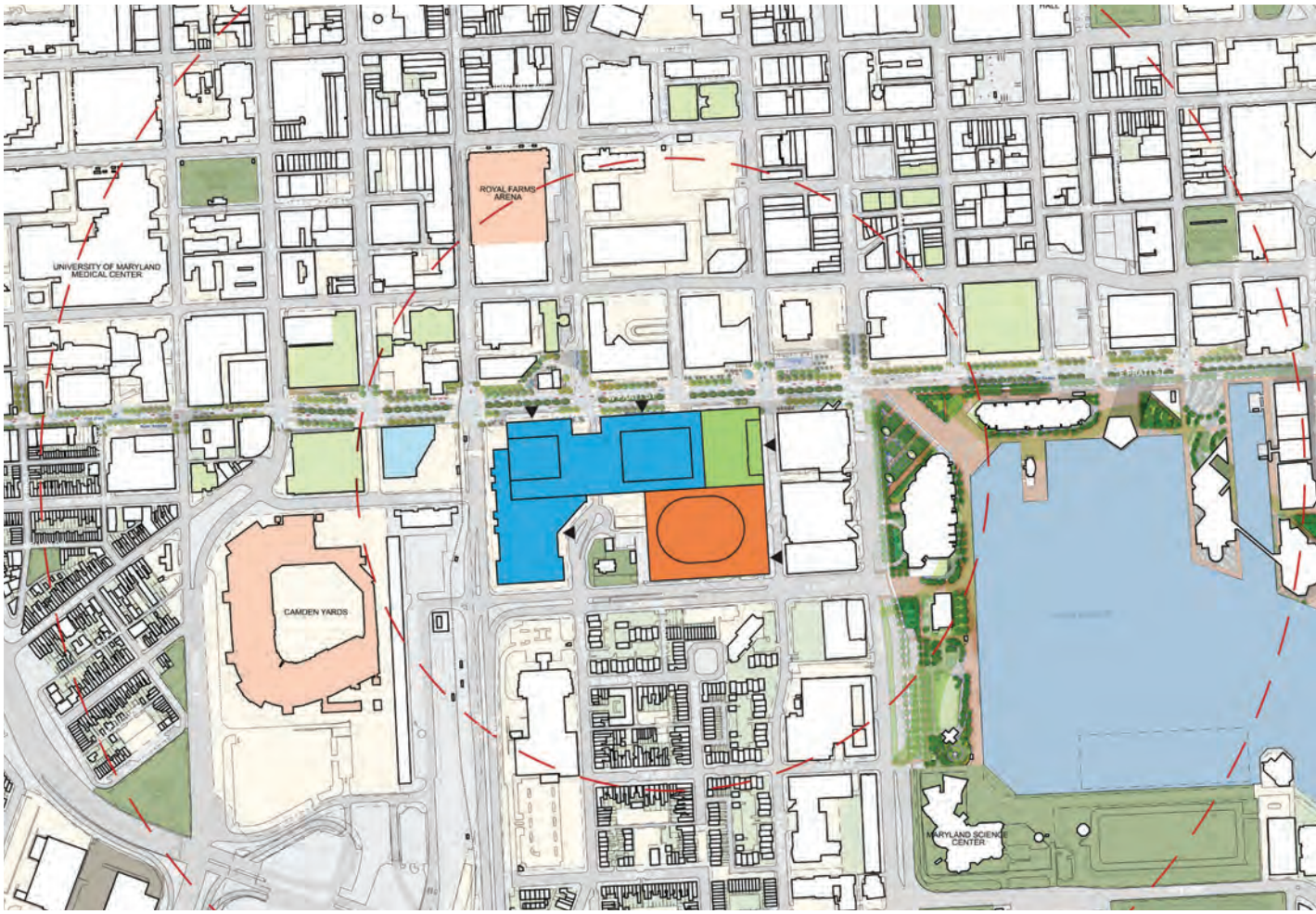
DEVELOPMENT SCENARIOS

SITE STRATEGY – LOCATION OF PROGRAM

The following diagram illustrates key program components and their distribution across the site in relation to similar program in the surrounding area. Pratt Street has been identified as an important pedestrian connector to the Inner Harbor. The primary entrances to the BCC have thus been located along the major thoroughfare of Pratt Street. The location of the Arena on the southern part of the site develops along an east west axis from Camden Yards to the Inner Harbor. The Hotel tower's position on the northern edge of the site aligns with the Hotel corridor along Pratt and Lombard Streets.

COMMON DESIGN STRATEGY

The proposed site is bounded by Pratt Street to the north, Charles Street to the east, Conway Street to the south, and Howard Street to the west. Entrance is on grade from Charles Street, or from a mezzanine level off Pratt Street. For all design options, the primary Exhibit Hall is on the L100 level, at elevation +12'. The existing Exhibit Hall would be expanded to incorporate a minimum contiguous 400,000 SF. The loading dock extends east from the existing dock on the western part of the building, mirroring its configuration. The loading dock directly services the Exhibit Hall level, with oversize freight elevators servicing all the upper levels. The strategy of stacking the Flex Hall over the main Exhibit Hall is advantageous for events that might require exhibit space above the 400,000 SF provided at the L100 level. In all options, parking is explored as a possibility in the space of the truss between the Exhibit Hall and the Flex Hall.

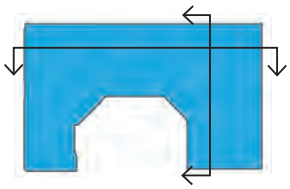


LOCATION OF PROGRAM

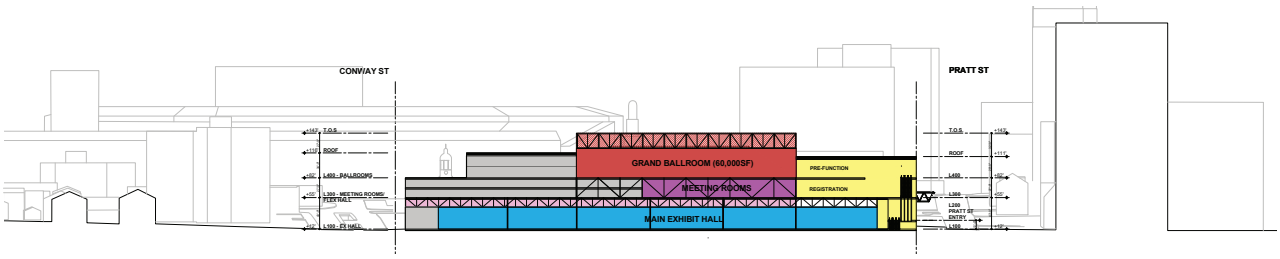
- Convention Center Program
- Convention Center Hotel
- Arena
- Hotel Meeting Program
- Neighborhood Hotel
- Neighborhood Stadium/Arena

DEVELOPMENT SCENARIO 1

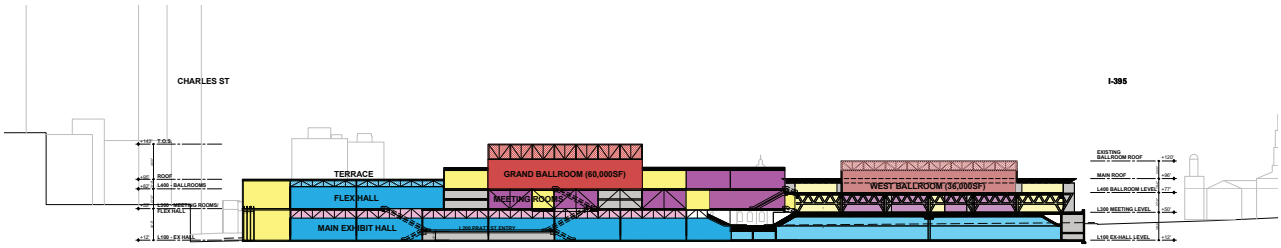
BCC Renovation/Expansion Only



OPTION 1 KEYPLAN



SECTION N-S (TRANSVERSE)



SECTION E-W (LONGITUDINAL)

EXISTING | NEW PROGRAM

- Ex/Flex Hall
- Ballroom
- Meeting
- Parking
- Pre-function/Lobby
- Back of House/Service

All levels of the new East Building are effectively on the same level as the existing West Building. The Exhibit Hall expansion is located at +12', with the Flex Hall directly above at +50'. New meeting rooms are also located at the +50' existing meeting room level, in a deep interstitial truss that supports the new Grand Ballroom above, at +77'. If parking is inserted at the truss level between the Exhibit Hall and Flex Hall, the East Building levels above the Exhibit Hall are five feet higher than the West Building.

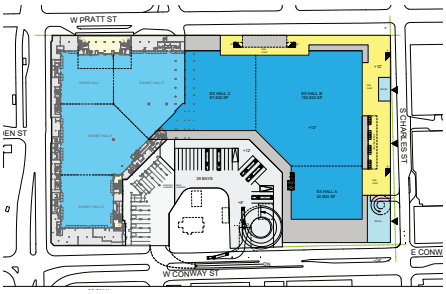
Level L100 illustrates the ground level of the BCC. The existing Exhibit Hall would be expanded to incorporate a contiguous 425,000 SF, adding three halls to the four halls currently in place. The Exhibit Halls are ringed with support space around their perimeter. The loading dock directly accesses the Exhibit Hall level, with oversize freight elevators servicing all the upper levels. A spiral truck ramp option is shown, with exit onto Conway Street, but any of the Conway Street freight access options presented in Section 4 would be feasible. On Charles Street, the pre-function space is widened to allow for entry on grade and event registration. Space for retail is allocated at the corner of Conway and Charles Street.

Level L200 provides a grade level entrance on Pratt Street, with escalators going down to the Exhibit Hall, or up to the Flex Hall and meeting levels. The East Building contains a mechanical mezzanine above the loading area. In the truss above the Exhibit Hall, there is an opportunity for parking 580 cars. Possible entrances to the parking garage are off Sharp Street and Charles Street.

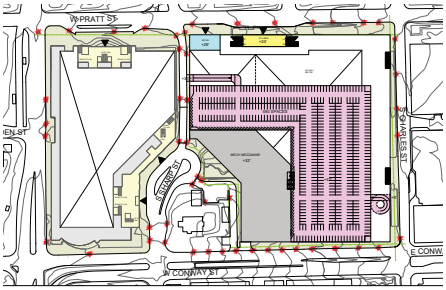
Level L300 is the primary meeting room and Flex Hall level, expanding eastward from the existing meeting rooms in the West Building. Additional meeting rooms would be added to the West Building. The generous pre-function space houses a second registration area. The north-south orientation of the 106,000 SF Flex Hall allows it to have direct access to daylight on the south wall. The back of house space provides shared service for the meeting rooms and Flex Hall. The flexible meeting rooms can be combined, with one group large enough to be a 18,000 SF Junior Ballroom. In total, the L300 level houses 112,200 SF of meeting rooms.

Level L400 houses the two Ballrooms, with meeting rooms in between. The new 60,900 SF Ballroom is located on the same level as the 37,800 SF existing Grand Ballroom. The contiguous back of house space would house a shared kitchen. The roof of the adjacent Flex Hall provides an opportunity for an elevated terrace.

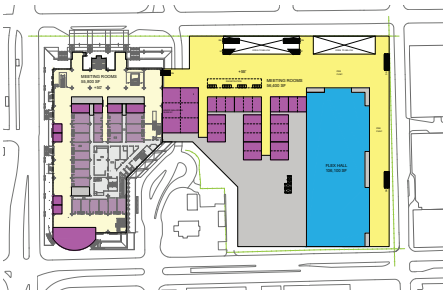
Option 1 meets the program targets, while exceeding the required minimums for the Exhibit Halls. Therefore this option meets the criteria for physical feasibility.



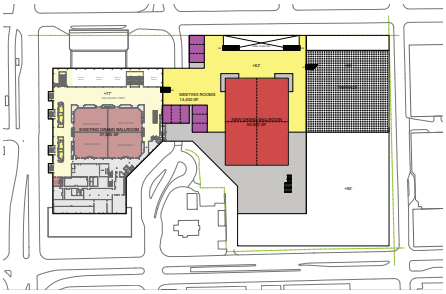
L100 PLAN
EXHIBIT HALL



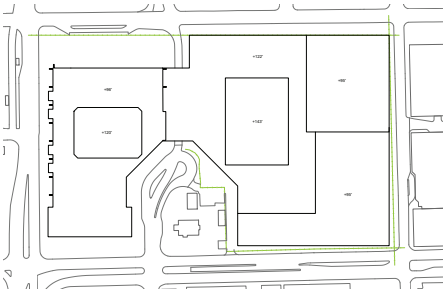
L200 PLAN
PARKING



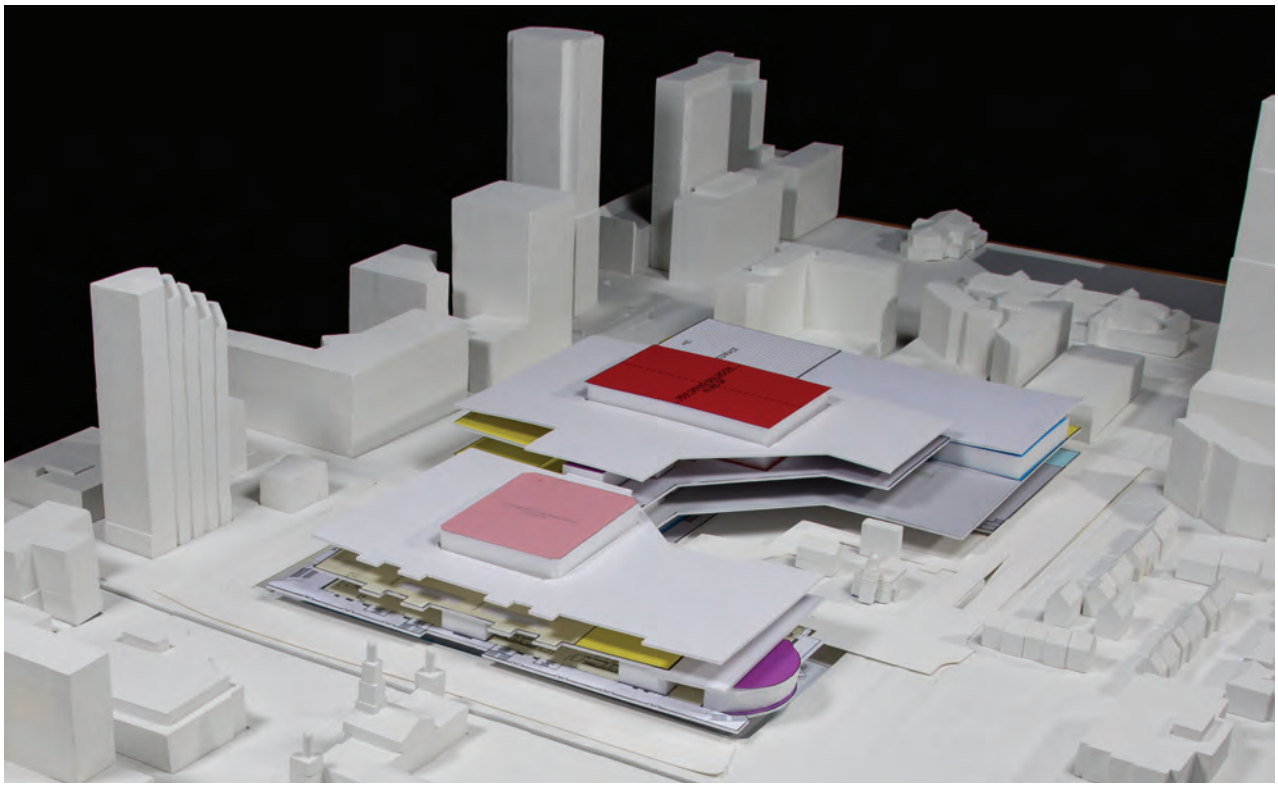
L300 PLAN
MEETING
ROOMS,
FLEX HALL



L400 PLAN
BALLROOMS



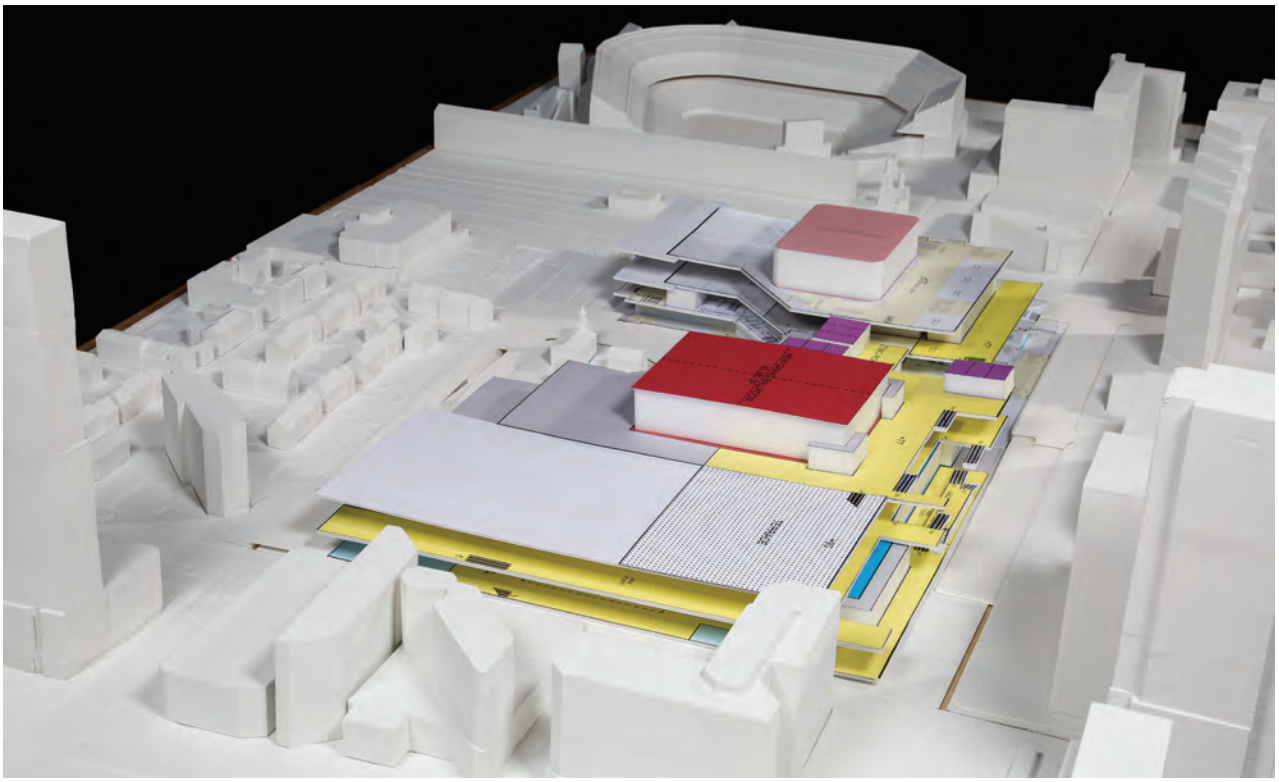
ROOF PLAN



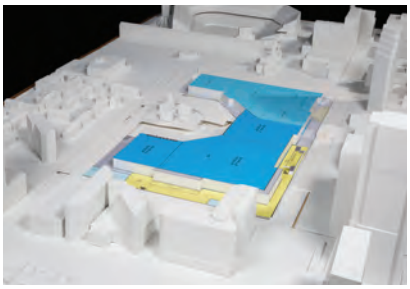
MASSING FROM SOUTHWEST

	Ex Hall	Flex Hall	Meeting	Ballroom	Rentable CC	Lobby/ Prefunc	Service/BoH	Gross CC Area	Hotel	Arena	Retail	Parking	Loading Bays
L100 West	185,000												16
L100 East	240,000					69,700	66,700				14,300		23
L100 Subtotal	425,000	0	0	0		69,700	66,700		0	0	14,300		39
L200 West													
L200 East						6,000	74,000				5,400	580	
L200 Subtotal	0	0	0	0		6,000	74,000		0	0	5,400		0
L300 West			55,800				8,100						
L300 East		106,100	56,400			148,200	105,400						
L300 Subtotal	0	106,100	112,200	0		148,200	113,500		0	0	0		0
L300M West													
L300M East							100,500						
L300M Subtotal	0	0	0	0		0	100,500		0	0	0		0
L400 West				37,800		3,200							
L400 East			14,400	60,900		72,100	65,500						
L400 Subtotal	0	0	14,400	98,700		75,300	65,500		0	0	0		0
L400M West													
L400M East							69,500						
L400M Subtotal	0	0	0	0		0	69,500		0	0	0		0
TOTAL	**425,000**	**106,100**	**126,600**	**98,700**	**756,400**	**299,200**	**489,700**	**1,545,300**	**0**	**0**	**19,700**	**0**	**39**
PROGRAM TARGET	**400,000**	**100,000**	**126,600**	**96,672**	**723,272**	**295,152**	**488,170**	**1,506,594**	**0**	**0**	**0**	**0**	**0**
PROGRAM DELTA	**25,000**	**6,100**	**0**	**2,028**	**0**	**4,048**	**1,530**	**38,706**	**0**	**0**	**19,700**	**580**	**39**

PROGRAM AREA SUMMARY | OPTION 1: CONVENTION CENTER ONLY

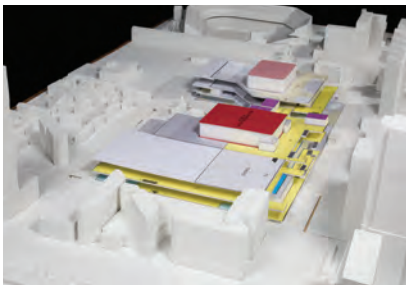


MASSING FROM NORTHEAST



L100

L300



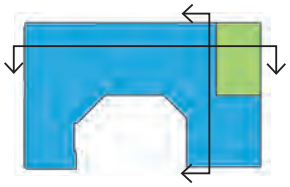
L400

DEVELOPMENT SCENARIO 2

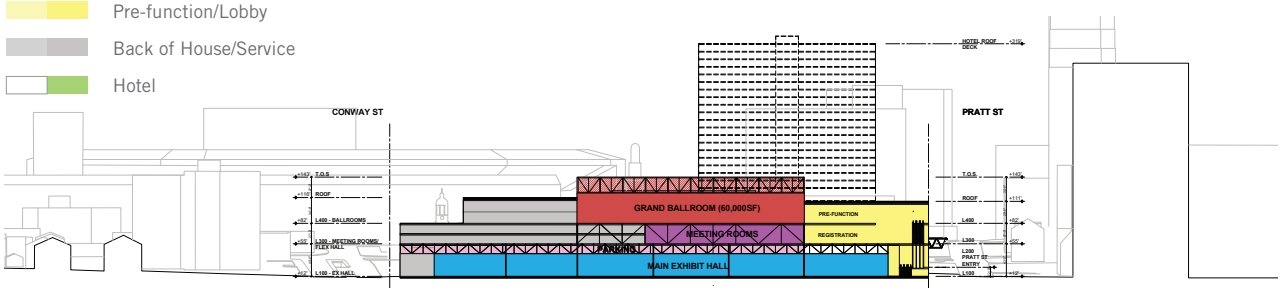
BCC Renovation/Expansion with a new Hotel

EXISTING | NEW PROGRAM

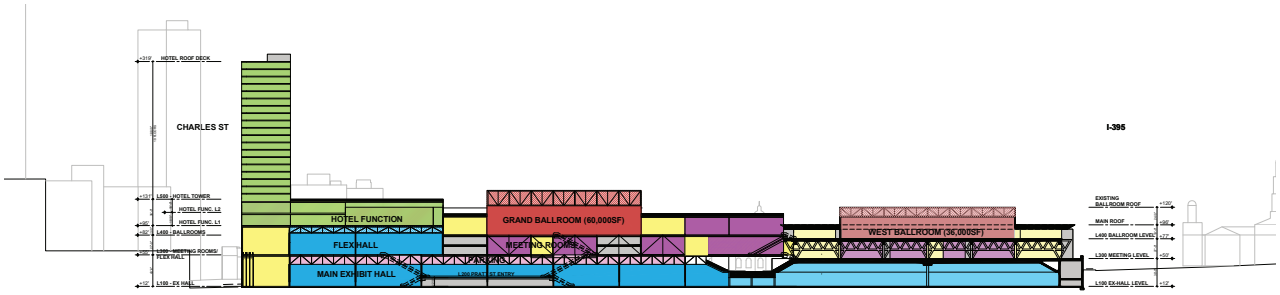
- Ex/Flex Hall
- Ballroom
- Meeting
- Parking
- Pre-function/Lobby
- Back of House/Service
- Hotel



OPTION 2 KEYPLAN



SECTION N-S (TRANSVERSE)



SECTION E-W (LONGITUDINAL)

Option 2 shares a distribution of program elements with Option 1, with the addition of a Hotel podium and tower above the Flex Hall. New program in the East Building is located on the same level as that in the West Building – barring the addition of parking in the truss level, which would increase the floor to floor dimension by five feet. The Exhibit Hall expansion is located at +12', with the Flex Hall directly above at 50'. New meeting rooms are also located at the +50' existing meeting room level, in an interstitial truss that supports the new grand Ballroom above, at +77'.

Level L100 illustrates the ground level of the BCC. The existing Exhibit Hall would be expanded to incorporate a contiguous 425,000 SF, adding three halls to the four halls currently in place. The Exhibit Halls are ringed with support space around their perimeter. The loading dock directly accesses the Exhibit Hall level, with oversize freight elevators servicing all the upper levels. A spiral truck ramp option is shown, with exit onto Conway Street (see Section 4: Freight Access), but any of the Conway Street freight options in Section 4 could be feasible. On Charles Street, the pre-function space is widened to allow for entry on grade and event registration.

Just adjacent is a Hotel lobby, with a drop-off near the corner of Charles and Pratt Streets. At the corner of Conway and Charles Streets, space for retail program is allocated.

Level L200 provides a grade level entrance on Pratt Street, with escalators going down to the Exhibit Hall, or up to the Flex Hall and meeting levels. The East Building contains a mechanical mezzanine above the loading area. In the truss above the Exhibit Hall, there is an opportunity for parking 580 cars. Possible entrances to the parking garage are off Sharp Street and Charles Street. Along Charles Street is the Hotel food and beverage program.

Level L300 is the primary meeting room and Flex Hall level, expanding eastward from the existing meeting rooms in the West Building. Additional meeting rooms would be added to the West Building. The generous pre-function space houses a second registration area. The north-south orientation of the 106,000 SF Flex Hall allows it to have direct access to daylight on the south wall. The back of house space provides shared service for the meeting rooms and Flex Hall. The flexible meeting rooms can be combined, with one group large enough to be a 18,000 SF Junior Ballroom. In total, the L300 level houses 112,200 SF of meeting rooms.

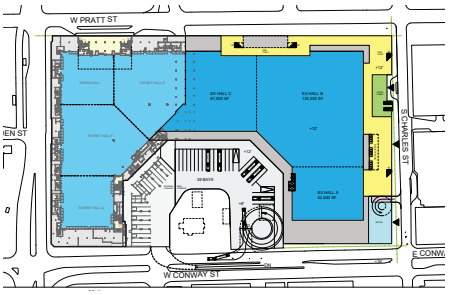
Level L400 houses the two Ballrooms, with meeting rooms in between. The new 60,900 SF Ballroom is located on the same level as the 37,800 SF existing grand Ballroom. The contiguous back of house space would house a shared kitchen.

Half a level above are the Ballrooms and meeting rooms for the Hotel. There is potential for operational synergy, and simultaneous use between the BCC and Hotel.

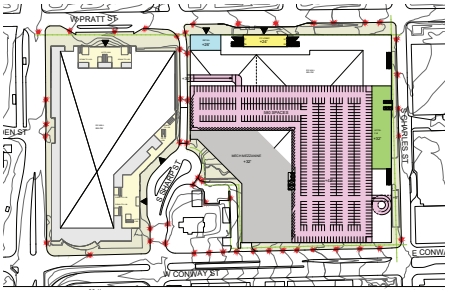
The Grand Ballroom on the West Building has been relocated to the L500 level at +122'. On the same level as the new 60,000 SF grand Ballroom in the East Building, the two Ballrooms share pre-function space overlooking Pratt Street, and a kitchen with coordinated back of house space. The Hotel Junior Ballroom and food and beverage program are located on the northeast corner of the site.

The Hotel tower stacks on top of the Hotel function podium, witht the first room floor at +133' and a total height of 319 feet to the roof level. The tower totals 19 floors with 28 rooms per floor. There is ample opportunity for a Hotel roof terrace.

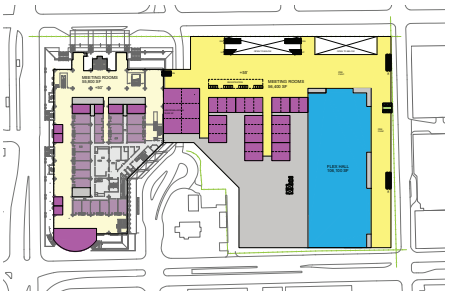
Option 2 meets the program targets, while exceeding the required minimums for the Exhibit Halls. This option, therefore, meets the criteria for physical feasibility.



L100 PLAN
EXHIBIT HALL

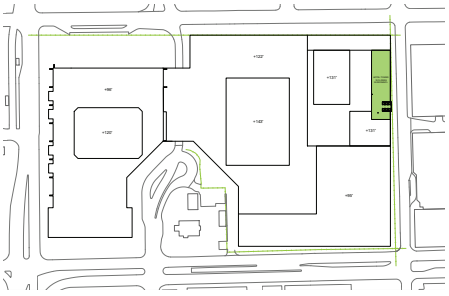


L200 PLAN
PARKING

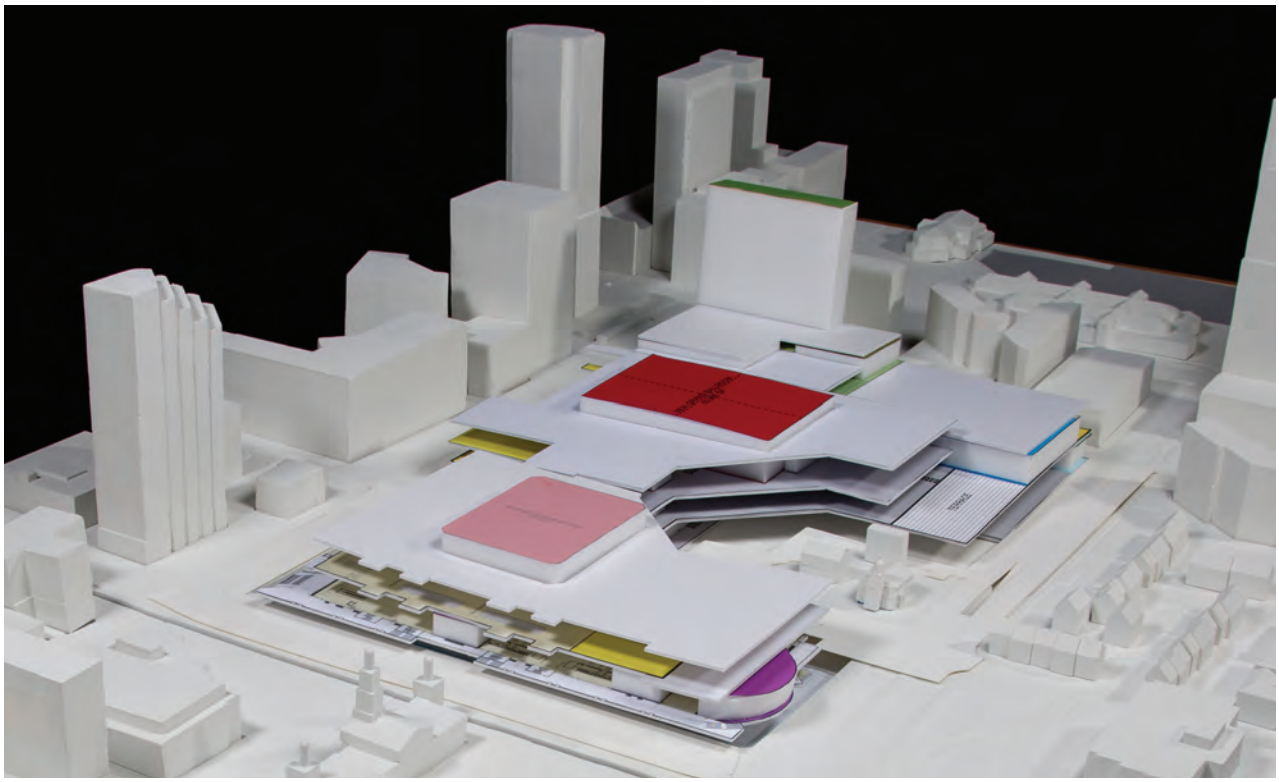


L300 PLAN
MEETING
ROOMS,
FLEX HALL

L400 PLAN
BALLROOMS
HOTEL FUNCTION



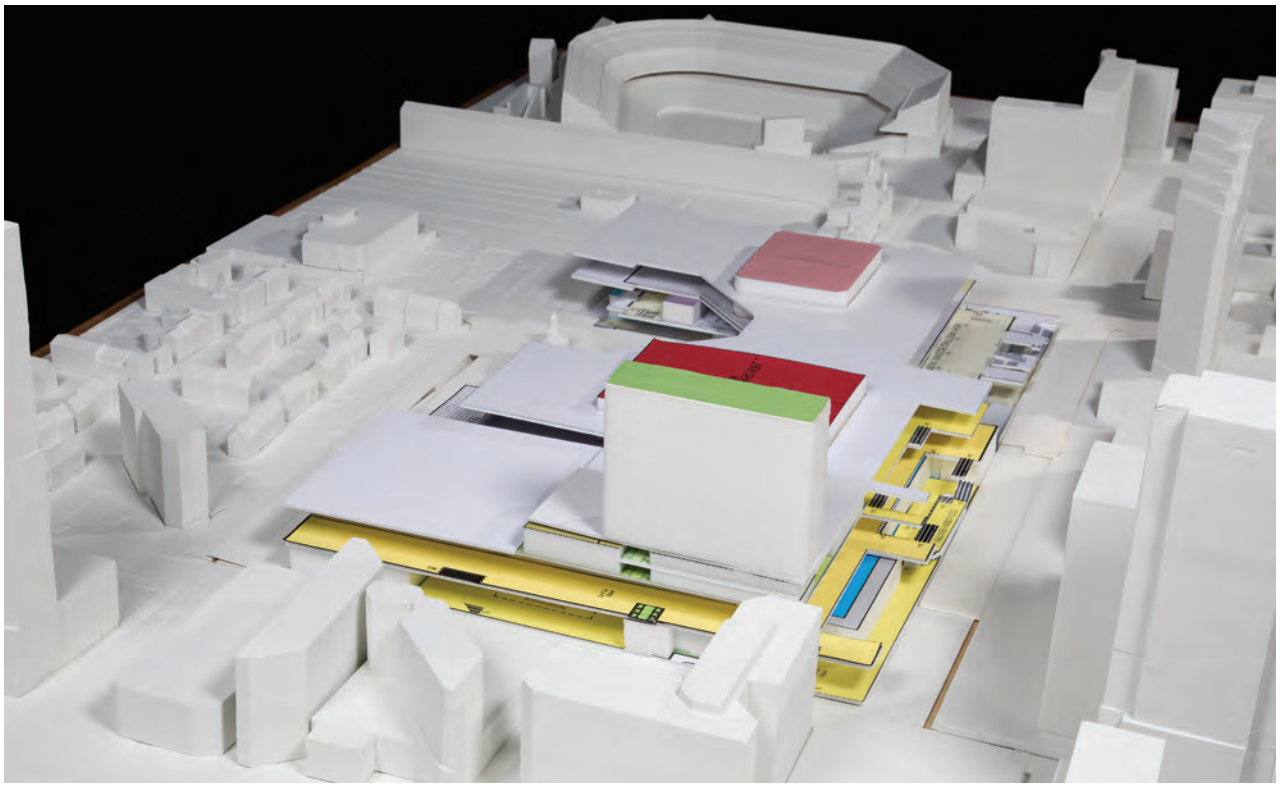
L500 PLAN
HOTEL TOWER



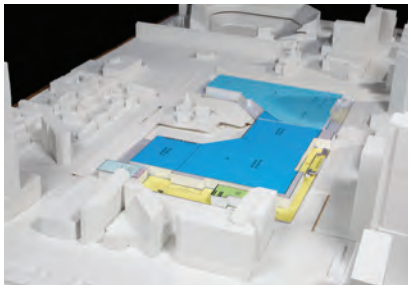
MASSING FROM SOUTHWEST

	Ex Hall	Flex Hall	Meeting	Ballroom	Rentable CC	Lobby/ Prefunc	Service/BoH	Gross CC Area	Hotel	Arena	Retail	Parking	Loading Bays
L100 West	185,000												16
L100 East	240,000					64,900	65,500		8,000		11,100		23
L100 Subtotal	425,000	0	0	0		64,900	65,500		8,000	0	11,100		39
L200 West													
L200 East						6,000	74,000		18,400		5,400	580	
L200 Subtotal	0	0	0	0		6,000	74,000		18,400	0	5,400		0
L300 West			55,800				8,100						
L300 East		106,100	56,400			147,400	105,400						
L300 Subtotal	0	106,100	112,200	0		147,400	113,500		0	0	0		0
L300M West													
L300M East							100,500						
L300M Subtotal	0	0	0	0		0	100,500		0	0	0		0
L400 West				37,800		3,200							
L400 East			14,400	60,900		72,100	65,500		90,500				
L400 Subtotal	0	0	14,400	98,700		75,300	65,500		90,500	0	0		0
L400M West													
L400M East							74,300		53,400				
L400M Subtotal	0	0	0	0		0	74,300		53,400	0	0		0
+L500 West													
+L500 East									275,500				
+L500 Subtotal	0	0	0	0		0	0		275,500	0	0		0
TOTAL	**425,000**	**106,100**	**126,600**	**98,700**	**756,400**	**293,600**	**493,300**	**1,559,800**	**445,800**	**0**	**16,500**	**0**	**39**
PROGRAM TARGET	**400,000**	**100,000**	**126,600**	**96,672**	**723,272**	**295,152**	**488,170**	**1,506,594**	**446,138**	**0**	**0**	**0**	**0**
PROGRAM DELTA	**25,000**	**6,100**	**0**	**2,028**	**0**	**-1,552**	**5,130**	**36,706**	**-338**	**0**	**16,500**	**580**	**39**

PROGRAM AREA SUMMARY | OPTION 2: CONVENTION CENTER + HOTEL

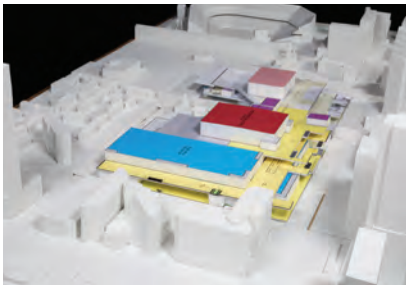


MASSING FROM NORTHEAST



L100

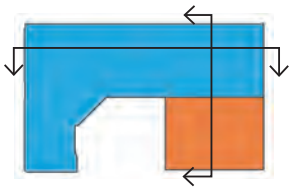
L300



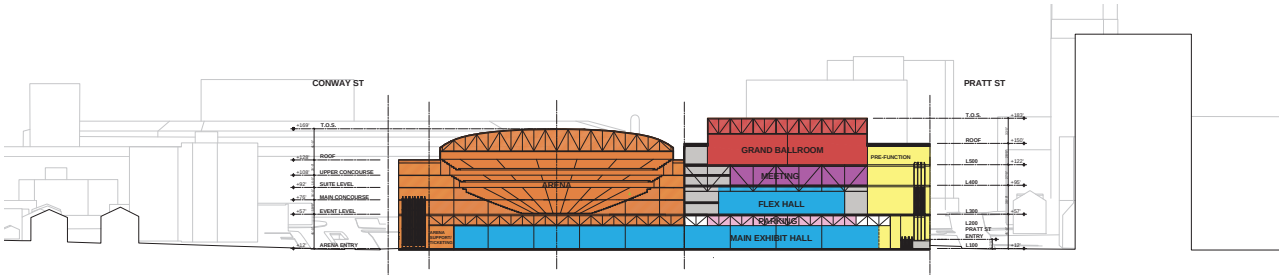
L400

DEVELOPMENT SCENARIO 3

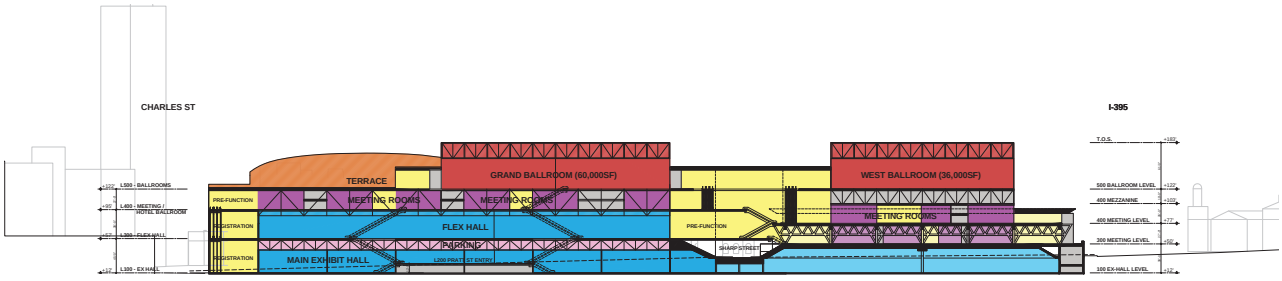
BCC Renovation/Expansion with a new Arena



OPTION 3 KEYPLAN



SECTION N-S (TRANSVERSE)



SECTION E-W (LONGITUDINAL)

EXISTING | NEW PROGRAM

- Ex/Flex Hall
- Ballroom
- Meeting
- Parking
- Pre-function/Lobby
- Back of House/Service
- Arena

Option 3 continues the design strategy of locating the Exhibit Hall at +12', Flex Hall at +57', meeting rooms in the intermediary levels (at +50', +77' and +95') and Ballrooms at the highest level (+122'). The new west meeting rooms replace the former Ballroom, and the new east meeting rooms sit in an interstitial truss that supports the new Grand Ballroom above. The existing Grand Ballroom in the West Building is relocated to the same level (at +122'), so that the existing can be brought up to current industry standards while allowing both Ballrooms to share a kitchen.

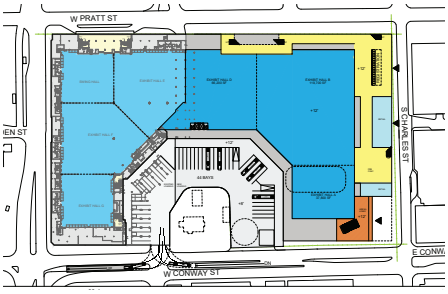
On the southeast corner of the site, the Arena stacks on top of the main Exhibit Hall. The event floor is located at +57' (45 feet above the grade level entry) and the main concourse level is located at elevation 76' (64 feet above the entry).

Level L100 illustrates the ground level of the BCC. The existing Exhibit Hall would be expanded to incorporate a contiguous 409,000 SF, adding three halls to the four halls currently in place. The Exhibit Halls are ringed with support space around their perimeter. The loading dock services the Exhibit Hall at the same level, with oversize freight elevators servicing all the upper levels. A new exit ramp is shown coming through the median on Conway Street, but any of the Conway Street freight access options, in Section 4, could be feasible. On Charles Street, the pre-function space is widened to allow for on grade entry and event registration.

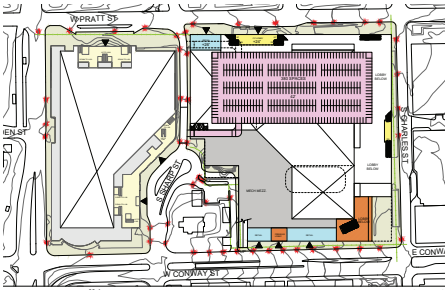
The main entry lobby of the Arena is situated at street level, at the corner of Charles Street and Conway Street The entry doors are positioned along Charles Street, and are set back from the curb to create an expansive public entry plaza. Within the plaza and main lobby, visitors would be security screened prior to entering the Arena, and would have their event tickets scanned at this location. Vertical circulation (which may include stairs and escalators) exists in the lobby to move visitors to the elevated public levels of the Arena. Elevator access is provided to comply with ADA requirements, and connects to all levels of the Arena.

Level L200 provides a grade level entrance on Pratt Street, with escalators going down to the Exhibit Hall, or up to the Flex Hall and meeting levels. The East Building contains a mechanical mezzanine above the loading area. In the truss above the Exhibit Hall, there is an opportunity for parking 380 cars. Possible entrances to the parking garage are off Sharp Street.

Along Conway Street, at street level, the plan includes retail spaces and a premium Arena entry lobby. These active retail spaces are intended to animate the building along the sidewalk, and may be operational year-round. The premium Arena lobby provides separate access for suite level or club seat customers, and would include direct elevator access to the Arena levels above.



L100 PLAN
EXHIBIT HALL



L200 PLAN
PARKING

Level L300 houses the 100,000 SF Flex Hall, surrounded on three sides by pre-function space. On the east and west ends of the Flex Hall, there is space allocated for registration. The back of house space allows for shared service for the meeting rooms and Flex Hall. Additional meeting spaces added to the existing West Building combine for a total 50,000 SF of meeting rooms on this level.

The Arena event level at elevation +57' consists of approximately 150,000 SF of program, including building services, operational functions, locker rooms, performer spaces, and storage. Also at this level is approximately 25,000 SF of open event floor space. The event floor can house a regulation NHL ice sheet, basketball court, concert stages, and floor seats for concert events. In an end-stage concert configuration, the west end of the event floor would house the performance stage. Encompassing the event floor is a 360-degree service corridor, connected to the main marshalling area and Arena loading dock. From the loading dock, direct event floor access would be provided for trucks and vehicles. Truck access to the loading dock is provided by a ramp off Conway Street.

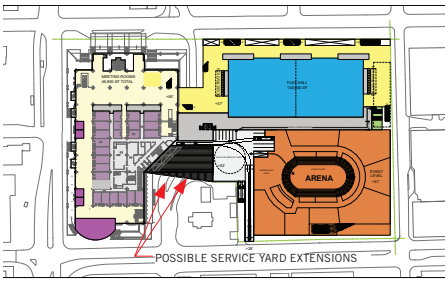
Level L400 contains most of the new flexible meeting rooms. On the West Building, the existing Grand Ballroom would be replaced with meeting rooms. Pre-function space would be added to the north edge of the building. One group of meeting rooms can combine to become a 18,000 SF Junior Ballroom. In total, the L400 level would have 86,400 SF of meeting rooms. With an 18' level difference, the east and west sides are connected via escalator.

The Arena main concourse at elevation +76' is the primary public level of the Arena. Visitors arrive at this level by vertical circulation from the main lobby, and can circulate 360 degrees around the Arena concourse. This level provides primary access to the lower seating bowl, and houses visitor amenities; including restrooms, concessions, retail, and guest services. The west side of the main concourse can hold temporary seating grandstands, for added capacity events.

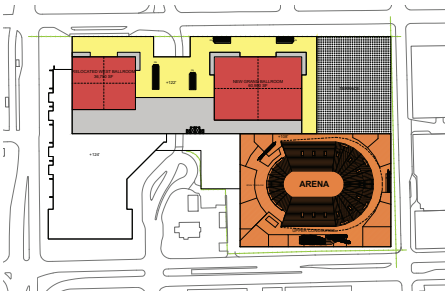
The Grand Ballroom in the West Building has been relocated to the L500 level at +122'. On the same level as the new 60,000 SF Grand Ballroom in the East Building, the two Ballrooms share pre-function space overlooking Pratt Street, and a kitchen with coordinated back of house space.

The Arena upper concourse at elevation +108' is the second public concourse, serving seating in the upper bowl. Access to this level is provided through vertical circulation from the main concourse (which may include stairs and escalators). The upper concourse also wraps 270 degrees around the Arena, with the west end (stage end) left open to below. Program on the upper concourse includes visitor amenities such as restrooms, concessions, retail, and guest services.

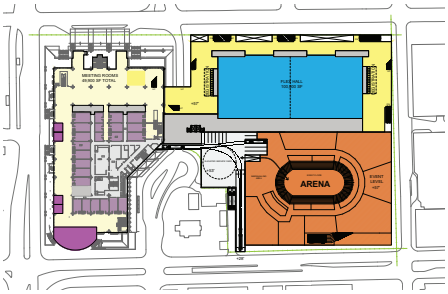
Option 3 meets the program targets, while exceeding the required minimums for the Exhibit Halls. This option, therefore, meets the criteria for physical feasibility.



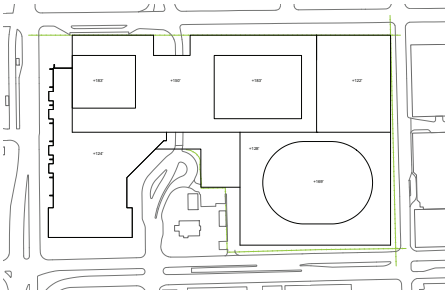
L300 PLAN
ALTERNATE
PLAN:
SERVICE YARD
EXTENSION



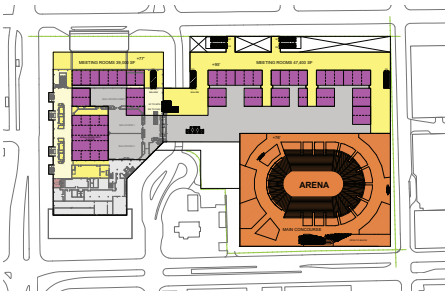
L500 PLAN
BALLROOMS



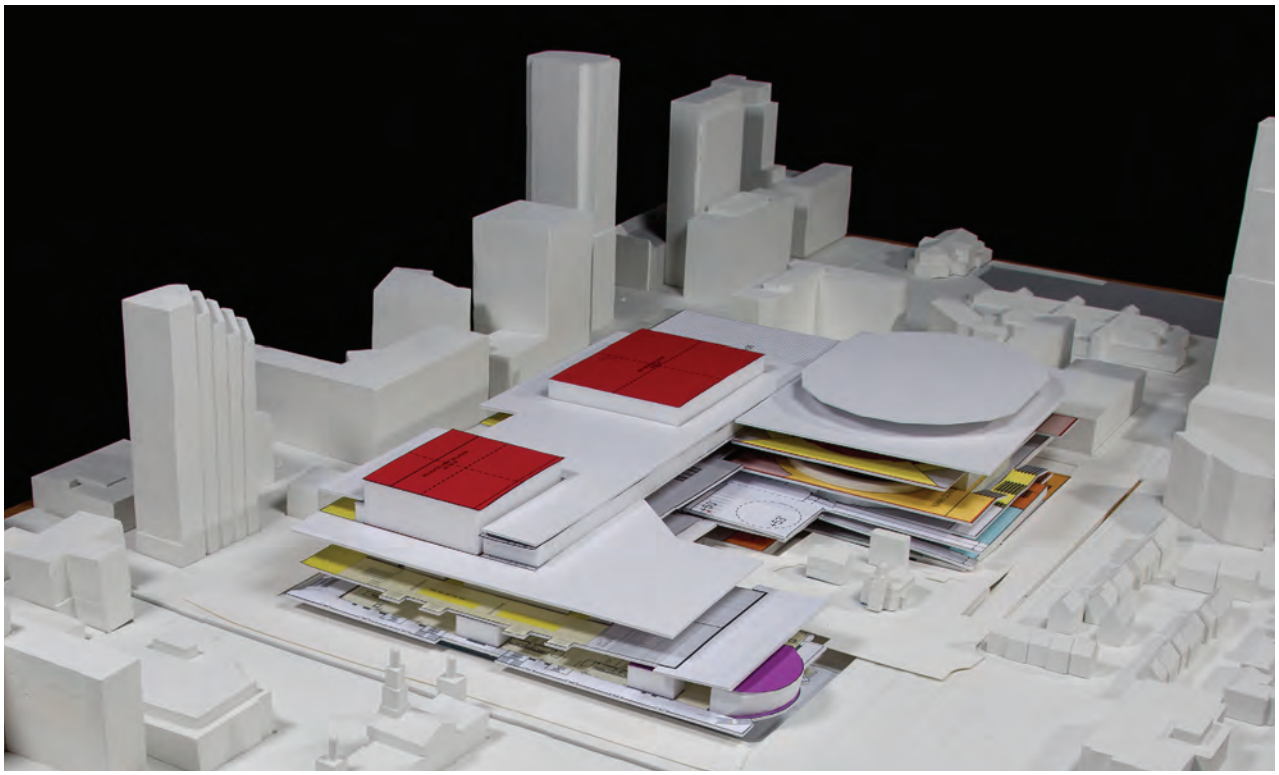
L300 PLAN
FLEX HALL,
MEETING
ROOMS, ARENA
EVENT LEVEL



L600 PLAN
ROOF



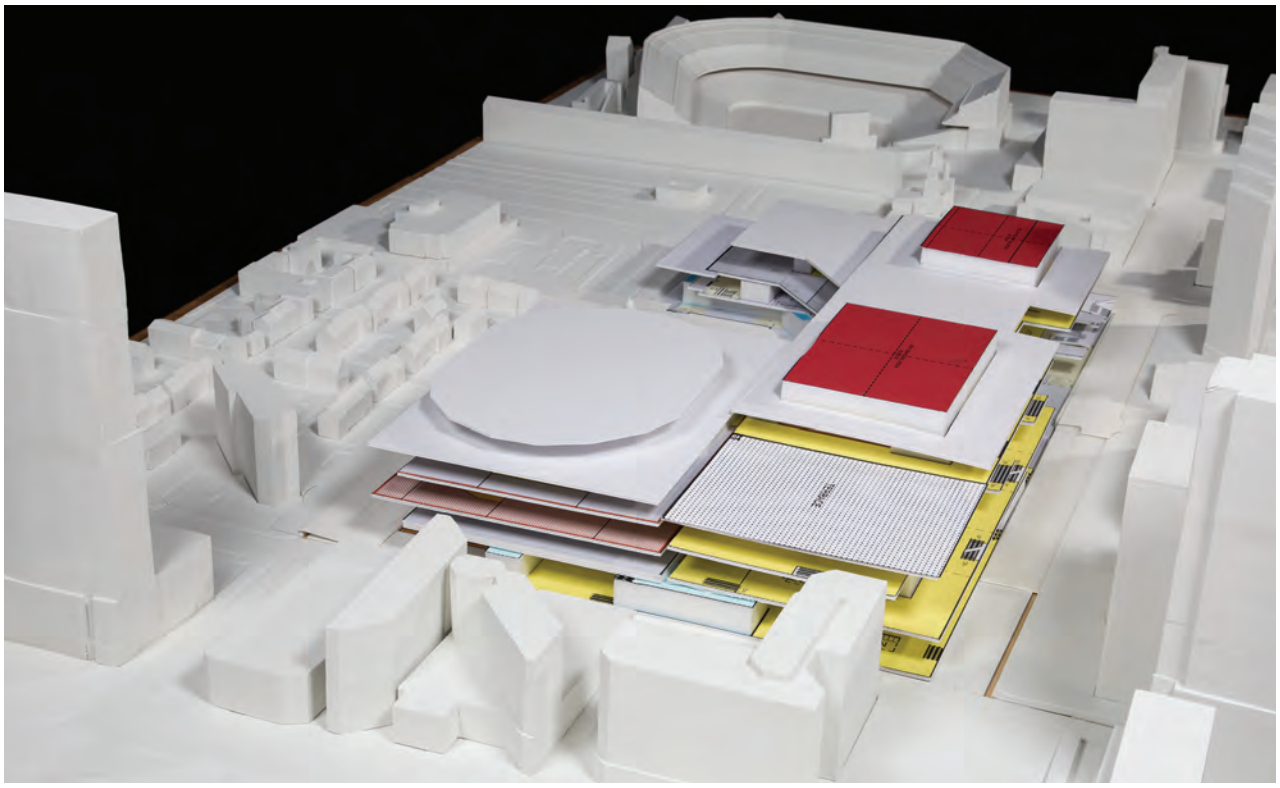
L400 PLAN
MEETING
ROOMS



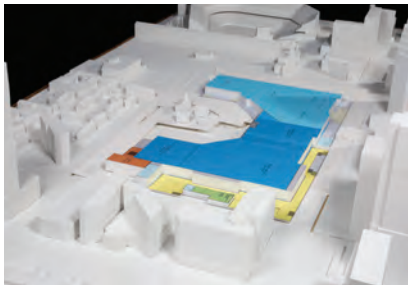
MASSING FROM SOUTHWEST

	Ex Hall	Flex Hall	Meeting	Ballroom	Rentable CC	Lobby/ Prefunc	Service/BoH	Gross CC Area	Hotel	Arena	Retail	Parking	Loading Bays
L100 West	185,000												16
L100 East	224,000					58,900	74,600				16,000		28
L100 Subtotal	409,000	0	0	0		58,900	74,600		0	0	16,000		44
L200 West													
L200 East						6,600	67,500				14,900	380	
L200 Subtotal	0	0	0	0		6,600	67,500		0	0	14,900	380	0
L300 West			49,900				6,900						
L300 East		100,000				72,500	46,500						12
L300 Subtotal	0	100,000	49,900	0		72,500	53,400		0		0		12
L400 West			39,000			39,500	35,900						
L400 East			47,400			77,600	74,600						
L400 Subtotal	0	0	86,400	0		117,100	110,500		0		0		0
L400M West							56,700						
L400M East							74,600						
L400M Subtotal	0	0	0	0		0	131,300		0	0	0		0
L500 West				36,800									
L500 East				60,900		84,400	70,800						
L500 Subtotal	0	0	0	97,700		84,400	70,800		0	0	0		0
+L500 West													
+L500 East													
+L500 Subtotal	0	0	0	0		0	0		0	564,720	0		0
TOTAL	**409,000**	**100,000**	**136,300**	**97,700**	**743,000**	**339,500**	**508,100**	**1,590,600**	**0**	**564,720**	**30,900**	**380**	**56**
PROGRAM TARGET	**400,000**	**100,000**	**126,600**	**96,672**	**723,272**	**295,152**	**488,170**	**1,506,594**	**0**	**0**	**0**		**0**
PROGRAM DELTA	**9,000**	**0**	**9,700**	**1,028**	**0**	**44,348**	**19,930**	**84,006**	**0**	**0**	**30,900**	**0**	**56**

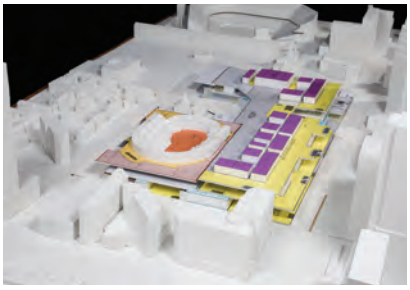
PROGRAM AREA SUMMARY | OPTION 3: CONVENTION CENTER + ARENA



MASSING FROM NORTHEAST

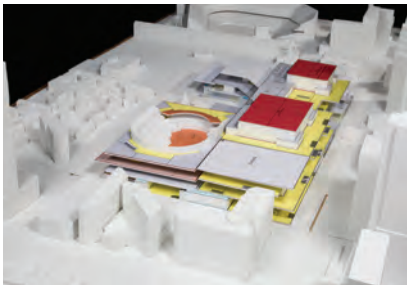


L100



L400

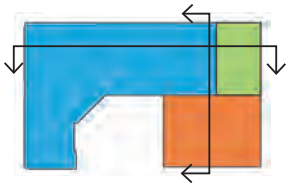
L300



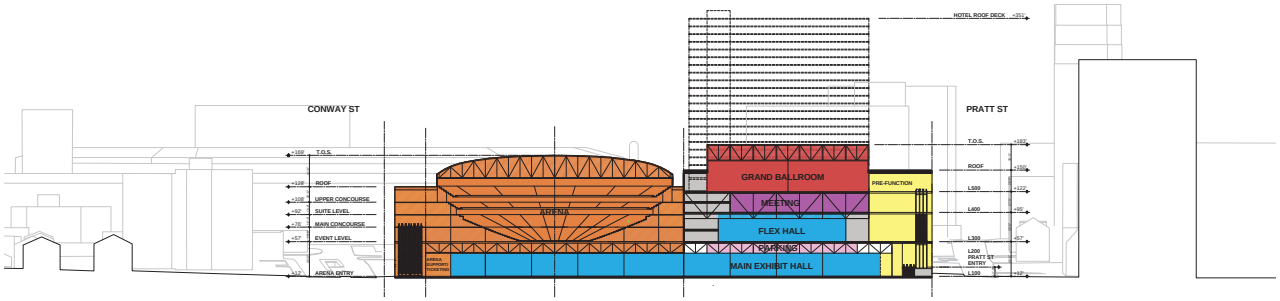
L500

DEVELOPMENT SCENARIO 4

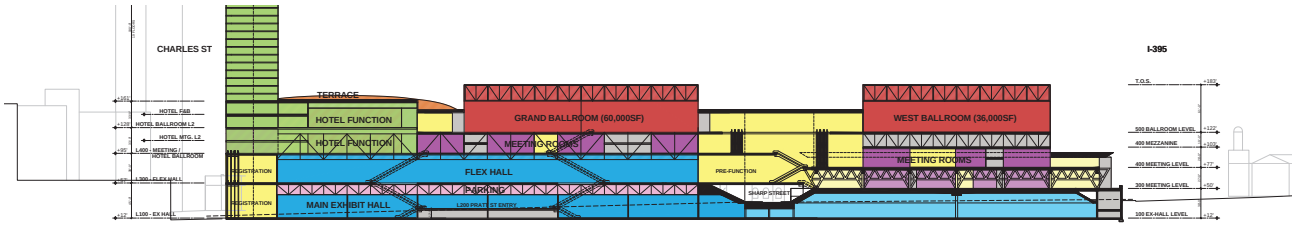
BCC Renovation/Expansion with a new Hotel and a new Arena



OPTION 4 KEYPLAN



SECTION N-S (TRANSVERSE)



SECTION E-W (LONGITUDINAL)

EXISTING | NEW PROGRAM

- Ex/Flex Hall
- Ballroom
- Meeting
- Parking
- Pre-function/Lobby
- Back of House/Service
- Arena
- Hotel

Option 4 continues the design strategy of locating the exhibit hall at +12', Flex Hall at +57', meeting rooms in the intermediary levels (at +50', +77' and +95') and Ballrooms at the highest level (+122'). The new west meeting rooms replace the former Ballroom, and the new east meeting rooms sit in an interstitial truss that supports the new Grand Ballroom above. The existing Grand Ballroom in the West Building is relocated to the same level (at +122'), so that the existing can be brought up to current industry standards while allowing both Ballrooms to share a kitchen.

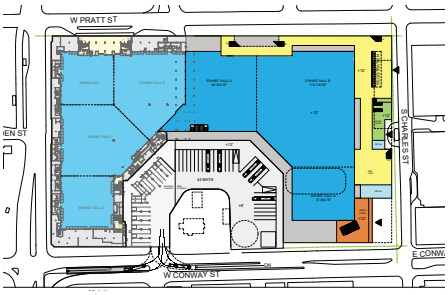
On the southeast corner of the site, the Arena stacks on top of the main Exhibit Hall.

The Hotel is located on the northeast corner of the site, with a jump lobby on the ground floor, Hotel function program at Level L400 (+95') and Level L500 (+128'), and the room tower stacked above, starting at elevtion 161'.

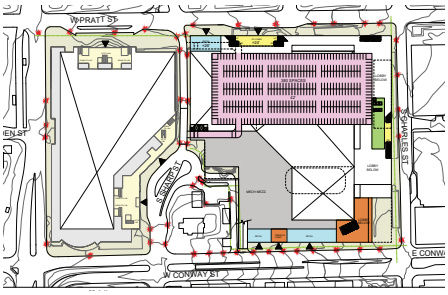
Level L100 illustrates the ground level of the BCC. The existing Exhibit Hall would be expanded to incorporate a contiguous 409,000 SF, adding three halls to the four halls currently in place. The Exhibit Halls are ringed with support space around their perimeter. The loading dock services the Exhibit Hall at the same level, with oversize freight elevators servicing all the upper levels. A new exit ramp is shown coming through the median on Conway Street, but any of the Conway Street freight access options in Section 4 could be feasible. On Charles Street, the pre-function space is widened to allow for on grade entry and event registration. The Hotel lobby separates the pre-function space from registration space, with a drop-off for guests.

The main entry lobby of the Arena is situated at street level, at the corner of Charles Street and Conway Street The entry doors are positioned along Charles Street, and are set back from the curb to create an expansive public entry plaza. Within the plaza and main lobby, visitors would be security screened prior to entering the Arena, and would have their event tickets scanned at this location. A substantial amount of vertical circulation (which may include stairs and escalators) exists in the lobby to move visitors to the elevated public levels of the Arena. Elevator access is provided to comply with ADA requirements, and connects to all levels of the Arena. The Hotel lobby drop off porte-cochere are located mid-block on Charles Street. Negotiation will take place at the “sky-lobby” at elevation 95'.

Level L200 provides a grade level entrance on Pratt Street, with escalators going down to the Exhibit Hall, or up to the Flex Hall and meeting levels. The East Building contains a mechanical mezzanine above the loading area. In the truss above the Exhibit Hall, there is an opportunity for parking 380 cars. Possible entrances to the parking garage are off Sharp Street. On Charles Street, above the Hotel lobby is space for Hotel administrative offices and back of house program.



L100 PLAN
EXHIBIT HALL



L200 PLAN
PARKING

Along Conway Street, at street level, the plan includes retail spaces and a premium Arena entry lobby. These active retail spaces are intended to animate the building along the sidewalk, and may be operational year-round. The premium Arena lobby provides separate access for suite level or club seat customers, and would include direct elevator access to the Arena levels above.

Level L300 houses the 100,000 SF Flex Hall, surrounded on three sides by pre-function space. On the east and west ends of the Flex Hall, there is space allocated for registration. The back of house space allows for shared service for the meeting rooms and Flex Hall. Additional meeting spaces added to the existing West Building combine for a total 50,000 SF of meeting rooms on this level.

The Arena event level at elevation +57' consists of approximately 150,000 SF of program including building services, operational functions, locker rooms, performer spaces, and storage. Also at this level is approximately 25,000 SF of open event floor space. The event floor can house a regulation NHL ice sheet, basketball court, concert stages, and floor seats for concert events. In an end-stage concert configuration, the west end of the event floor would house the performance stage. Encompassing the event floor is a 360-degree service corridor, connected to the main marshalling area and Arena loading dock. From the loading dock, direct event floor access would be provided for trucks and vehicles. Truck access to the loading dock is provided by a ramp off Conway Street. On the northern edge of the service yard are spaces for Hotel loading, with a service corridor that runs behind the Flex Hall.

Level L400 contains most of the new meeting rooms. On the West Building, the existing Grand Ballroom would be replaced with meeting rooms. Pre-function space would be added to the north edge of the building. One group of meeting rooms can combine to be large enough to be a 18,000 SF Junior Ballroom. In total, the L400 level would have 86,400 SF of meeting rooms. With an 18' level difference, the east and west sides are connected via escalator.

Hotel program includes meeting rooms at this level, along with a Grand Ballroom.

The Arena main concourse at elevation +76' is the primary public level of the Arena. Visitors arrive at this level by vertical circulation from the main lobby, and can circulate 360 degrees around the Arena concourse. This level provides primary access to the lower seating bowl, and houses visitor amenities; including restrooms, concessions, retail, and guest services. The west side of the main concourse can hold temporary seating grandstands, for added capacity events.

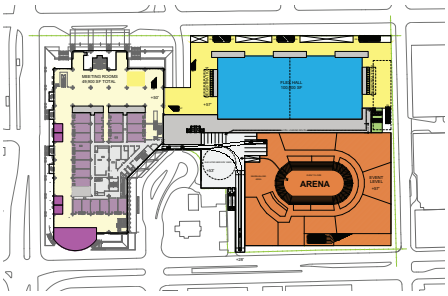
The Grand Ballroom on the West Building has been relocated to the L500 level at +122'. On the same level as the new 60,000 SF Grand Ballroom in the East Building, the two Ballrooms share pre-function space overlooking Pratt Street, and a kitchen with coordinated back of house space.

The Hotel Junior Ballroom and food and beverage program are located on the northeast corner of the site.

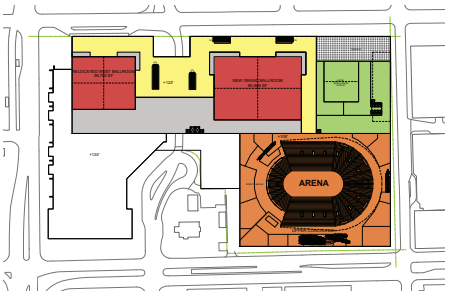
The Arena upper concourse at elevation +108' is the second public concourse, serving seating in the upper bowl. Access to this level is provided through vertical circulation from the main concourse (which may include stairs and escalators). The upper concourse also wraps 270 degrees around the Arena, with the west end (stage end) left open to below. Program on the upper concourse includes visitor amenities such as restrooms, concessions, retail, and guest services.

The Hotel tower stacks on top of the Hotel function podium with the first room floor at +161' and a total height of 351 feet to the roof level. The tower totals 19 floors with 28 rooms per floor. There is ample opportunity for a Hotel roof terrace.

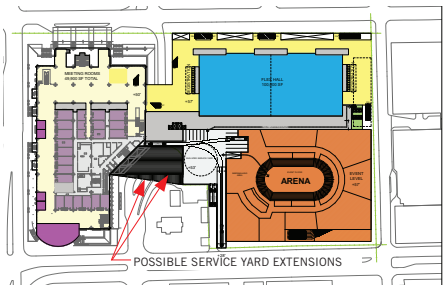
Option 4 meets the program targets, while exceeding the required minimums for the Exhibit Halls. This option, therefore, meets the criteria for physical feasibility.



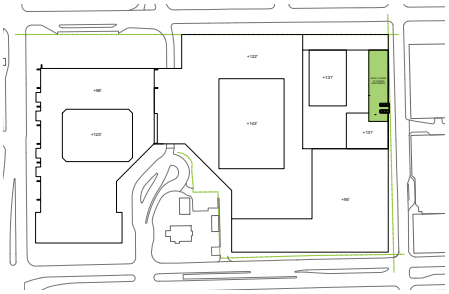
L300 PLAN
FLEX HALL,
MEETING
ROOMS, ARENA
EVENT LEVEL



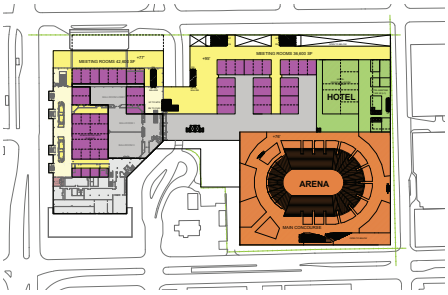
L500 PLAN
BALLROOMS



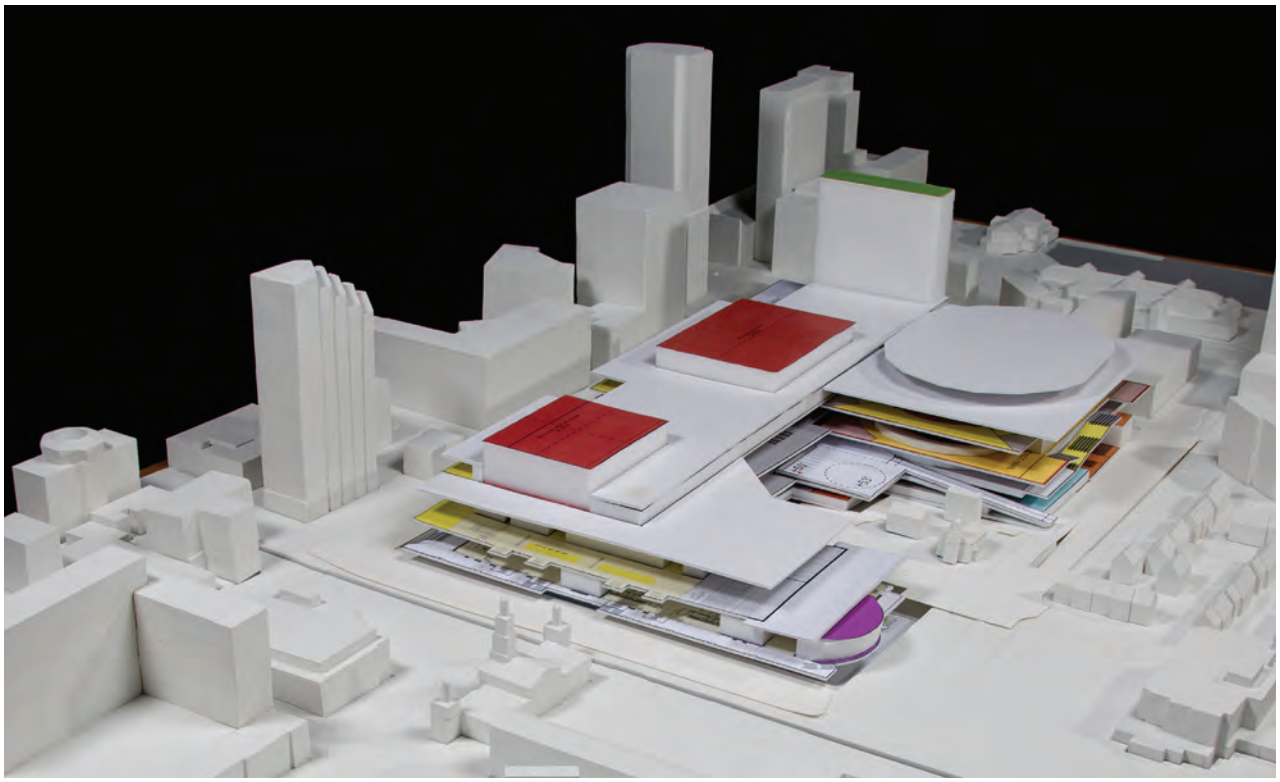
L300 ALTERNATE
PLAN: SERVICE
YARD EXTENSION



L600 PLAN
HOTEL TOWER



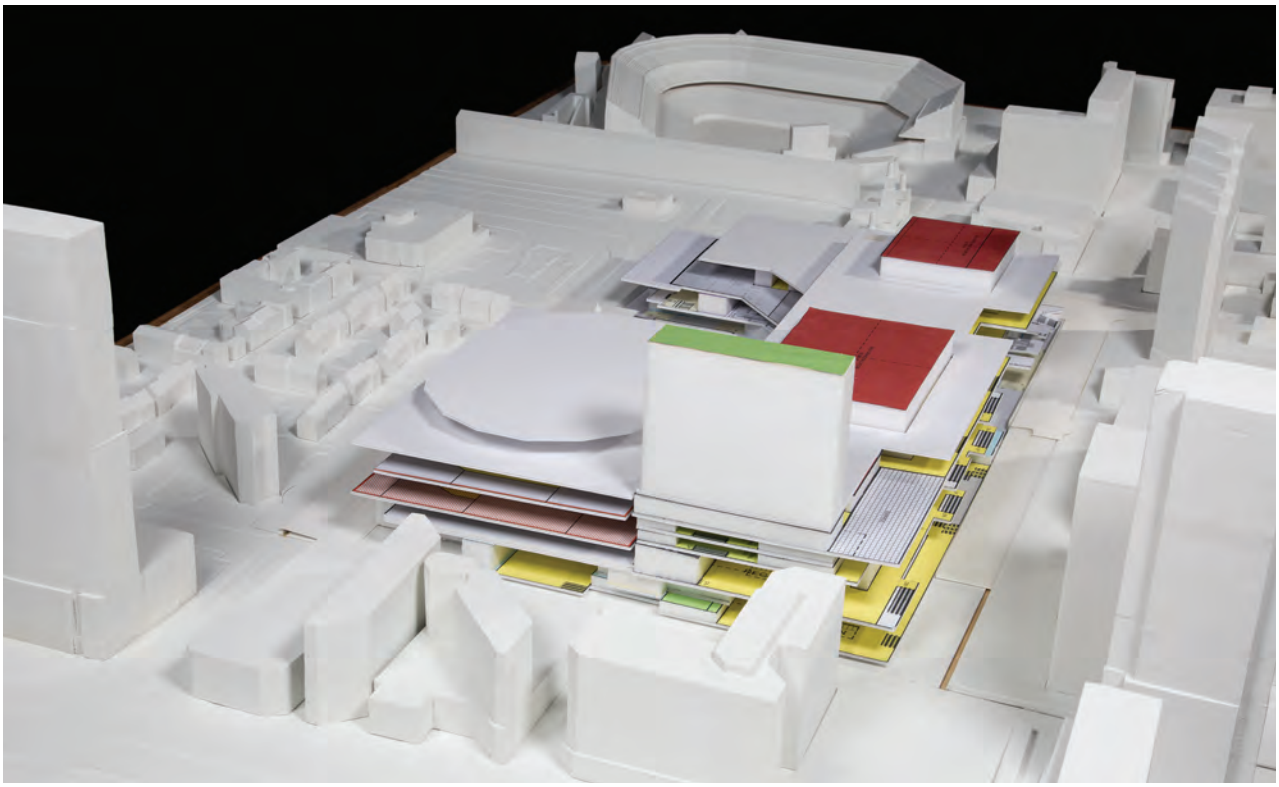
L400 PLAN
MEETING
ROOMS, HOTEL
FUNCTION



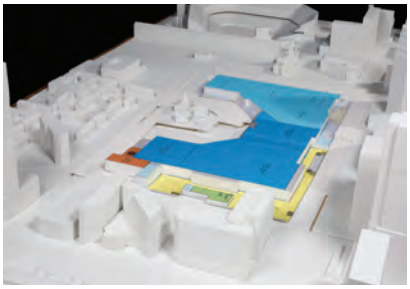
MASSING FROM SOUTHWEST

	Ex Hall	Flex Hall	Meeting	Ballroom	Rentable CC	Lobby/ Prefunc	Service/BoH	Gross CC Area	Hotel	Arena	Retail	Parking	Loading Bays
L100 West	185,000												16
L100 East	224,000					58,900	74,600		8,900		6,000		28
L100 Subtotal	409,000	0	0	0		58,900	74,600		8,900		6,000		44
L200 West													
L200 East						5,600	67,500		7,300		14,900	380	
L200 Subtotal	0	0	0	0		5,600	67,500		7,300	0	14,900	380	0
L300 West			49,900				6,900						
L300 East		100,000				67,200	49,100						12
L300 Subtotal	0	100,000	49,900	0		67,200	56,000		0	0	0		12
L400 West			42,600			35,900	36,500						
L400 East			36,600			59,400	55,000		59,000				
L400 Subtotal	0	0	79,200	0		95,300	91,500		59,000	0	0		0
L400M West							93,200						
L400M East							55,000		25,300				
L400M Subtotal	0	0	0	0		0	148,200		25,300	0	0		0
L500 West				36,800									
L500 East				60,900		84,400	68,700		59,000				
L500 Subtotal	0	0	0	97,700		84,400	68,700		59,000	0	0		0
L500M West													
L500M East									25,300				
L500M Subtotal	0	0	0	0	0	0	0		25,300	0	0		0
+L500 West													
+L500 East									257,800				
+L500 Subtotal	0	0	0	0		0	0		257,800	564,720	0		0
TOTAL	**409,000**	**100,000**	**129,100**	**97,700**	**735,800**	**312,400**	**506,500**	**1,457,000**	**442,600**	**564,720**	**20,900**	**380**	**56**
PROGRAM TARGET	**400,000**	**100,000**	**126,600**	**96,672**	**723,272**	**295,152**	**488,170**	**1,506,594**	**446,138**	**0**	**0**	**0**	**0**
PROGRAM DELTA	**9,000**	**0**	**2,500**	**1,028**	**0**	**17,248**	**18,330**	**48,106**	**-3,538**	**0**	**20,900**	**380**	**56**

PROGRAM AREA SUMMARY | OPTION 4: CONVENTION CENTER + ARENA + HOTEL



MASSING FROM NORTHEAST



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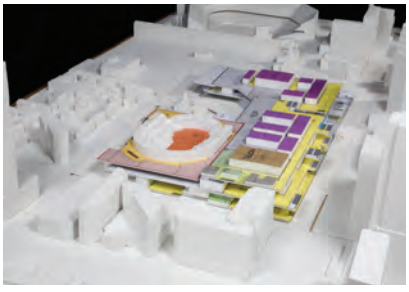

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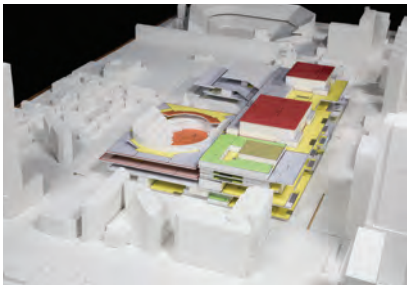


L500

6

DETERMINATION OF FEASIBILITY

Evaluating the development options

DETERMINATION OF FEASIBILITY

Development Scenarios 1 thru 4 were analyzed to determine their feasibility using an Evaluation Matrix. Two stages of analysis were developed to determine how well each scenario addressed the basic project parameters:

FATAL FLAW ANALYSIS

Each Development Scenario was evaluated for its ability to meet the most basic program criteria. Each development scenario contained a version without the Sheraton Site. In every case, an option without the Sheraton Site was not able to meet the criterion of providing 400,000 SF of contiguous Exhibit Hall area. Therefore, all options without the Sheraton Site were deemed to carry a fatal flaw and were eliminated from further consideration. They are shown in gray in the matrix.

QUANTITATIVE ANALYSIS

The remaining Development Scenarios were then evaluated for their ability to meet the remaining basic programmatic criteria. In the matrix, each of the options receives a “Yes” or “No” based on conformance with the programmatic criteria listed in the column on the left. Where a quantity is required, for instance, number of loading bays, the quantity is provided. Each development scenario contains a different combination of program elements, which is reflected in the matrix. Program elements which are not included in that scenario are labeled “N/A” and are shown in gray. The conclusion of this analysis was that all the development scenarios with the inclusion of the Sheraton Site met the basic programmatic criteria.

Baltimore Convention Center Renovation/Expansion

ASG/LMN/Populous/Perkins Eastman

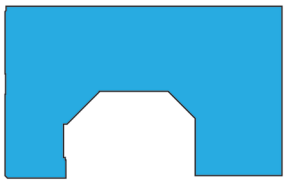
Feasibility Review and Due Diligence Study
Development Scenario Evaluation Matrix with weighted scoring

8/14/2017

Key:	Symbols	Values	Description
	X		Fatal Flaw
		3	Strong Compliance
		2	Adequate Compliance
		1	Minimal to No Compliance

		Phase 1 Development Scenario Characteristics	Convention Center Renovation/Expansion		Convention Center Renovation/Expansion with Hotel		Convention Center Renovation/Expansion with Arena		Convention Center Renovation/Expansion with Arena and Hotel	
		QUANTITATIVE ANALYSIS	w/o Sheraton Site	incl. Sheraton Site	w/o Sheraton Site	incl. Sheraton Site	w/o Sheraton Site	incl. Sheraton Site	w/o Sheraton Site	incl. Sheraton Site
PROGRAM COMPLIANCE		**Convention Center**								
	1	400,000 sf Contiguous Exhibit Hall	X - Fatal Flaw	Yes	X - Fatal Flaw	Yes	X - Fatal Flaw	Yes	X - Fatal Flaw	Yes
	2	Meets Other Program Target Areas		Yes		Yes		Yes		Yes
	3	Adjacency of Primary Components		Yes		Yes		Yes		Yes
	4	Internal Service Access		Yes		Yes		Yes		Yes
	5	Integration with Existing Convention Center		Ex Hall Aligns		Ex Hall Aligns		Ex Hall Aligns		Ex Hall Aligns
	6	Potential Parking Spaces in Flex Hall Truss Space - Note 1.		1,000		1,000		300		300
	7	Number of Loading Bays		44		40		44		44
		Hotel								
	8	500 Guestrooms		N/A		Yes		N/A		Yes
	9	Meets Support Program Target Areas		N/A		Yes		N/A		Yes
	10	Adjacency of Primary Components		N/A		Yes		N/A		Yes
	11	Internal Service Access		N/A		Yes		N/A		Yes
	12	250 parking cars - Note 2.				Yes				No
	13	Number of Loading Bays		N/A		4		N/A		4
		Arena								
	14	15,000 Seats (Basketball)		N/A		N/A		Yes		Yes
	15	14,700-16,100 Seats (Concert-end stage/center stage)		N/A		N/A		Yes		Yes
	16	14,200 seats (Hockey)		N/A		N/A		Yes		Yes
	17	Meets Support Program Target Areas		N/A		N/A		Yes		Yes
	18	Arena Floor Height above Grade at corner - Note 3.		N/A		N/A		45 feet		45 feet
	19	Loading at Arena Floor Level		N/A		N/A		Yes		Yes
	21	Adjacency of Primary Components		N/A		N/A		Yes		Yes
	21	Internal Service Access		N/A		N/A		Yes		Yes
	22	Number of Loading Bays		N/A		N/A		6		6

EVALUATION MATRIX



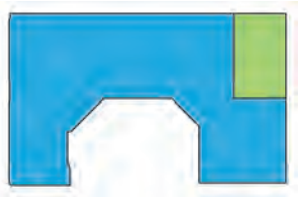
DEVELOPMENT SCENARIO 1

CONVENTION CENTER ONLY

CONVENTION CENTER
Renovation of Existing
400,000 SF contiguous Exhibit Hall
Meets all Programmatic Area Requirements
Main Entry on Pratt Street – Secondary on Charles Street
43 Loading Bays
Potential On-Site Parking for 580 Cars

OBSERVATIONS:

1. Lowest development density – closest to existing BCC
2. Potential for community business impacts greatest during event days
3. Pratt and Charles Streets activated with new lobbies
4. High level of pedestrian activity around BCC on event days
5. Active facades during events
6. Greatest opportunity for on-site open space
7. Traffic impacts similar to existing
8. Operational autonomy



DEVELOPMENT SCENARIO 2

CONVENTION CENTER + HOTEL

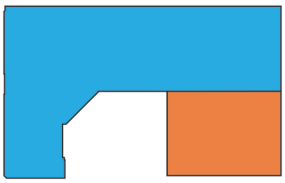
CONVENTION CENTER
Renovation of Existing
400,000 SF contiguous Exhibit Hall
Meets all Programmatic Area Requirements
Main Entry on Pratt Street – Secondary on Charles Street
43 Loading Bays
Potential On-Site Parking for 580 Cars

HOTEL

500 Rooms
Meets all Programmatic Area Requirements
Lobby at Grade – Charles Street
4 Loading Bays

OBSERVATIONS:

1. Lowest development density – closest to existing BCC, but with Hotel
2. Potential for community business impacts improved by addition of Hotel
3. Pratt/Charles Streets and Conway/Charles Streets activated with new lobbies
4. Pedestrian activity around the site is increased by Hotel activity
5. Active facades during events and 24/7 with Hotel
6. Good opportunity for on-site open space
7. Traffic impact no greater than on existing site
8. Operational autonomy for both BCC and Hotel
9. Small potential for operational synergies



DEVELOPMENT SCENARIO 3

CONVENTION CENTER + ARENA

CONVENTION CENTER

Renovation of Existing
400,000 SF contiguous Exhibit Hall
Meets all Programmatic Area Requirements
Main Entry on Pratt Street – Secondary on Charles Street
44 Loading Bays
Potential On-Site Parking for 380 cars

ARENA

15,000 Seats (basketball)
Meets all Programmatic Area Requirements
Arena floor 45 feet above grade
Plaza and Main Entry at Conway/Charles Streets
6 Loading Bays – Contiguous with Arena Floor

OBSERVATIONS:

1. High development density – but without Hotel
2. Pratt, Charles and Conway Streets activated by lobbies
3. Mixed-use program generates high level of pedestrian activity during events
4. Active facades during events
5. Less opportunity for on-site open space
6. Potential for increased traffic impacts during simultaneous events
7. Will be high degree of operational interface
8. Operational autonomy for both BCC and Hotel
9. Small potential for operational synergies

DEVELOPMENT SCENARIO 4

CONVENTION CENTER + ARENA + HOTEL

CONVENTION CENTER

Renovation of Existing
400,000 SF contiguous Exhibit Hall
Meets all Programmatic Area Requirements
Main Entry on Pratt Street – Secondary on Charles Street
44 Loading Bays

ARENA

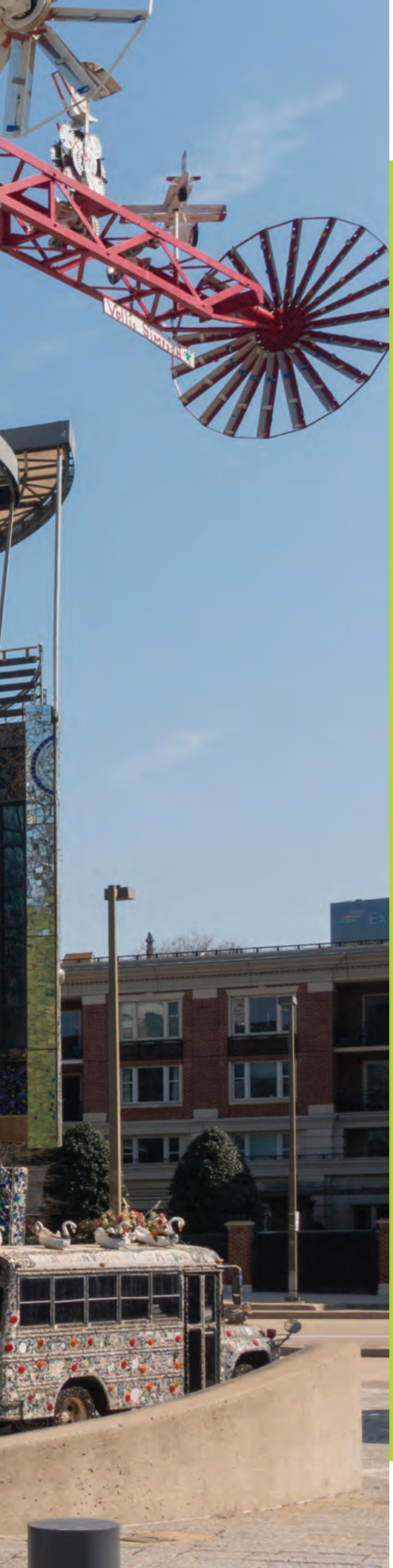
15,000 Seats (basketball)
Meets all Programmatic Area Requirements
Arena floor 45 feet above grade
Plaza and Main Entry at Conway/Charles Streets
6 Loading Bays – Contiguous with Arena Floor

HOTEL

500 Rooms
On-Site Parking for 380 cars
Meets all Programmatic Area Requirements
Lobby at Grade – Conway/Charles Streets
4 Loading Bays

OBSERVATIONS:

1. Highest development density development density offers greatest potential for community business impacts – most construction and permanent jobs, consistent activity
2. Pratt, Charles and Conway Streets activated by lobbies
3. Mixed-use program generates high level of consistent pedestrian activity
4. Mixed-use program generates consistently active facades
5. Limited opportunity for on-site open space
6. Potential for increased traffic impacts during simultaneous events
7. Will be highest degree of operational interface
8. Potential for operational synergies
9. Potential for marketing synergies
10. Unique in the marketplace
11. Potential for Community Business Impacts Improved
12. Operational autonomy for both BCC and Hotel



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ADDITIONAL CONSIDERATIONS

Evaluating the development options

BUILDING AND ZONING CODE COMPLIANCE

The BCC property is owned by the City of Baltimore and as such the design will be required to comply with the applicable Baltimore City codes in effect during design. The codes in effect at the time of this study include:Article 32 Zoning Code / 2017 (Transform Baltimore)

- Maryland Building Performance Standards / January 2015
- International Building Code / 2015 National Electrical Code / 2014
- International Fuel Gas Code / 2015
- International Mechanical Code / 2015
- International Plumbing Code / 2015
- International Property Maintenance Code / 2015
- International Fire Code / 2015
- International Energy Conservation Code / 2015
- International Residential Code, 1 and 2 Family Dwellings / 2015
- International Green Construction Code / 2012

For due diligence, the four design options presented in this report were developed in compliance with the Baltimore City Zoning Code (Article 32 – aka Transform Baltimore). The site under consideration is entirely located within the New Downtown Core District C-5-DC. A BCC, Arena, and Hotel are all permitted uses in this district in accordance with Table 10-301. The proposed bulk and yard in each scheme complies for building height and for yard in accordance with Table 10-401. The C-5-DC district is exempt from parking requirements per Section 10-503.a, though the program does include some parking for the convenience of the users of the facility. The proposed vehicle entrances for parking and for service follow Section 10-503.c in that they are not on Pratt Street.

Right of Way (ROW)
Baltimore Gas and Electric (BGE)
Baltimore City Department of Transporation (BCDOT)
Baltimore City Department of Public Works (BCDPW)
CSX Corporation (CSX)
Maryland Historic Trust (MHT)

CIVIL/SITE DESIGN CONSIDERATIONS

PROPOSED OPTIONS OVERVIEW

The feasibility of four development scenarios are briefly discussed below.

Development Scenario 1

This option will expand the original BCC to encroach upon the southbound lane of Charles Street and occupy the existing Sheraton Hotel site. Roadway and utility impacts for this base option should be like the other options being considered including Charles Street southbound lane utility relocations; Perry Street utility relocations; City Utility Easement utility relocations; and phasing/logistical challenges. Roadway impacts include drop-off lane modifications on Pratt Street; Charles Street southbound lane closure; Perry Street closure; potential Sharp Street impacts; and service access modifications.

Development Scenario 2

This option will expand the existing BCC and add a high-rise Hotel to replace the Sheraton Hotel that would be demolished to accommodate the expanded BCC. Roadway and utility impacts for this option should be like Option 1 but also include Increased utility demands.

Development Scenario 3

This option will expand the existing BCC and add a 15,000-seat Arena. Roadway and utility impacts for this option should be like Option 1 but also include increased utility demands.

Development Scenario 4

This option will include the BCC expansion, high-rise Hotel and 15,000-seat Arena. Roadway and utility impacts for this option should be like Option 1 but also include increased utility demands.

UTILITY INFRASTRUCTURE

Water

Existing Conditions: There is a 30" water main coming from south of Conway Street along Sharp Street, turns west along Conway Street, then north along Howard Street, turn east along Pratt Street and then turns north along Hopkins Street. There is 12" water main along Sharp Street west of Otterbein Church property, along Perry Street and ties into an 8" main along Charles Street. These lines will be evaluated for selected option for BCC and a loop can be created from Pratt Street to Charles Street to Conway Street and tie-in with the existing 30" water main, which will provide more reliable fire flow for the new facility.

Proposed Conditions: The majority of City water main infrastructure is outside the estimated limit of work for all development options, except for the 12" water main in Perry Street. It is anticipated that the Perry Street water main will require relocation outside of the proposed building footprint. Conceptual routes should be evaluated to confirm feasibility and fire flow tests conducted to confirm available pressures.

Sanitary Sewer

Existing Conditions: The biggest sanitary line is 22" sanitary main (western low-level interceptor) along the north side of Pratt Street. The existing BCC is connected to this line through a 12" sanitary line and an 8" sanitary line. The BCC also has a connection at Charles Street which flows to the east down Camden Street. The church property is serviced by an 8" sanitary line which increases to a 10" line that flows east down Conway Street.

Proposed Conditions: The majority of City sanitary infrastructure is outside the estimated limit of work for all development options, except potentially for the 8" church service in the City Utility Easement. If the church sanitary service requires relocation outside of the proposed building footprint, conceptual routes should be evaluated to confirm feasibility. A capacity analysis should be requested from Baltimore City for each of the options to determine if the City sanitary network has the capacity to handle additional flows. Preliminary estimates of sanitary flows were shared with Baltimore City during an initial infrastructure coordination meeting.

Storm Drains

Existing Conditions: Major City storm lines on this site include a 48" line entering the site from the west side of Howard Street that flows underneath the existing BCC building, then increases in size to 54" along Perry Street, crosses Charles Street and decreases in size (48") east of Charles Street. This line is approximately 30' deep, is tidally influenced, and has a very flat slope. There is a 60" storm line along Howard Street which drains most of Conway Street, Howard Street and Pratt Street flowing to the south. There is 36" storm line along Pratt Street which connects to the 60" storm line. There are smaller 10" to 18" storm lines along Charles Street which connect to the 48" storm line in Camden Street.

Proposed Conditions: The majority of City storm drain infrastructure is outside the estimated limit of work for all development options, except for the 48"/54" storm drain in Perry Street. It is anticipated that the Perry Street storm drain will require relocation; however, the feasibility of relocating the storm drain outside of the proposed building footprint versus reconstruction within (below) the building footprint will need to be studied and coordinated with Baltimore City for approval. Conceptual routes should be evaluated to determine feasibility of the storm drain options and potential stormwater management strategies.

Conduits

Existing Conditions: City ductbanks and manholes are located in all streets bordering the project including Perry Street and the City Utility Easement adjacent the church property. The City ductbank system is managed by Baltimore City DOT and provides conduit space (leases) to electric and telecom utility providers. The extent of ductbank occupants is unknown at this time. Field surveys to determine ductbank/manhole occupants should be conducted to facilitate early coordination of ductbank relocations.

Proposed Conditions: It is anticipated that all of the proposed options will impact the City conduit systems located in Perry Street; Charles Street and the City Utility Easement. Conceptual routes for the relocation of the existing ductbanks will need to be developed and reviewed with Baltimore City to confirm feasibility with other utility systems requiring relocation. For proposed relocations in Charles Street that will have significant space constraints, the Project Team should consider presenting options to Baltimore City that accommodate a public utility tunnel within the building footprint or minimize the ground floor encroachment into the existing ROW and cantilever the floors above. During the concept design stage, The Project Team should also request that Baltimore City perform a field survey of existing conduit manholes in the vicinity of potential disturbance. This survey would help identify the extent of coordination necessary to relocate existing conduit occupants and potential construction phasing requirements.

Electric

BGE owns underground electric feeders near the project. These feeders are typically located in the City conduit system described above. During a meeting with Baltimore City DOT/ DPW on 8/24/2017, it was recommended that the Project Team reach out to BGE discuss the project scope. A request for coordination was submitted to BGE and a service application was requested. The application should be completed later to initiate coordination with BGE for a new electrical service and/or coordinate relocations.

Telecom

Existing Conditions: Verizon has a separate telecommunication ductbank system in the project area. It is anticipated that all the proposed options will impact the Verizon conduit systems located in Perry Street; Charles Street and the City Utility Easement.

Proposed Conditions: Conceptual routes for the relocation of the existing ductbanks will need to be developed and reviewed with Verizon to confirm feasibility with other utility systems requiring relocation. For proposed relocations in Charles Street that will have significant space constraints, the Project Team should consider presenting options to Verizon that accommodate their systems in a public utility tunnel within the building footprint or minimize the ground floor encroachment into the existing ROW and cantilever the floors above.

Natural Gas

Existing Conditions: BGE owns the gas line facilities along the site. There is 30" gas line coming from Sharp Street south of Conway Street, turning west on Conway Street, then turns north on Howard Street, east on Pratt Street to Hopkin Street. There is also 20" gas main along Charles Street.

Proposed Conditions: The proposed options do not appear to impact any of the existing BGE gas facilities. A request for coordination was submitted to BGE and a service application was requested. The application should be completed later to initiate coordination with BGE for a new gas service and/or coordinate relocations.

Chilled Water

The existing chilled water mains and plants in the vicinity are owned and maintained by Veolia. The existing chilled water lines in Charles Street and Perry street will likely be impacted by all the proposed options. Relocation routes and phasing considerations should be reflected later. Veolia was engaged by the Project Team to review potential project impacts and provide feedback.

Steam

The existing steam mains in the vicinity are owned and maintained by Veolia. The proposed options do not appear to impact the existing steam system. Relocation routes and phasing considerations should be reflected later, if necessary. Veolia was engaged by the Project Team to review potential project impacts and provide feedback.

ROADWAY INFRASTRUCTURE

Howard Street: Howard Street is expected to be outside the project limits; however, early concepts suggest that loading dock ingress/egress improvements could extend near the Howard/Conway intersection and Pratt Street drop-off improvements may extend over to the Howard/Pratt intersection. If the proposed limit of work does extend to Howard Street, the Project Team will need to consider the constraints in this area and their effect on the proposed concepts. The constraints include light rail tracks and the CSX tunnel which restricts the placement of utilities in this roadway. Baltimore City is working with CSX to complete the design of improvements to the CSX tunnel drainage system near the intersection of Howard and Camden Streets.

Pratt Street: The proposed options all will likely include hardscape improvements along the south side of Pratt Street to accommodate modified vehicular drop-off areas and sidewalk reconstruction. Pratt Street will also likely require some utility improvements, which will necessitate mill and overlay of utility trenches after the new facility is constructed. Work in the public ROW will need to follow the Baltimore City Developer's Agreement guidelines.

Charles Street: All the proposed options will include hardscape improvements along Charles Street to accommodate the removal of the counter-flow lane and median. Charles Street will also likely require utility improvements, which will necessitate mill and overlay of utility trenches after the new facility is constructed. Work in the public ROW will need to follow the Baltimore City Developer's Agreement guidelines. The encroachment of the building footprint into the Charles Street ROW will require initiation of the City's Street Closing process and a lot consolidation.

Perry Street: This street will become part of the building footprint and thus will be changed. The encroachment of the building footprint into the Perry Street ROW will require initiation of the City's Street Closing process and a lot consolidation.

Conway Street: Conway Street will be affected due to proposed truck ingress/egress requirements and utility upgrades; therefore, roadway and sidewalk reconstruction will be necessary. Work in the public ROW will need to follow the Baltimore City Developer's Agreement guidelines.

Sharp Street: Sharp Street is assumed to remain in all the development options; however, the Project Team had a preliminary discussion with Baltimore City DOT on 8/24/17 about possible flexibility with the disposition of Sharp Street (temporary disruptions or permanent closing). The City recommended that the Project Team submit a preliminary request to consider the potential for permanent or temporary closure.

CITY UTILITY EASEMENT (CONWAY TO PERRY STREET)

It is anticipated that all or a portion of the existing easement (paved) may be impacted by the proposed development options. Work within this easement will need to follow the Baltimore City Developer's Agreement process.

PHASING/LOGISTICS CONSIDERATIONS

Existing utility impacts – There are numerous public and private utility systems that will require relocation to clear the proposed building footprint for redevelopment. Most of the utility systems will not be able to accommodate extended outages; therefore, it is anticipated that the project will require early bid packages to relocate these utility systems before the existing utilities are disrupted. Constraints should be anticipated for proposed utilities that may have to be relocated within the proposed building footprint (i.e. Perry Street storm drain and Charles Street utilities).

Otterbein Church utility services – Several of the church utility services are located within the existing City Utility Easement. Current development options suggest that a portion of the utility easement could remain which may leave room for the church services to remain undisturbed. If those services are impacted by the proposed building footprint, new services will be necessary and they will need to avoid disturbing the existing church property.

CSX Tunnel and Storm Drain Coordination – Baltimore City DPW has indicated that CSX is moving forward with the design of drainage improvements to their tunnel in Howard Street. The City should be able to share these drawing with the BCC Project Team when they are complete. This project will likely disrupt a large portion of the Howard/Conway and Howard/Camden intersections.

REGULATORY & UTILITY COORDINATION

The Project Team initiated coordination with several key agencies. These include:

1. BCDOT – infrastructure coordination meeting on 8/24/17
    - Next step: Submit preliminary traffic demands for review (Sharp Street)
2. BCDPW – infrastructure coordination meeting on 8/24/17
    - Next steps: Submit preliminary utility demand estimates for capacity review; provide options for storm drain relocation
3. BGE – requested preliminary project review meeting.
    - Next step: submit electric/gas service application
4. Veolia – held scope review meeting and site walk on 6/7/17 (on-site)
    - Next step: provide concept design for review
5. MHT – submitted consultation review letter
    - Next step: MHT issues feedback

Anticipated Civil/Site Related Approvals (Design Phase) – the following is a preliminary outline of civil/site related approvals that are anticipated for this project.

1. Baltimore City
    - Developer's Agreement
    - Minor Privilege
    - UDARP/Site Plan Review Committee
    - Street Closing & Lot Consolidation
2. State of Maryland
    - MDE for Stormwater Management & Erosion/Sediment Control
    - Maryland Historical Trust
    - MD State Highway Administration

Utility Agency Coordination Anticipated – the following is a preliminary outline of utility agencies that should be involved in project coordination and their respective area of responsibility.

1. City DOT

   – Conduit
   – Street Lights
   – Traffic Signals

2. City DPW

   – Water
   – Storm Drains
   – Sanitary Sewer

3. BGE

   – Electric
   – Natural Gas

4. Verizon (telecom)

5. Veolia

   – Chilled Water
   – Steam

SUMMARY/RECOMMENDATIONS

We have outlined recommended next steps to consider as the project moves into the design phase:

1. Field investigations

   – Complete surveys for property boundaries, topographic and utility information
   – Request Baltimore City DOT perform conduit manhole surveys
   – Obtain fire flow test on City water system

2. Agency Coordination – continue identification of agencies critical to the development of the project and coordination with agencies already initiated.

   – Submit preliminary traffic estimates to Baltimore City DOT for review
   – Submit preliminary utility demand estimates for water and sanitary for Baltimore City DPW review
   – Submit service application to BGE (electric and gas)
   – Follow-up coordination with private utility companies (BGE, Veolia, Verizon)
   – Obtain CSX tunnel improvement design drawings

3. Concept Design

   – Study utility relocation options for Charles; Perry; City Utility Easement and review with respective agencies
   – Prepare preliminary estimate and strategies for addressing stormwater management on-site
   – Coordinate with CM to review potential phasing requirements

CULTURAL RESOURCES

The Project Team prepared a cultural resource consultation review letter and submitted it to the Maryland Historical Trust on 8/15/17. The letter summarized the current proposed development options and indicated that the Project Team will submit concept design documents for further review and comment by MHT.

MHT provided the following feedback and recommendations in a letter dated 10/10/2017:

1. The Otterbein Church (National Register of Historic Places) is protected by perpetual historic preservation easement.

   – MHT has concerns with the proposed proximity of the BCC expansion to the church and potential effects on visual appearance.
   – Recommendations were identified to help mitigate the visual impact and scale of the proposed expansion.
   – MHT requested photo simulation or renderings showing proposing massing relative to church view corridors.
   – Encouraged MSA to reach out to historically related “consulting parties” to solicit ideas specific to minimization of impacts.

2. Archeology assessment recommended for parking lot adjacent to Church (Hotel surface lot).

   – Archival background research and disturbance study – provide recommendations on archeological potential and need for field investigations. If this preliminary study recommends a field investigation then outline the justification and proposed strategy.
   – Submit preliminary report to MHT for review.
   – Submit concept drawings and archeological study to MHT when available.

TRAFFIC DESIGN CONSIDERATIONS

EXISTING CONDITIONS

Visitor Traffic: Primary regional access to the BCC is from I-95 via I-395 and I-295 via Russell Street. US Route 40, MD Route 2 and I-83 also provide regional access for visitors.

The BCC does not provide visitor parking on-site. There are numerous off-site public parking garages located to the east, west, and north of the BCC.

The BCC has two passenger drop-off locations on Pratt Street – one at the Pratt Street entrance and one at the Charles Street lobby. Vehicles using the Charles Street lobby porte cochere enter from Pratt Street and exit onto southbound Charles Street. The entrance to the Charles Street porte cochere is located directly across from South Hanover Street. Some southbound vehicles from South Hanover Street were observed using the porte cochere as a short-cut to get to southbound Charles Street (instead of turning right onto Pratt Street and waiting in traffic to turn right onto Charles Street).

Public transportation access is provided via Light Rail to the west on Howard Street, Mass Transit Administration (MTA) routes/stops on Pratt Street, Howard Street, Sharp Street and Charles Street, and the Charm City Circulator stops on Pratt Street, Lombard Street, Charles Street and Light Street.

Vendor Traffic: Access to the BCC Loading Dock Area (for move-in and move-out of events) is accessed from Charles Street, north of the Sheraton Hotel.

Truck Access: There are three marshalling yards in the vicinity that are currently used, and will continue to be used for staging of convention hall events. One is on James Street in West Baltimore, approximately one mile due west of the BCC. M&T Bank Stadium Lot H is in the parking lot of the nearby stadium, just southwest of the site. The third location is the Travel Center, exit 57 off I-95, 6.5 miles to the east in Dundalk, off Holabird Avenue.

Each route will necessitate driving east on Pratt Street, south on Light Street, then west on Conway Street, entering the loading level through the existing ramp accessed from the median on Conway Street. Trucks utilize Baltimore City's Official Truck Route. Conway Street is designated as a restricted route from 7pm to 7am.

Trucks exit the BCC by turning right onto southbound Charles Street, right onto Conway Street and left onto I-395. The design vehicle for maneuvers is a 73 FT truck.

PROPOSED FREIGHT ACCESS COMMENTARY

Four loading access options are being considered. All proposed options would eliminate the southbound Charles Street lane and utilize the existing inbound ramp located in the median of Conway Street for loading access. Each option offers a different way of exiting the loading area.

In Option 1, trucks exit north onto Charles Street. Egress routes include turning left onto westbound Lombard Street to access Howard Street or turning right onto eastbound Pratt Street to southbound Light Street to westbound Conway Street. There are potential maneuvering concerns with the first egress route associated with left turns from Lombard Street onto Howard Street when other vehicles are present. The alternative egress option onto Pratt Street puts additional traffic at the Pratt Street/ Light Street intersection which has already been noted by the City as a congestion point. Encouraging loading access/egress during off-peak periods could help to alleviate congestion at adjacent intersections.

In Option 2, trucks exit heading westbound onto Conway Street. The egress route is like existing conditions with trucks turning left from Conway Street onto Howard Street.

Option 3 illustrates a way to exit via a new ramp in the median headed east on Conway Street. The egress route is like Option 1 with potential maneuvering concerns from Lombard Street onto Howard Street or congestion concerns at the Pratt Street/ Light Street intersection. There is also significant concern with Option 3 in terms of egress onto eastbound Conway. The egress route would include a left turn from Conway Street onto northbound Charles Street. The existing double left turn lane on Charles Street must remain, so it would create a complex triple left turn with unusual signal phasing. A median ramp to eastbound Conway Street creates a potential fatal flaw.

Option 4 demonstrates two ways to exit west onto Conway. The first (Option 4A) involves a new ramp in the Conway Street median, exiting west towards the intersection of Howard Street.

The egress route for Option 4A would include a left turn from Conway Street onto Howard Street. Adding a new movement to the existing double left turn lane from Conway Street to Howard Street, would likely require reconfiguration of the intersection in order accommodate turn maneuvers, particularly for trucks. The feasibility of this intersection reconfiguration is unknown. Like Option 2, the second (Option 4B) provides an at-grade exit from the loading area onto Conway Street. The egress route is like existing conditions with trucks turning left from Conway Street onto Howard Street.

All proposed options would eliminate the southbound Charles Street lane. The southbound Charles Street lane is used as the access route for vendor traffic and truck traffic to access the loading dock area. Southbound Charles Street is also used as the point of egress for the Charles Street Lobby porte cochere (accessed from Pratt Street). Vehicles exiting the Hyatt parking garage on northbound Charles Street use the median break (north of the Sheraton Hotel) to make a U-turn onto southbound Charles Street and access Conway Street to I-395.

Eliminating southbound Charles Street would increase traffic (including BCC truck traffic) on southbound Light Street. The Department of Transportation has noted that the Pratt Street/ Light Street intersection is currently a pressure point in the downtown network.

In conclusion, ingress routes for all loading access options would be the same. Option 2 and Option 4B provide the most favorable egress routes with exits onto westbound Conway Street. Exiting west on Conway facilitates a more direct route back onto the highway. Option 1 would result in a new egress route that would need to be studied further in terms of maneuverability and traffic impacts. Option 4A would likely require reconfiguring the Conway Street/Howard Street intersection to accommodate a triple left turn lane. The feasibility of intersection reconfiguration is unknown. Option 3 presents a potential fatal flaw associated with egress routes in proximity to an intersection with an existing double left turn lane. The design would create a complex triple left turn with unusual signal phasing.

In addition to access/egress routes, the preferred concept should consider the size of the loading dock (number of bays and maneuverability) and impacts to the sidewalk and public realm (pedestrian-vehicle conflicts).

SHARP STREET COMMENTARY

Sharp Street would remain open in all development scenarios. Sharp Street is designated as a Minor Arterial and carries 5,033 vehicles per day. Closing Sharp Street would divert southbound traffic to other southbound streets resulting in traffic impacts to intersections on Conway Street, Charles Street, Light Street, Pratt Street, Howard Street, Hopkins Place and Lombard Street, at a minimum. Closing Sharp Street would impact the existing 103 bus route (Inner Harbor / Midway to Cromwell Bridge Park & Ride).

In addition to potential regional impacts, closing Sharp Street may have access and circulation impacts to adjacent land uses, including the Otterbein community. Impacts to emergency vehicle response times would also need to be considered. The procedure to close Sharp Street would include City Council approval. The typical street closure process would take approximately one year.

SUMMARY/RECOMMENDATIONS

Traffic and transportation impacts will need to be studied in greater detail to understand the full impacts of the BCC expansion options being considered. Adequacy of BCC operations, such as drop-off and loading activities, should be studied in greater detail. Off-site transportation impacts must also be studied. The scope of the study will need to be coordinated with the Department of Transportation and should consider impacts on all modes of transportation.

Traffic impacts would need to consider the elimination of Charles Street as well as traffic increases associated with a relocated Arena and expanded convention space. Access, circulation, and emergency response time impacts would also need to be considered to adjacent land uses, including the Otterbein community. At the very least, traffic would need to be studied at the following locations:

- Conway Street/Charles Street
- Conway Street/Light Street
- Conway Street/Howard Street
- E. Camden Street/Light Street
- Pratt Street/Howard Street
- Pratt Street/Light Street
- Pratt Street/Hopkins Place
- Lombard Street/Howard Street
- Lombard Street/Hopkins Place
- Lombard Street/Light Street

The BCC does not provide visitor parking on-site. There are numerous off-site public parking garages located to the east, west, and north of the BCC The adequacy of available parking in the area should be studied, along with projected parking demand associated with the BCC expansion.

The adequacy of existing transit routes, service and stops should be considered. Pedestrian routes from transit stops and parking facilities should be assessed.

The Baltimore City Department of Transportation will be able to provide feasibility level feedback on the project. The BCC expansion team will need to provide the following background information/transportation characteristics:

- Existing and projected level of truck activity (daily number of trucks)
  - Typical arrival and departure times for truck deliveries
  - Dwell time for trucks
- Size of design vehicle for maneuvering
- Where will visitors park and how many spaces will ultimately be provided on-site
- Modal split for Arena patrons (i.e. percentage that drive, take transit, etc.)
- Development Program
  - Size of Arena
  - Number of Hotel rooms
  - Size of BCC – existing and proposed square footage
- Schedule and frequency of events; also, how will events be coordinated/managed with baseball and football events.

Continued coordination with DOT will be important to plan for the BCC expansion project and to understand plans for proposed city initiatives. The City is planning to implement bicycle lanes on Pratt Street within the next two years. Additionally, traffic improvements at McKeldin Square, at Light Street and Pratt Street, are currently being studied.

Recommended next steps for transportation evaluation at the conceptual level include the following:

1. Coordinate with BCC to obtain additional information about existing and future events (schedule, patrons, modal split).
2. Conduct additional observations and surveys to gain a better understanding of existing operations (prior to and during events).
3. Develop a list of transportation characteristics (based on size of expansion and operations) that can be used to develop a proposed scope of work.
4. Coordinate an approved scope of transportation study with the City. Obtain relevant background information and city plans to be included in the transportation assessment.
5. Collect traffic, parking, transit and other off-site transportation data.
6. Conduct a detailed transportation study to include all modes of transportation (traffic, parking, transit, pedestrian, bicycle, bus loading, passenger vehicle loading, for-hire vehicles and heavy vehicle loading).
7. Provide continued feedback to the design team regarding transportation characteristics that should be considered in designing the preferred alternative.
8. Prepare a transportation study, suitable for review by the City and the State, which documents transportation access and impacts.

LANDSCAPE DESIGN CONSIDERATIONS

WEST PRATT STREET

Sidewalk Conditions: Existing sidewalks are situated adjacent to the existing building frontage along Pratt Street and are consistent with other areas of the Pratt Street corridor, which function as oversized promenades running east/west through Downtown Baltimore (see Image 1). During periods of lower use, the sidewalk space can feel empty and less active, which negatively impacts the pedestrian experience and presence of the building. The opposite holds true during Orioles/Ravens games and other stadium events, during which large numbers of pedestrians use the corridor to access the Stadium District. These spaces are also a popular location for street vendors. Future planning should ensure that the sidewalk section be balanced to accommodate large crowds, while offering a smaller scale during periods of lower use. A smaller sidewalk is situated along the road edge, but is undersized and cannot comfortably accommodate large numbers of pedestrians (see Image 2). Vehicular movements impact the scale and use of the streetscape, with two large drop-off areas engaging the building along Pratt Street (see Image 3). On the eastern edge of the site, the South Charles Street slip lane/road abruptly cuts through the pedestrian space (see Image 4b). A new bus only lane fronts both blocks of Pratt Street, with several bus and Circulator stops that will need to be reviewed and incorporated into future design and planning (see Image 4). Large areas of building egress and street utilities also crowd the streetscape here, especially in the existing landscape berm (see Image 4c).

Materials: The existing material palette along Pratt Street features large areas of brick, stone, scored concrete and granite cobble (see Image 5). Existing brick is mortared in place, which has made ongoing maintenance and repair difficult and inconsistent. Areas of concrete have also been repaired and replaced numerous times, which impacts the visual aesthetic (see Image 6). Overall, the existing streetscape materials are dated and in poor condition, which impacts the ability to create a cohesive streetscape treatment and identity.

Trees & Vegetation: The existing tree canopy is well-established, with a double row of shade trees in many locations. The condition of the existing trees varies, but they do provide much-needed shade along the streetscape. Many trees are situated in large areas of berming, which disconnect the building from the street (see Image 7). This condition limits interaction between the pedestrian areas and the busy Pratt Street frontage, which further adds to the site's empty feel. Existing areas of focal point plantings are well-cared for and provide visual interest at key entrances and visual anchors along the streetscape (see Image 8). These are elements that can be built upon and targeted for enhancement.

Building: The existing building has varied interaction with the pedestrian corridor, with building entrances, glass facades, staircases and in some cases terraced building facades with landscape. The result is a mix of successful and unsuccessful spaces. Oversized building canopies highlight the entries to the building, which offer popular areas for congregation that are in shade and out of the natural elements (see Image 9). These spaces lack amenities for pedestrians and users, which ultimately limit their use and function. During Orioles/Ravens games and other events, vendors often use these spaces for setup. The second level of the existing buildings feature outdoor terraces and egress paths that connect to the street level via over-sized, grand staircases. These staircases are cold, stark and lack amenities that could enhance connectivity. The terraces on the second level offer unique spaces with interesting views of the street below and City beyond (see Image 10). Minimal improvements could create exciting new spaces for programming and events. There is an opportunity to increase usage of the terraces for informal events and gatherings, while using the staircases as areas for informal events during peak periods of use along Pratt Street.


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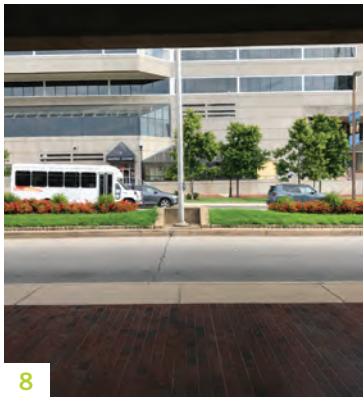
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1. Existing oversized walkway long building 2. Existing narrow walkway along Pratt Street 3. Existing oversized walkway long building
4. Existing bus stop and bus lane along Pratt Street 4b. Existing Charles Street slip lane 4c. Existing egress and utilities
5. Existing brick and concrete banding 6. Existing brick and concrete 7. Existing brick and concrete banding
8. Existing focal point plantings along Pratt Street 9. Existing canopy and stairs 10. Existing second floor terrace

11. Existing lighting along Pratt Street 12. Existing lighting along Pratt Street

Lighting: Street lighting along Pratt Street is varied and oversized (see Image 11). New lighting standards have been implemented further down the corridor on East Pratt Street and should be reviewed for these two blocks. Pedestrian lighting is smaller in scale and consistent with lighting along the Inner Harbor promenades. Lights are in various physical condition and many need replacement. Existing building canopies feature lighting that highlights building entries and vehicular areas.

Art: An existing art installation/sculpture is located along Pratt Street (see Image 12). Future consideration regarding its potential removal, relocation or ability to remain will need to be further evaluated.

HOWARD STREET

Sidewalk Conditions: The overall first impression of the Howard Street frontage is stark and unwelcoming, which detracts from its potential to be a primary gateway into Downtown Baltimore (see Image 13). The existing sidewalk is generous, but lacks pedestrian amenities and streetscape plantings.

Materials: The existing sidewalk consists mostly of scored concrete, but the color, material type and scoring is inconsistent due to ongoing repair and maintenance. This creates a non-cohesive palette and ground plane for the building (see Image 14). There are some areas of brick banding along the curb, but the treatment is not uniform along the length of the block (see Image 15).

Trees & Vegetation: The Howard Street frontage lacks street trees and landscape plantings, which further adds to the inhospitable character of this streetscape (see Image 16). It is unclear if there are utility conflicts or other parameters that are leading to this condition.

Pedestrian Fence: The character of the streetscape is further impacted by the existing barrier fence, which is in poor condition. Intended to limit pedestrian crossings along Howard Street, it adds to the unwelcoming character of the streetscape (see Image 17 & Image 18).

Building: The western edge of the existing building features numerous egress doors and staircases, which fail to animate the streetscape environment (see Image 19). Second floor terraces overlook the street level and do offer unique vistas and views to Camden Yards and the Howard Street corridor.

Lighting: Existing street lighting is provided by taller roadway lights and is supplemented by wall mounted light fixtures along the building (see Image 20). The result at night is a condition that is not pedestrian-friendly nor welcoming.


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13. Existing Howard Street streetscape 14. Existing concrete conditions. Image 15. Existing brick band along Howard Street 16. Lack of streetscape plantings and trees 17. Existing pedestrian fence lines street 18. Existing pedestrian fence in disrepair 19. Egress and Stairs interact with streetscape 20. Lack of pedestrian lighting along Howard Street

CONWAY STREET

Sidewalk Conditions: The existing sidewalk along Conway Street is generous, but lacks pedestrian amenities and streetscape plantings (see Image 21). During periods of lower use, the sidewalk space can feel empty and less active, which negatively impacts the pedestrian experience and presence of the building. The opposite holds true during Orioles/Ravens games and other stadium events, during which large numbers of pedestrians use the corridor to access the Stadium District via the Inner Harbor. This activity attracts street vendors to the area, which crowd sidewalks spaces. The width of the sidewalk narrows at the existing Sheraton Hotel, which creates pinch point for users traveling west from the Inner Harbor to the stadium district (see Image 22). Future redevelopment should consider expanding the sidewalk section at the existing Sheraton site to improve connectivity and cohesiveness along Conway Street.

Materials: Existing scored concrete is in average condition, but does not match other areas surrounding the building. Most concrete is exposed aggregate along Conway Street, which has aged well, but repairs and patches vary in concrete mix and type (see Image 23). A brick splash band lines the existing curb up to Hanover Street, but then disappears along the Otterbein Church and Sheraton frontage (see Image 24).

Trees & Vegetation: The Conway Street frontage lacks street trees and landscape plantings. The existing building features built in planters that have seasonal plantings, which should be retained and built upon (see Image 25). Existing lawn, trees and shrubs at the Otterbein Church offer visual relief from a hardscape dominated environment (see Image 26).

Building: The southern edge of the existing building offers a gateway for the City, with glass facades overlooking the street at the second level. Large staircases and areas of planting help to anchor the building to the street level. The Otterbein Church is situated at the corner of Conway and Sharp Streets and offers a striking contrast to the existing BCC architecture.

Lighting: Existing street lighting is supplied by taller roadway lights and is supplemented by pedestrian scaled luminaires, which are consistent with lighting along the Inner Harbor promenades. This lighting is dated, with much in need of repair or replacement. Lighting at the Otterbein Church is more historic in character and doesn't interact with the streetscape. Existing lighting at the Sheraton and existing surface lot is minimal, with few building mounted lights to supplement the roadway lighting.

Pedestrian Fence: The character of the streetscape is further impacted by the existing barrier fence, which is in poor condition. Intended to limit pedestrian crossings along Conway Street, it adds to the unwelcoming character of the streetscape (see Image 29).

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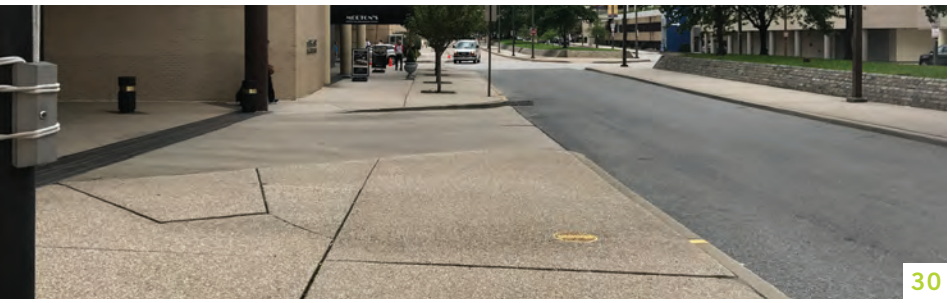
21. Existing conditions along Conway Street 22. Narrower streetscape at the Sheraton 23. Existing concrete conditions 24. Existing brick splash band 25. Existing accent plantings 26. Existing landscape at the Otterbein Church 27. Existing lighting along Conway Sreet. 28. Existing lighting at Otterbein Church 29. Existing pedestrian fence along Conway Street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30. Existing sidewalk, with slip lane 31. Existing concrete condition 32. Existing vegetation along the building 33. Existing trees at Morton's
34. Existing Sheraton Lobby 35. Existing BCC Lobby 36. Existing wall mounted and street lights

CHARLES STREET

Sidewalk Conditions: The existing sidewalk along Charles Street varies, but is impacted greatly by the existing service slip lane from Pratt Street to Conway Street. The addition of this roadway further disconnects pedestrians from Charles Street, which makes the walkway feel empty and less active.

Materials: Existing scored concrete is in average condition, but does not match other areas surrounding the building. Most concrete is exposed aggregate, which has aged well, but repairs and patches vary in concrete mix and type.

Trees & Vegetation: The Charles Street frontage features a few small trees at the entry to Morton's Steakhouse, but they are low-limbed and not conducive to a pedestrian environment (see image 33). Areas of foundation plantings help to soften the edge of the BCC in other key locations (see Image 32).

Building: A variety of built conditions impact the existing Charles Street frontage. Predominantly, service and parking access impacts the central portion of the street. Both building corners at Conway and Pratt Streets are animated by building entrances and activity.

Lighting: Existing street lighting is supplied by taller roadway lights and is supplemented by wall luminaires (see Image 36).

SUBSURFACE DESIGN CONSIDERATIONS

SITE GEOLOGY

Geologically, the site is located at the transition from Piedmont to Coastal Plain. In this area, the coastal plain soils often overlap and are encountered on top of the residual soils that have been derived by the in-situ weathering and/or chemical decomposition of the underlying bedrock. The depth to the top of the rock varies considerably, depending upon the degree of weathering. Available maps suggest that the depth of the rock surface varies approximately from 60 FT. to 80 FT. below the existing grade (EL +30' at Sharp Street). The underlying rock is believed to be Gneiss. In addition, available general geological information suggests that the near surface soils below the site consist of Lower Cretaceous-aged Potomac Group Arundel Formation, as shown on Figure 2, which is included as Enclosure No. 1. However, the data from the old borings in the area suggest that the soils may be of Patuxent Formation (Sand facies with highly variable, interbedded sand, gravel, silt and clay). Based on the data provided to us, a site-specific geology suggests that underlying man-made fill (10 FT. to 15 FT. deep) is a layer of alluvial soils of recent deposits and the Cretaceous-Aged Potomac Group extending to the top of the residual profile. The top surface of the underlying bedrock was encountered at elevations EL -34' to EL -45'.

GROUNDWATER CONDITIONS

The groundwater level in the proposed site was observed to lie approximately below EL +10' to EL +0'. It should be noted that groundwater levels will fluctuate due to seasonal changes, precipitation, and construction activity.

SUBSURFACE CONDITIONS

Previous site investigation data in the area and our knowledge of local geology was used to classify the soils into five strata, having the following generalized properties. Approximate soil profiles showing the different strata layers are developed based on the data provided to us, and are included. The stratification lines shown on the approximate generalized subsurface profiles represent approximate transitions between material types. Strata changes can occur gradually or at different levels than those shown. The existing ground surface elevation is estimated to be approximately EL +30'.

Stratum A, Man-Placed Fill: The upper 10 to 15 FT. of the soils in the area are expected to be Man-Placed Fill. The fill soils are believed to consist of Sandy SILT and Silty SAND with varying percentages of sand, gravel and rock fragments. The fill appears to have been placed during past construction and grading activities, utility constructions, etc. at the site. The fill stratum may extend to approximately EL +20' to EL +15'.

Stratum B, Alluvial Soils: Recent alluvial and/or Potomac Group soils consisting of Silty SAND (SM), Poorly Graded SAND (SP) and SILT (ML) derived from deposition with in a flood plain with variable sediment input exist beneath the Fill stratum. This stratum may extend to elevations of EL -1.5' to EL -11.5'.

Stratum C, Residual Soils: Residual soils may be encountered below the Alluvial soils and extend to EL -1" to EL -30'. The residual soils are expected to classify predominantly as Sandy SILTS (ML). Sandy and Silty CLAYS (CL) may also be encountered.

Stratum D, Disintegrated Rock: The disintegrated rock is defined as residual material with SPT values of greater than 60 blows per foot. This rock like material may be encountered below the Residual Soils and extends to the top of the bedrock at EL -34' to EL -45'.

Stratum E, Bedrock: Based on the available data, the bedrock surface was expected to be encountered at elevations approximately EL -34' to EL -45'. The bedrock is believed to be the Baltimore Gneiss.

FOUNDATION DESIGN CONSIDERATIONS

It is our understanding that the elevation at the lower level of the planned structures is approximately EL +12'. The preliminary building program includes increasing the existing Exhibit Hall space and constructing Ballroom space and Meeting Rooms. In addition, potential program elements include a new Arena and/or a new Hotel. We expect that the loads from the planned structures can be up to 3,000 kips per column and deep foundations will be used to support these loads.

Drilled Shaft: Drilled shafts, bearing on competent bedrock (Minimum core recovery of 90% and RQD of 60%) can be used to support the column loads of the proposed structures. Drilled shafts bearing on the competent bedrock can be designed for an allowable end bearing capacity of 150 ksf. As load capacity of 500 tons to 1,500 tons. The length of the drilled shafts below the lower floor level (i.e. EL + 12') may range approximately from 55 FT. to 65 FT. It is to be noted that bigger diameter drilled shafts can be used to support loads greater than 3,000 kips per column.

Auger Pressure Grouted Pile (APG): APG piles of 14-inch to 24-inch diameter may also be used to support the planned structures. APG pile with an allowable axial compression design capacity of 100 tons per pile to 240 tons per pile can be utilized. The tips of these piles may extend to EL – 30 (45 FT. long piles) to EL – 35 (50 FT. long piles).

Driven H Piles: Driven HP14X73, Grade 50 steel piles having an allowable compression design load capacity of 100 tons per pile to 150 tons per pile may be used. Based on our preliminary analysis, these piles may require to be driven to lengths of 45 FT. to 50 FT. below the lower floor level (i.e. EL +12'). It is to be noted that the values provided here are approximate in nature and shall only be used for preliminary planning. We expect that detailed ground investigation will be conducted to evaluate the foundation options and load capacities.

FLOOR SLAB AND SUBDRAINAGE CONSIDERATIONS

We expect that slabs supported on grade can be utilized for the proposed structures at the lower floor level (i.e. EL +12'). With the assumption that the lower level of the planned buildings is at EL +12', under floor subdrainage system is considered necessary.

BELOW GRADE WALLS

Permanent basement walls and site retaining walls for ramps leading to lower floor levels will require retaining walls which are typically designed for lateral earth pressure and surcharge loads. A drainage media, connected to drains is required behind these walls to remove water from behind the walls.

EXCAVATION SUPPORT SYSTEMS AND UTILITIES

Existing structures, roadways, sidewalks, utilities, etc. around the perimeter of the site will have to be protected during construction of the proposed structures. This will require use of support of excavation systems. Steel soldier beams and wood lagging can be used for this purpose. The existing utilities at the site may have to be abandoned and/or relocated prior to demolition and reconstruction of the planned structures.

STRUCTURAL DESIGN CONSIDERATIONS

ADDITIONS AND RENOVATIONS TO WEST WING

One of the primary components of the proposed renovations and additions includes the relocation of the existing West Ballroom, which would be located north of the existing Ballroom at new floor level L500, a new Ballroom roof above the new West Ballroom, and a new roof at Level L400 over the existing outdoor plaza space that would be converted to enclosed meeting room space in the southwest corner of Level L300. Below is a summary of the structural components of the proposed renovation/addition scope of work as well as a preliminary review of the proposed renovations/additions to determine if they would likely trigger an upgrade to meet the current Building Code. The following is a brief description of the structural scope of work needed for each of these renovations:

1. New West Ballroom at new floor Level L500: The existing framing at this level consists primarily of a 3" non-composite roof deck spanning 7'-6" between steel beams and trusses at varying elevations. Although there is a scenario by which portions of the existing structure at the existing roof level could be strengthened and re-used, the significant increase in load associated with the new program configuration coupled with the relatively light existing structure indicates that the extent of strengthening would be vast and very costly. In light of this, the recommended approach to the renovation/addition work is as summarized below:
   - Demolish the existing structure above Level L400 and north of the expansion joint at Grid 9.
   - Construct new structure above Level L400 to the north of Grid 9 to support the new program. This new structure would include new concrete slab on steel deck at the program areas and new steel roof deck at the roof areas at Level L500, and new roof deck at the roof areas above. The roof deck and concrete slab on steel deck at these two levels would be supported by new steel beams, steel girders and trusses, and steel columns that are located to align with the existing interstitial trusses located between Levels L300 and L400. New steel braced frames would also be located above Level L400 to provide the new structure with lateral resistance against wind and seismic forces.
   - Strengthen the existing structure below Level L400 (interstitial trusses, columns, foundation, etc.). This strengthening would likely include adding cover plates to existing truss and column elements, strengthening existing steel connections via additional bolts, welds, and plates, and increasing foundation capacity via added deep foundations adjacent to existing foundations to share the increased load. Note that given the significant increase in gravity load associated with the new program above Level L400, new columns that extend from Level L400 down through the Level L100 Exhibit Hall to new deep foundations are also likely to be required.
2. New Roof at Level L400 over Converted Outdoor Plaza Below: The existing framing at Level L300 consists of a composite concrete slab supported on steel beams and is anticipated to have adequate capacity to support the loading associated with the new meeting room space. A new roof will be required over this area at Level L400. This will require the extension of the existing columns along the south end and reinforcing of the trusses which cantilever south from column line 3. It is also very likely that some of the supporting columns, trusses and foundations affected by this new roof will need to be strengthened to resist the added loads.
3. Building Code Implications of Renovations/Additions: Given the extent of structural modifications, it is anticipated that upgrades to the lateral force resisting systems will be required to resist the more stringent seismic requirements of the current International Building Code (the old project was designed under the BOCA code). The lateral system for the existing structure appears to consist of moment frames below Level L400 comprised of the interstitial trusses and main columns. Above Level L400, the lateral system appears to be braced frames located primarily around the perimeter of the existing Ballroom. If a lateral evaluation of the structure per the new Code shows that seismic forces control the design, it is very likely that portions of the trusses as well as their connections could require strengthening. It is also likely that some columns and foundations may also need reinforcing. The extent of the modifications to the existing structure will be critical in determining the need of a Code upgrade. For the existing structure to be exempt from meeting the current

code, the demand-capacity ratio of all lateral resisting elements must not increase by more than 10%. A much more detailed analysis of the existing structure will be needed to determine the need and extent of this reinforcing.

NEW CONSTRUCTION: CONVENTION CENTER AND HOTEL

Foundation system

The high column and wall loads anticipated for this project, in combination with the low bearing capacities for the soils near the surface, dictate that a deep foundation system will be used. Consistent with the original construction and previous expansion of the existing BCC facility, caissons of variable diameter will be used to support the gravity loads and resist the lateral loads imposed on the buildings.

The program components at Level L100 will be supported by a soil-supported slab on grade. Given the high uniform and concentrated loads associated with the Exhibit Hall and loading dock programs, an 8-inch-thick slab on grade is anticipated in these areas. At other areas not subjected to such concentrated loads, such as pre-function areas, a 6-inch-thick slab on grade is anticipated.

Concrete basement/foundation walls are located around the perimeter of the project footprint. These walls begin at Level L100 at the top of the foundations and extend up to Level L200, where grade varies from elevation 10'-0" to elevation 34'-0" around the perimeter of the site. These walls will vary in thickness as required to resist lateral earth pressures, surcharge pressures, and hydrostatic pressures.

Gravity framing system – Convention Center

The gravity framing system for the BCC typically consists of structural steel columns supporting steel trusses, steel beams and girders, and concrete slab on steel deck floor framing.

The program at each level will typically be supported by slabs consisting of normal-weight concrete over composite steel deck. The thickness of the concrete atop the steel deck will vary based on the uniform and concentrated loads associated with the various program spaces at each level.

Supporting the concrete slabs on steel deck will be steel beams spanning between steel girders or trusses. The steel beams will typically be spaced at 10 feet on center and, with spans that will typically range from 30 feet to 60 feet, will typically range in depth from 18 inches to 36 inches. In most cases, the steel beams will be rolled wide-flange shapes. Where span and loading conditions dictate in unique conditions, built-up steel plate girders will be used.

Located between Levels L200 and L300 are story-deep interstitial trusses that support the program at both levels and span over the Exhibit Hall space below. At Level L200, the parking program will be supported by beams spanning between the bottom chords of the interstitial trusses. Similarly, at Level L300, the Flex Hall program will be supported by beams spanning between the top chords of the interstitial trusses. Past experience shows that a 60-FT x 90-FT column grid, with the interstitial trusses spaced at 60 feet on center and spanning 90 feet between columns, is most easily accommodated by the parking program located within the interstitial space. The interstitial trusses will be supported by columns located in the Exhibit Hall at Level L100.

Located between Levels L400 and L500 are a second set of story-deep interstitial trusses that support the program at both levels and span over the Flex Hall below. At Level L400, the meeting room program will be supported by beams spanning between the bottom chords of the interstitial trusses. Similarly, at Level L500, the Ballroom program will be supported by beams spanning between the top chords of the interstitial trusses. The interstitial trusses will be supported by columns located at the edges of as well as within the Flex Hall space at Level L300.

At the Ballroom roof level, steel trusses will clear-span over the Ballroom program and support the roof and any rooftop mechanical units as well as the rigging and operable partitions necessary for the functionality of the Ballroom program below.

Lateral force-resisting system – Convention Center

The lateral force-resisting system resists the horizontal wind and seismic loads imposed on the building and provides horizontal stability to the structure. This system is anticipated to be comprised of both cast-in-place concrete shear walls and steel braced frames.

Below Level L200, horizontal forces are anticipated to be resisted primarily by concrete shear walls, including the perimeter foundation walls. Above grade level, horizontal forces are anticipated to be resisted primarily by steel braced frames. Both shear walls and braced frames will be located and configured to avoid conflict with the program or operation of the facility, typically back-of-house spaces.

Gravity framing system: Hotel

The preliminary structural gravity framing system for the Hotel tower includes post-tensioned two-way concrete slabs supported by concrete columns as well as the central concrete shear wall core. At the base of the Hotel tower, it is anticipated that some of the Hotel tower columns above may not be able to extend to or below grade level due to conflicts with the program spaces and functionality. If that is the case, there will be transfer beams or trusses incorporated into the structural design as required.

Lateral force resisting system: Hotel

Lateral forces are anticipated to be resisted by a central concrete shear wall core. Inside the core will be located elevators, exit stairs, and other miscellaneous back-of-house spaces as required. The core will extend down through the below-grade BCC pre-function space to the foundation at Level L100.

NEW CONSTRUCTION: ARENA

Based upon the review of the plan, diagrams developed by the architectural team for the various options and numerous coordination meetings with the architectural team, the engineers confirm the structural feasibility of the proposed Arena portion of the project, currently located above the planned Exhibit space. The function and structure of the Arena above a BCC, will impact both the quantities and the costs of the framing systems.

The preliminary structural systems for the Arena portion of the project is based on the Development Scenario 4 architectural diagrams:

Gravity Framing System and Transfer Trusses – Arena

To keep the area floor above grade and allow the BCC to provide a larger contiguous space, the Event Level (Arena Floor) is located above the Level L100 Exhibit Hall of the BCC. Therefore, the loads from the irregular grid geometry of the Arena will be transferred from the seating bowl framing onto the 90' x 90' or (60' x 90') grid of the BCC.

To coordinate the varying geometry of the Arena with the regular framing grid of the BCC, a system of transfer truss and girders will be required. The lighter loads of the Arena lower bowl will likely be accommodated with simple span transfer beams within the single-story depth of the BCC trusses. At the perimeter of the Arena where the vertical loads are greater, it is anticipated that several two-story transfer trusses will be required. The bottom chord of these trusses will be just above the convention space and the top chord will be at the main concourse. To accommodate the lower seating bowl, the top chord of the trusses will slope to the event floor.

At the locations which support the primary trusses at the Arena long-span roof, we anticipate transfer trusses will be strategically located near the upper bowl level within the Arena to transfer these larger loads directly to BCC columns.

Interstitial spaces between the trusses will serve as locker rooms, management spaces, and other back of house spaces.

The roof structure of the Arena is anticipated as a curvilinear low-profile dome shape formed by a system of one-way or two-way span trusses supported by either 4 or 8 primary columns. The trusses will support typical wide flange and/or open web steel joist steel infill framing at the top surface. The trusses will also support catwalks, sound systems and anticipated event rigging.

The lower seating bowl will consist of stadia units supported by a combination of radial steel raker beams and sloped chords of transfer trusses positioned between the L200 Level and the Main Concourse Level. The upper seating bowl will be similarly supported by steel raker beams that are supported by perimeter steel columns and the trusses noted previously. Since the entire Arena will be supported on the BCC framing, the control of the Arena's self-weight (i.e. dead load) will be a major focus of the Arena design. Therefore, alternate stadia unit systems will be evaluated. These will include composite stadia units that can save 100 PSF. Two potential systems that will be evaluated are SPS™ and DANT CLAYTON.

While concourse and suite levels are typically framed with slabs consisting of normal-weight concrete over composite metal deck, we will evaluate several systems to minimize the dead load applied to the BCC framing. Systems to be evaluated include lightweight composite concrete slabs on composite metal deck and SPS™ flat plates which can be 1/3 to 1/2 the weight of conventional slabs.

Lateral Force-Resisting System – Arena

The lateral force-resisting system (LFRS) resists the horizontal wind and seismic loads imposed on the building and provides horizontal stability to the structure. The Arena LFRS system is anticipated to be comprised of four primary steel braced frames (two oriented "East-West" and two "North-South"). These braced frames will be coordinated with the BCC framing below as well as the Arena programed space.

TELEDATA / AV / SECURITY DESIGN CONSIDERATIONS

TECHNOLOGY SYSTEMS

The technology systems currently installed in the BCC are many and varied. They include cabling systems that support a variety of voice, data, security, and audio-visual systems throughout the facility, as well as the actual voice, data, audio-visual, security, and related systems installed throughout both the East wing and West wing of the BCC. Below, we have provided a description of each system, as well as the key issues to consider when planning for the demolition of the East wing of the BCC.

Cabling Systems and Supporting Pathways and Spaces

There are (5) primary equipment spaces in the BCC, most of which will be affected by the demolition of the East wing of the building. The Data Center that supports the entire building is in a small room in the East wing of the building adjacent to the administrative offices. This room is approximately 200 SF in size. Five (5) equipment cabinets are in this room, and data network equipment, servers, etc. are installed in the cabinets. The space is small and cramped and was not originally meant as a data center space (looks more like an office space converted to a data center). This room is often referred to as the 200 East telecom room. Although this data center supports the entire building, most of the users (approximately 100) are in the Executive Offices (East), Public Safety (East), and adjunct offices (West). This space will definitely need to be relocated prior to the demolition. We recommend that the BCC consider a permanent location on in the West wing so it does not have to relocate twice.

The Security Command Center is supported by a small (approximately 50 SF) Security Server Room. This is also in the East wing adjacent to the Security Command Center. A single rack of equipment is housed here. More information about this is located in the Physical Security systems section below.

The PBX Room is in the West wing of the building near Sharp Street. It is approximately 400 SF and contains a Nortel (Avaya) Meridian TDM PBX, house copper cable, and some active data equipment. This is the equipment that provide analog and digital voice services in the building. There is some room in this space for additional equipment, and it should be considered when looking for a space to house the new data center.

Also in the West wing is the main AV Control Room, which is located on the L200 Level near Sharp Street. For more information about this room, see the Audio-Visual Systems section below.

Located in the southwest corner of East wing of the building is a Verizon Room. It is approximately 500 SF of caged-off space with multiple racks of equipment, power equipment, etc. For more information about this room, see the Distributed Antenna Systems section below.

Each of these rooms has backbone cables connecting them to core equipment, as well as horizonal cables (Category 5 and Category 6 copper, coaxial, etc.) providing connectivity to nearby devices.

From outside the building, service is provided from (2) locations. The first is from Charles Street on the east side, where (4) 4-inch conduits route into a large mechanical space (boiler room) above the security command center. Both copper and optical fiber cables follow this pathway and terminate in the Boiler Room. There is then a 100-pair copper cable that extends service from here to the PBX room on the west side of the facility. While there is fiber cable terminated here, it is believed to not be in use.

The second (and primary, we believe) is from Conway Street, where (6) 4-inch conduits route into a Laundry Room, which is located just west of the demarcation between the East and West sides of the building. Both optical fiber cable from AT&T and coaxial cable from Comcast take this route and terminate in the Laundry Room. From what we could discern, this pathway (and cables) may not need to be affected by the demolition of the East side of the facility, as we believe they follow a pathway that is entirely to the west (this needs to be confirmed prior to demolition).

There are approximately (15) telecommunications rooms (TRs) in the entire facility, (8) of which are located on the East side and support services on that side of the facility. A combination of optical fiber, copper, and coaxial backbone cables route from various locations in the building to each of these TRs. Cables to

these locations will need to be confirmed that they can indeed be removed (don't support anything on the west side) prior to demolition. Also, and active equipment (i.e. data switches) will need to be de-commissioned and de-installed prior to any demolition work. This can likely be provided by MC Dean, who has a contract to provide on-going moves, adds, and changes work in the entire facility.

AUDIO-VISUAL SYSTEMS

There are two primary components to the audio-visual (AV) systems at the BCC. The first of these is the management and distribution of presentation equipment (microphones, projectors, projection screens, etc.) throughout the facility. The second is the distribution of AV signals (primarily audio) throughout the meeting spaces.

The AV equipment is owned by BCC and managed under contract by Projection Presentation Technology. All the equipment is stored on premise, and Projection Presentation Technology is responsible for the maintenance, distribution, set-up, and support of all the equipment.

Audio signals (and occasionally video) are distributed throughout the BCC by a Peavey Media Matrix system that allows signal routing from any source location to any meeting location throughout the facility. The central processing for this system is housed in as AV room located on the L200 Level near Sharp Street. This space is approximately 200 SF and houses the Media Matrix System, as well as audio amplifiers for the West Building. East Building amplifiers are housed in an amp room on the East side.

It is anticipated that the demolition of the East Building will have little effect on AV operations. There may be some equipment storage/maintenance space that needs to be reallocated. However, this should be minimal. BCC may want to take this opportunity to dispose of older equipment that will become surplus, since technology will invariably advance during the design and construction of the new facility. Other than the removal of audio amplifiers and other signal chain equipment, the Media Matrix system can continue to function during demolition and reconstruction, as it is in the West Building. As part of the design process, BCC may want to explore the upgrade of the Media Matrix system, since by the time the project completes, this technology will also have improved. It is likely that IP network distribution of audio will be the state-of-the-art at that time. This type of technology may allow for much greater flexibility in signal routing.

PHYSICAL SECURITY SYSTEMS

The Physical security systems at the BCC consist of an access control system and a video management system. All equipment is owned by BCC and managed under contract by Honeywell. The "head-end" equipment for the security systems is in a small room (approximately 30 SF) in the East Building. All networking for the security systems is provided by a separate security network that is not part of the BCC administrative network. An optical fiber backbone cable connects the security server room to the West Building (fiber terminates in PBX room). Management and 24 x 7 monitoring of the security systems occurs in a security room located on the east side of the East Building.

There is a mix of analog and IP video cameras throughout the BCC. Approximately half (~120) of the cameras are on the Honeywell video management system. However, this continues to grow and is anticipated to be at 170 soon. The other half are on separate digital video recorders (DVRs). Because there are (2) separate systems, the operator is required to use (2) different viewing stations to be able to view all of the cameras. Currently there is storage for approximately 30 days of video. BCC has a goal of retaining 60 days of video.

Demolition of the East Building will require some efforts to relocate the security monitoring and server functions. Space in the West Building will need to be identified and built out to house the security monitoring function, as well as the housing of the system servers. Based on current operations, this space may need to be located adjacent to an employee entrance so that security personnel may observe employees as they enter the building. We recommend that a permanent space be selected to save the cost of a second move (i.e. from East Building to temporary space and then from temporary to permanent).

The relocated security servers will need to be connected to the security network in the West Building. Once this occurs, any network connected device (e.g. IP cameras, networked door controllers, etc.) will be functional. Any analog devices from the West Building that are cabled directly to the existing security

system in the East Building will require some level of re-cabling or replacement with up-to-date networked devices. As part of the detailed planning for relocation, all such devices will need to be identified, and a plan will need to be developed to provide for their continued operation.

DISTRIBUTED ANTENNA SYSTEM: CELLULAR

Based on documentation provided and our site visit, it appears that in approximately 1993, the City of Baltimore entered into an agreement with Bell Atlantic Wireless (predecessor to Verizon Wireless) to provide a neutral host Distributed Antenna System (DAS) to support cellular service within the BCC (and possibly the surrounding areas). This agreement was superseded by a new one executed in 2012 for a five-year term with a provision for three five-year extensions.

At the time of the new agreement, Verizon Wireless (VZW) installed a significant amount of equipment in approximately 300 SF of the southwest corner of the L300 Level of the East Building. Additionally, roof-mounted antennas and approximately 40 interior antennas were installed. What is unclear at this point (and can only be known through consultation with VZW) is the extent to which VZW uses this equipment as part of its macro cellular network as opposed to a simple in-building DAS which supports just the BCC. All this equipment is in areas that would be demolished, and it will have to be relocated.

Section 30, subsection f of the 2012 agreement provides the BCC with the right to terminate the agreement in the event the building is demolished or substantially renovated. However, it requires that the BCC "endeavor" to provide VZW with 12 months' notice prior to the effective date of any termination. The agreement also gives VZW the right of "first refusal" in any consideration of the installation of a new neutral host DAS. Because of the long lead times involved in this process, we recommend that VZW be contacted at the earliest possible time after determination of the course of future development.

It should be noted that there is some amount of revenue for the BCC due to this agreement. That revenue would be subject to renegotiation, along with all of the other terms of any new agreement with VZW.

SUSTAINABLE DESIGN CONSIDERATIONS

This narrative summarizes the assessment to date and highlights sustainable design features and approaches worth developing further as the project progresses. This narrative is organized by the generally accepted categories of concern for sustainable design. The conclusion touches on the different scenarios under consideration and offers some overall comments.

Location and Transportation

The existing project site in downtown Baltimore near the waterfront is ideal for intensive development. The surrounding density is high. Project users will benefit from many services and amenities within walking distance. The site is well served by quality transit including bus, light rail, rail, and water taxi ferries. Parking will be integrated into the building development, reducing the land area devoted solely to parking. To maximize the sustainable design elements related to transportation, the project should provide adequate but not excessive structured parking spaces, encourage use of low-emitting and fuel-efficient vehicles with preferred parking spaces or discounted parking rates, provide charging stations for electric vehicles, and provide bicycle storage and shower facilities for bicycle commuters.

Sustainable Sites

Rainwater management should meet rigorous Maryland standards. Entry plazas will provide pedestrian-oriented open space. Roof areas will minimize the heat island effect by being reflective, vegetated, and/or covered with solar panels. Green roof areas can be planted with native plant species to promote habitat. Lighting will be designed to minimize light pollution.

Water Efficiency

Water conservation will be a key aspect of the design, both inside and out. Interior plumbing fixtures will be selected to be WaterSense labeled with low flush and flow rates. Appliances such as clothes washers will be specified to meet ENERGY STAR or equivalent performance standards. Similarly, kitchen equipment that uses water (dishwashers, food steamers, combination ovens, etc.) should be specified to meet water-efficient standards. Outside, plants will be selected that need no watering, or irrigation water will be sourced from rainwater or other salvaged water.

To maximize the responsible stewardship of water resources, in design the following approaches should be considered and assessed. Sub-metering of major water uses can allow for ongoing monitoring of water use and targeted efforts at improving water conservation. Also, rainwater harvesting and reuse should be considered. The project's large roof can serve as a catchment area for rainwater that could be filtered and used for irrigation, toilet flushing, or mechanical equipment.

Energy and Atmosphere

Energy issues are central to sustainable design as they affect pollution, climate change, and ongoing costs to owners. Looking forward we suggest the following forceful approaches to energy issues:

1. Rigorous energy modeling starting early in design to identify and quantify opportunities for energy savings within each building and for possible synergies between systems serving various building functions. The modeling effort should investigate the energy saving benefits from many strategies, not only traditional HVAC systems but also envelope strategies like high performance glazing and other strategies such as drain water heat recovery.
2. Enhanced commissioning of building energy systems starting in Design Development phase to ensure that the delivered systems meet high performance goals. Commissioning of the building envelope should also be considered.
3. Energy and water metering for each building in the complex, and if possible advanced metering / sub-metering of major energy and water end uses. As mentioned above for water, sub-metering of energy end uses allows for informed ongoing monitoring and targeted responses to keep energy use and expenses at a minimum.

Consideration of demand response issues and determination whether load shedding or load shifting would be appropriate for any of the buildings.

On-site renewable energy systems. The roof area could support arrays of solar panels – photovoltaic panels to produce electricity and / or solar thermal panels to heat water. South and southwest facing exterior walls could have building-integrated photovoltaics (BIPV).

Materials and Resources

Wastes from demolition and construction should be well managed, and at least 75 % of such wastes will be salvaged. Products and materials will be specified that have environmentally, economically, and socially preferable life-cycle impacts. Adequate building areas and facilities will be included to allow for ongoing storage and collection of recyclables. For additional performance we suggest that the feasibility of composting food wastes be considered, and that the design incorporate composting equipment if appropriate.

Indoor Environmental Quality

The project should meet high industry standards for ventilation, indoor air quality, and thermal comfort. Interior materials will be selected that are low-emitting. A Construction Indoor Air Quality Management Plan should be prepared to require best construction practices for healthy indoor environments.

Conclusion

All four scenarios offer excellent opportunities for sustainable design. Scenarios 2 – 4 differ in the major building functions (Hotel, Arena, or both) added to the enhanced BCC of Scenario 1. Considering the environmental value of high density urban development and maximal utilization of urban land, Scenario 4 with all three building functions could be preferable. With strong commitment and resources dedicated to sustainable design any of the scenarios could be developed with a LEED Gold certification as the goal. With exceptional design performance and a bit of luck, a Platinum certification for one or more of the buildings in the project might be a possibility.

SPACE PROGRAM TABULATION

CONVENTION CENTER (500,000 SF Exhibit Hall)	Idealized Program
PUBLIC LOBBIES, CONCOURSES & REGISTRATION	
Public Lobbies & Entrances	24,450
Registration	27,000
Pre-Function Concourses	95,202
Other Public Circulation, Verticality	44,000
Sub-Total	**190,652**
EXHIBIT HALLS	
Exhibit Hall, Lower Level	500,000
Sub-Total	**500,000**
ASSEMBLY SPACES	
Grand Ballroom	60,000
West Ballroom	36,672
MEETING ROOMS	
Rooms >10,000 SF	21,600
Rooms 5,000 SF to 10,000 SF	50,400
Rooms 2,000 SF to 5,000 SF	48,600
Rooms <=2,000 SF	3,600
Board Room Suites	2,400
Sub-Total	**223,272**
FRONT OF HOUSE SUPPORT AREAS	
CLIENT SUPPORT SPACES	
Registration Offices	1,050
Show Manager Offices	4,000
Media Room / Interviews	400
VIP Hospitality Suites	TBD
Green Rooms / Group Rooms	1,800
PUBLIC AREA SUPPORT	
Information / Business Center	*TBD*
Coat Check	2,900
Public Restrooms	50,600
First Aid Rooms	1,600
Circulation & Unassigned	15,600
Sub-Total	**77,950**

CONVENTION CENTER (500,000 SF Exhibit Hall)	Idealized Program
BACK OF HOUSE SERVICE AREAS	
Loading Dock, Exhibit	24,800
Compactors / Recycling Station	4,800
Public Safety & Security Office	2,200
Dockmaster Office	200
Receiving and Warehouse	18,100
STORAGE	
Meeting & Banquet	20,100
Operable Walls	4,500
General Building	12,060
Audiovisual / Production	5,400
Exhibitor Storage	*TBD*
ENGINEERING & MAINTENANCE SHOPS	
Electrical Shop	1,600
Paint Shop	1,600
Carpentry Shop	1,600
Landscape Shop	1,600
Engineering Shop	1,600
Employee Locker Rooms	1,600
Employee Break Rooms	2,400
Training Room	1,000
Operations Office - 10 workstations	2,200
Audio Control /Amplifier Rooms	1,000
Service Contractor Offices (electrical, AV, event security)	3,000
Crew Room / Decorator Offices	1,500
Housekeeping/Janitorial	2,200
Housekeeping Laundry	300
Back-of-House Service Corridors	78,480
Utility Corridor / Mezzanine	0
Main Point of Entry (MPoE)	600
MDF / Network Operations Center	2,100
Low Voltage / IT Closets	4,200
Neutral Host / DAS Services	1,800
Electrical Distribution Rooms	18,100
Air Handling Rooms	57,900
Central Plant / Switchgear Room	28,900
Emergency Generator Room	3,200
Circulation & Unassigned	29,600
Sub-Total	**340,240**

CONVENTION CENTER (500,000 SF Exhibit Hall)	Idealized Program
FOOD SERVICE AREAS	
Food Service Dock (Upper)	2,650
Composting / Refrigerated Trash Room	600
Receiving Office	300
Receiving Holding - Dry Storage, Walk-Ins	1,150
Commissary	5,650
Executive/Marketing Offices	1,200
HR / Operations Offices	2,100
Secured Money Room	150
Central Banquet Kitchen	16,700
Chef Offices	900
Chef's Table / Tasting Room	1,500
Satellite/Plating Kitchens	6,400
Concessions	4,800
Pantry / Setup	400
Dish / Warewashing	2,000
Food Service Storage	2,000
Staffing Office / Uniform Issue	1,200
Staff Cafeteria / Lunch Room	2,250
FS Staff Lockers / Toilets	1,800
Circulation & Unassigned	5,400
Sub-Total	**59,150**
VENUE MANAGEMENT	
Reception	400
Director	250
Enclosed Offices (12 @ 150 SF)	1,800
Workstations (16 @ 80 SF)	1,280
Conference Rooms, Large (1 @ 1,250 SF)	1,250
Conference Rooms, Medium (2 @ 400 SF)	800
Conference Rooms, Small (2 @150 SF)	300
Break Room/Kitchenette	400
Restrooms	500
Workroom, Storage & Supplies	600
Secured Money Room	150
Circulation & Unassigned	3,100
Sub-Total	**10,830**

CONVENTION CENTER (500,000 SF Exhibit Hall)	Idealized Program
VERTICAL CIRCULATION	
Allowance for Escalators	28,800
Allowance for Elevators	17,900
Stair Towers	57,800
Sub-Total	**104,500**
Enclosed Building Area*	***1,506,594***
UNCONDITIONED AREAS	
Exterior Terraces, Drop-Off Curb	28,800
Truck Ramps	17,900
Truck Apron, Exhibition	57,800
Truck Apron, House Support	104,500
Sub-Total	**1,506,594**

GROSS CONVENTION CENTER AREA PROGRAM	Idealized Program
Total	**1,663,094**

ARENA (15,000 Seats Basketball, 13,000 Seats Ice Sheet, 17,500 Seats Concert)	Idealized Program
SPECTATOR FACILITIES	
HOCKEY SEATING	
Lower bowl general seats	44,514
Lower bowl club seats	1,907
Lower bowl loge seats	0
Lower bowl balcony seating	0
Lower bowl bar seats	*in concourse*
Lower bowl accessible seating	*in concourse*
Lower bowl companion seating	*in concourse*
Suite level 1 standard suite seats (12 @ 16 seats ea.)	*in next section*
Suite lv1 standard suite bar seats (40 @ 4 sts ea.)	*in next section*
Suite level 1 opera boxes	937
Suite level 1 opera box bar seats	*in concourse*
Upper bowl general seats	30,750
Upper bowl accessible seating	*in concourse*
Upper bowl companion seating	*in concourse*
Bridge level seats	0
Basketball seats in excess of hockey configuration	*in event floor*
SUITES	
Suites seating 16 (12)	6,240
CLUB LOUNGES	
Suite level Loge Box Club	4,000
SUITE LEVEL RESTROOMS	
Men's toilets	1,000
Women's toilets	1,000
MAIN CONCOURSE PUBLIC RESTROOMS	
Men's fixtures	4,176
Women's toilets	5,814
UPPER CONCOURSE PUBLIC RESTROOMS	
Men's fixtures	2,970
Women's toilets	4,135
Family toilets	280
GUEST SERVICES	
Primary First Aid Station	300
Satellite First Aid Station	200
Information and Lost & Found Booth	300
Sub-Total	**108,523**
Design Contingency Multiplier - 10% (Excludes Seating Bowl)	**3,041**
Sub-Total	**111,565**

ARENA (15,000 Seats Basketball, 13,000 Seats Ice Sheet, 17,500 Seats Concert)	Idealized Program
FOOD AND RETAIL FACILITIES	
CONCESSION STANDS	
Main Concourse General POS	6,921
Upper Concourse General POS	4,923
Public Bar	1,000
FOOD SERVICE SUPPORT	
Central Kitchen	7,000
Commissary	4,440
Empties Storage	640
Suite Pantries	1,830
Vendor Office('s)	2,400
Staff Lockers / Toilets	2,120
Uniform Distribution	480
RETAIL SALES	
Satellite Retail Store	600
Retail Storage	500
Sub-Total	**32,854**
Design Contingency Multiplier - 10%	**3,285**
Sub-Total	**36,139**
CIRCULATION	
LOBBIES	
Main Entry Lobby	14,630
Secondary Lobbies	1,000
CONCOURSES	
Main Level Concourse	64,800
Upper Level Concourse	45,900
CORRIDORS	
Service Corridor on Event Floor	24,000
Suite Corridors on Suite Level	20,000
Press Corridor	11,400
VERTICAL CIRCULATION	
No. passenger/service elevators	880
No. of freight elevators	440
Sub-Total	**183,050**
Design Contingency Multiplier - 2.5%	**4,576**
Sub-Total	**187,626**

ARENA (15,000 Seats Basketball, 13,000 Seats Ice Sheet, 17,500 Seats Concert)	Idealized Program
EVENT FACILITIES	
Event Floor	17,000
HOCKEY	
Player Benches	360
Penalty Boxes	60
Penalty Timekeeper Box	30
Goal Judge's Box	18
PERFORMERS	
Performers Space	3,200
Event (Show)	820
Sub-Total	**21,488**
Design Contingency Multiplier - 10% (Excludes Event Floor)	**449**
Sub-Total	**21,937**
TEAM FACILITIES	
Locker	11,000
Family Lounge	1,450
Visitor Lockers	4,250
Auxiliary Lockers	6,600
Officials Lockers	1,130
X-Ray	300
Sub-Total	**24,790**
Design Contingency Multiplier - 10%	**2,479**
Sub-Total	**27,269**
MEDIA FACILITIES	
PRESS SUPPORT	
Work Room - Print Reporters	540
Work Room - Radio Reports	540
Secured Storage	300
PRESS BOX	
Writing Press Room - seating for 150 writers	3,600
TV Broadcast Booth(s)	880
Radio Broadcast Booth(s)	660
Off-Ice Officials Booth	180
Replay Booth	180
GM Booth(s)	600
Copy / Work Room	300

ARENA (15,000 Seats Basketball, 13,000 Seats Ice Sheet, 17,500 Seats Concert)	Idealized Program
MEDIA FACILITIES - CONTINUED	
Press Toilets	380
Security Booth	180
Secured Storage	150
CONTROL ROOMS	
Scoreboard Operator Booth	800
Sound and Light Booth	170
Equipment Room (audio system, television)	670
Patch Panels/Broadcast Connections	420
Sound/production studio	880
INTERVIEW FACILITIES	
Multi-purpose/ press Conference Room	2,000
Sub-Total	**13,870**
Design Contingency Multiplier - 10%	**1,387**
Sub-Total	**15,257**
OPERATIONS SUPPORT	
Event Personnel	2,500
Building Staff	3,000
Event Storage	2,000
Concert and Other Event Equipment Storage	6,820
General Storage	5,300
Dock / Staging	14,000
Trash Compactor/ Dumpster	1,160
Office	100
ICE SUPPORT	
Zamboni / Ice Equipment / Ice Dump	1,080
Ice Control Office	120
Ice Plant	2,340
Security Office	1,200
Maintenance	2,950
JANITORIAL	
Central Janitorial Supply Storage	1,170
Distributed Janitor Closets	480
Building Laundry	470
Trash Collection Rooms	800
Recycling Rooms	400

ARENA (15,000 Seats Basketball, 13,000 Seats Ice Sheet, 17,500 Seats Concert)	Idealized Program
OPERATIONS SUPPORT - CONTINUED	
M/E/P	
Mechanical Rooms (AHU)	10,000
Boiler Room	2,560
Chiller Room	4,700
Main Electrical Service Entry	1,620
Quad Electrical Rooms	5,200
Electrical Closets	5,000
Show Power panels	450
Main Tele/data Room	1,000
Main Cell Equipment	1,050
Tele/data closets	2,000
Fire Pump Room	400
Fire Sprinkler Shut-Off Room	200
Elevator Equipment Room(s)	300
Sub-Total	**80,470**
Design Contingency Multiplier - 10%	**8,047**
Sub-Total	**88,517**
ADMINISTRATION	
Ticket Office	2,500
Sub-Total	**2,500**
Design Contingency Multiplier - 10%	**250**
Sub-Total	**2,750**

GROSS ARENA PROGRAM AREA	Idealized Program
Building Total Net SF Parts 1-8 (Base Building)	**491,061**
+ Net to Gross Multiplier - 15%	**73,659**
Total	**564,720**

HOTEL (500 Keys)	Idealized Program
ACCOMMODATIONS	
GUEST-ROOMS:	
Double-Double (150)	56,250
King (270)	101,250
Junior Suite (16)	9,000
Club Level Guestroom (50)	18,750
M Club Lounge (0)	1,500
Vip Suite (12)	9,000
Presidential Suite (4)	3,750
GUEST-ROOM SUPPORT:	
Circulation (20%)	39,900
Stairs (5%)	9,975
Maid/Vending (100 Sf/Floor Ea Min)	2,390
Guest Laundry	225
ELEVATORS:	
Public Elevators	12,000
Service Elevators	3,000
Freight Elevators	1,600
Elevator Lobbies	12,000
Sub-Total	**280,590**
PUBLIC SPACES	
MAIN LOBBY:	
Jump Lobby	1,000
Lobby	5,020
Reception	502
Concierge Desk	*incl in Lobby*
Safe Deposit	126
Bellman Station	50
Luggage Storage	502
Public Toilets	700
FOOD AND BEVERAGE	
Dining, Specialty (100 Seats)	2,210
Dining, Casual (160 Seats)	3,350
Buffet	600
Pool Bar (Includes Food Prep & Storage)	800
Lobby Lounge / Lobby Bar (120 Seats)	2,400
FUNCTION SPACE: (To Be Confirmed by Operator & Selected Flag)	
Grand Ballroom (1,200 Seated)	24,000
Ballroom Prefunctions	24,000
Junior Ballroom S (1,200 Seated Combined)	24,000

HOTEL (500 Keys)	Idealized Program
PUBLIC SPACES - CONTINUED	
Meeting Rooms	15,060
Ballroom Storage	10,000
Business Center	300
Ballroom A/V	500
Ballroom A/V Storage	1,500
Banquet Manager's Office	80
Meeting Planner's Office	100
Public Toilets	5,000
COMMERCIAL:	
Retail Shop	1,500
Retail Storage	1,000
RECREATIONAL: HOTEL	
Fitness (Includes Lockers, Toilets, Etc)	1,200
Pool Toilets, Lockers & Towel Storage	150
Pool Equipment Storage	150
RECREATIONAL: POOL & DECK	
Swimming Pool	800
Pool Deck	7,200
Sub-Total Podium	**133,800**
Public Circulation (20%)	**23,865**
Subtotal Public Spaces	**157,664**
Subtotal All Public Spaces	**438,254**
SUPPORT AREAS	
OFFICES: FRONT OFFICE	
Executive Assistant Manager - Rooms	150
Front Office Manager	100
Secretarial (2)	100
Assistant Manager	100
Reservations Manager	100
Reservations Office	250
Reception Area	120
Support Staff	160
Count Room	100
OFFICES: SALES & ADMINISTRATION	
General Manager	200
Executive Assistant Manager - F&B	150
Public Relations Director	150
Executive Secretaries	150
Conference Room	250

HOTEL (500 Keys)	Idealized Program
SUPPORT AREAS - CONTINUED	
Reception Area	250
Sales Director	180
Sales Manager (2 @ 100 Sf)	200
Book Room	100
F&B Manager	150
Catering Manager	200
Support Staff	300
Mail & Copy Room	200
OFFICES: ACCOUNTING	
Comptroller	150
General Cashier	120
Assistant Comptroller	100
F&B Comptroller	100
Bookkeeping	600
Payroll	100
Computer	225
Work Room/Copy/Storage	200
EMPLOYEE FACILITIES	
Employee Entrance	50
Lockers/Toilets (200 Female @ 5Sf = 1,000 Sf; 175 Male @ 5Sf = 825 Sf)	1,825
Security	120
Cafeteria (70 Seats; Incl Serving & Vending)	1,200
HUMAN RESOURCES OFFICE:	
Waiting Room	100
Personnel Director	120
Assistant Personnel Director	100
Secretary & Files	150
Interview Room	80
Training Room	350
Circulation, Support Areas (30%)	2,805
FOOD AND BEVERAGE SUPPORT:	
MAIN HOTEL KITCHEN	
Food Prep Areas	2,000
Chef's Office	100
Steward's Office	100
Dry Storage	1,255
Refrigerated Storage	800
Freezer Storage	400
Ice Machines	300
Beverage Storage	200

HOTEL (500 Keys)	Idealized Program
SUPPORT AREAS - CONTINUED	
Liquor Storage	200
Ware Storage	400
Dishwash	400
Bakery	400
Room Service Prep	200
Toilets	400
Remote Kitchen Storage & Staging	1,500
Remote Restaurant Kitchen (Specialty Restaurant)	1,500
Remote Banquet Finishing Kitchen	1,000
Banquet Ice/Beverage	250
Roof Top Catering Kitchen	1,000
OPERATIONAL SUPPORT: HOUSEKEEPING	
Laundry Work Area	2,000
Soiled Linen	200
Laundry Manager	100
Valet	350
Detergent Storage	60
Executive Housekeeper	120
Assistant Housekeeper	200
Uniform Issue/Storage	505
Equipment Issue	150
Housekeeping Work Room	400
Lost & Found	100
Secure Storage (2 @ 250 SF)	505
Night Cleaner's Storage	130
OPERATIONAL SUPPORT: SHIPPING/RECEIVING	
Purchasing/Receiving Office	175
Receiving/Staging Area	505
Toilet Room (500 SF @ 50%)	25
Truck Dock (200 SF @50%)	250
Trash, Compactor	100
Trash Room	100
Trash, Refrigerated Garbage	150
Trash, Can Wash (50 SF @ 50%)	25
Trash, Bottle Storage	75
General Storage (F&B 25%; Rooms 25%; Furniture 15%; Misc 35%)	2,273
OPERATIONAL SUPPORT: ENGINEERING & MAINTENANCE	
Maintenance Engineer	100
Assistant Engineer	100

HOTEL (500 Keys)	Idealized Program
SUPPORT AREAS - CONTINUED	
Engineer's Storage	300
Carpentry Shop	200
Paint Shop	200
Plumbing Shop	75
Electrical Shop/Tv Repair	200
Kitchen Shop	75
Key Storage	75
Television Storage	75
Tool Crib	100
Landscape Equipment, Office, Shop, Etc. (Contracted Services, No Space Required)	0
OPERATIONAL SUPPORT: MECHANICAL/ELECTRICAL	
Mechanical Plant	2,510
Elevator Equipment	400
Refrigeration Equipment	200
Electrical Service	400
Telephone Equipment	100
Catv/Data/Sound Equipment	100
Fire Control	100
Emergency Generator	300
Transformer	150
Sub-Total Mech / Elec	**4,260**
Sub-Total Support Areas	**26,663**
Circulation, Support Areas (20%)	**5,333**
Subtotal All Support Areas	**31,995**

EXTERIOR COVERED AREAS	
Porte Cochere	1,000
Lobby Terrace	3,000
Sub-Total	**4,000**

GROSS HOTEL PROGRAM AREA	Idealized Program
Total	**471,599**

PROJECT TEAM

PARTICIPANTS

Maryland Stadium Authority
Baltimore Convention Center
Downtown Partnership
Visit Baltimore
Royal Farms Arena
Baltimore Development Corporation

ARCHITECTS

Ayers Saint Gross | LMN Architects | Populous | Perkins Eastman

CONVENTION CENTER PROGRAMMING

Conventional Wisdom

M/E/P/FP ENGINEERING

ME Engineers | GES

STRUCTURAL ENGINEERING

MKA | Thornton Tomasetti | Cagley Associates

CIVIL ENGINEERING

RKK | ALA

TRAFFIC ENGINEERING

Symmetra Design

IT/AV/SECURITY DESIGN

speXsys

GEOTECHNICAL ENGINEERING

Findling

SUSTAINABLE DESIGN CONSULTING

SDC

ENVIRONMENTAL CONSULTING

Aria Environmental