Pinnacle Advisory Group | Touloukian Touloukian Inc. | McDermott Ventures | CHMWarnick

Economic Analysis and Planning

Chapter 2: Boston Convention & Exhibition Center

MASSACHUSETTS CONVENTION CENTER AUTHORITY

Boston, MA

March 2025

View from Summer Street | Photo Credit: Signature Boston

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Executive Statement

A Vision for the Future

The Boston Convention and Exhibition Center (BCEC) is well positioned to sustain its success, but is forecasted to operate at a financial operating loss and requires capital investment for deferred maintenance and sustainability. Economic impact metrics confirm the importance that the BCEC is to the City of Boston and the Commonwealth of Massachusetts.

Chapter 2 is dedicated to the analysis and future development of the BCEC. The Economic Analysis and Planning RFR, established by A&F, outlined key opportunities for growth and development, which served as the framework for this study. Our team has structured the assessment, scope, and key ideas for the BCEC into a comprehensive report focused on key areas impacting ongoing operations, sustainability initiatives, capital planning opportunities, and community engagement, particularly within the surrounding neighborhoods of South Boston, Fort Point, and Seaport. The report highlights specific opportunities for the BCEC to engage with and better serve the diverse community within these neighborhoods as well as the broader Boston and Massachusetts regions.

Additionally, a market and financial analysis has been developed to support the continued competitive and financial success of the BCEC, aiming to both sustain and enhance these aspects of the BCEC. Our findings outline guiding principles for interdisciplinary advancement of the facility, with key findings that build upon the MCCA's ongoing efforts to maintain and elevate the BCEC's success, and the Economic Development objectives for The Commonwealth.

Key Findings:

- Improve communications with stakeholders across the City.
- Provide opportunities for small, minority owned, and non-profit MA industries to showcase and participate in the economic upside of the convention business, as well as promoting use of the Lawn-on-D and other spaces within the BCEC.
- Continue addressing ongoing deferred maintenance projects. Coordinate with sustainability goals.
- Prioritize decarbonization and net carbon neutral operations. Execute energy conservation measures, and fuel switching from gas to electric systems. Implement on-site solar pv, and off-site renewable procurement.
- Focus long term planning that minimizes risks associated with climate related hazards.
- Schedule key capital projects that improve the functionality of the current facility.
- Align key sales resources to sell new innovation industries for all three facilities.
- Structure reporting with similar platforms between the BCEC, HCC and MMC.
- Conduct operational assessments that identify specific opportunities to grow revenues and reduce costs.
- Further review options in order to set direction for potential BCEC expansion.

Exhibit Hall | Photo Credit: Signature Boston

02
Inventory of Existing Land & Buildings

The Boston Convention and Exhibition Center (BCEC) is situated in South Boston, on the edge of Boston's Seaport District. The BCEC site features the convention center, the lawn on D, a surface parking area, and the Westin Boston Seaport hotel.

The property includes land and air easements along West Service Road, significant projected flood risk per Climate Ready Boston projections, and a notable heat island effect present in and around the site.

According to Boston tax data, the site is primarily classified as tax-exempt/institutional, except for the north east corner where the Westin is located, which is classified as commercial. Most of the study area (within a 1000-foot radius) features commercial or industrial uses, with some residential uses to the south and west. The site falls within the South Boston zoning district, with subdistricts I-2 General Industrial and M-4 Restricted Manufacturing. It is also subject to Restricted Parking District and Coastal Flood Resilience Zoning Overlays.

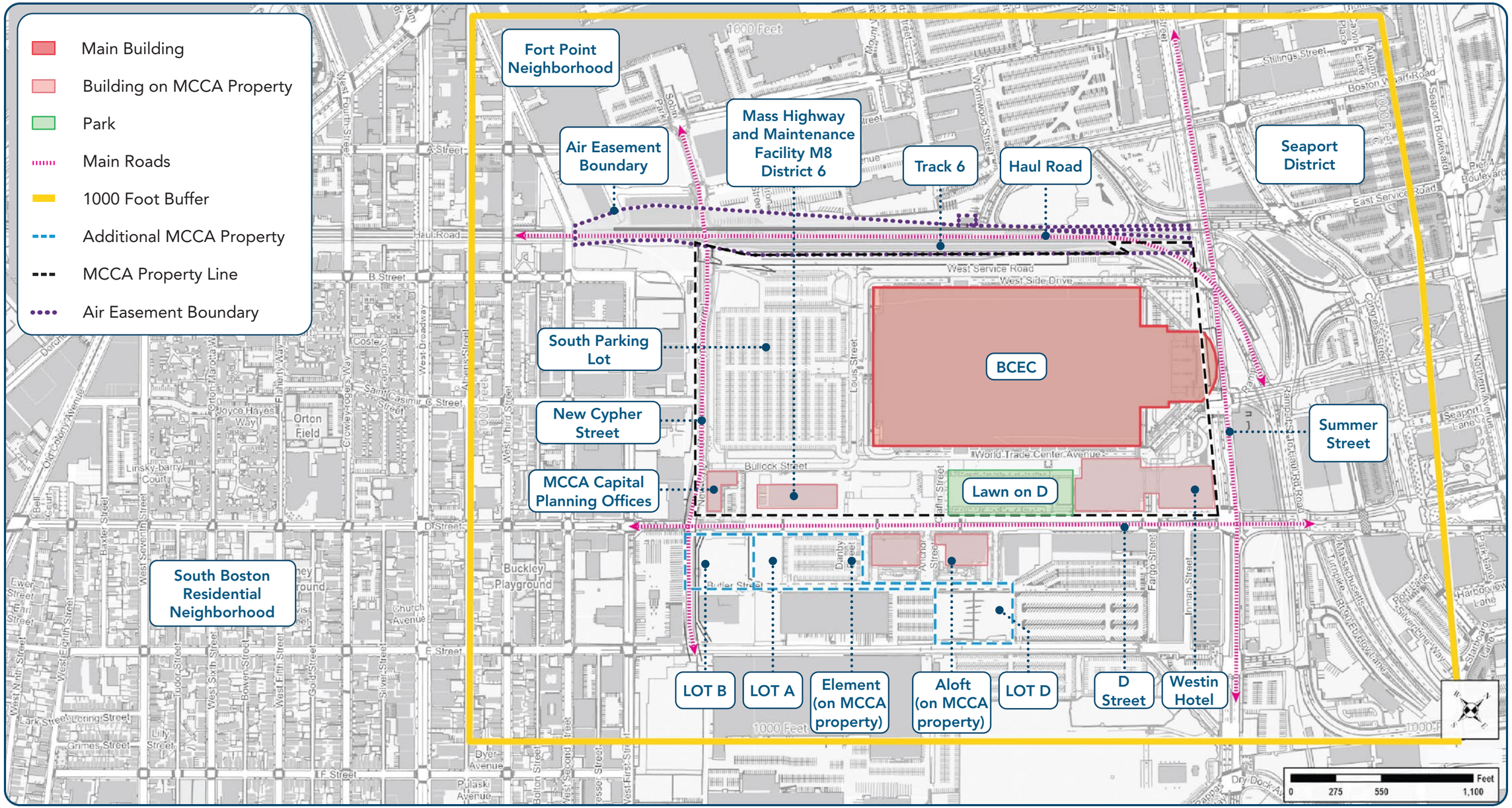
A low-lying site adjacent to Boston Harbor, the BCEC is at risk for flooding. FEMA floodplain boundaries indicate the western edge of the site is within the 100-year floodplain, and City of Boston flooding projections show that almost the entirety of the site is at risk of flooding by 2050.

City of Boston heat island mapping shows the area surrounding the BCEC is disproportionately hot compared to the city standard, influenced by paved and impervious surfaces and lack of shade.

MCCA-owned properties (lots C,D and E) adjacent to BCEC, while not currently providing public-facing functions, were acquired with the intention of supporting the future strategic vision for BCEC as it evolved and developed alongside neighboring communities and the regional economy. These parcels offer development opportunities, but decisions about their future should be made consistent with a long-term strategy for BCEC; whether and how it expands, and whether additional hotel capacity may be needed to support its growth.

Key Findings:

- Existing BCEC lot is approximately 2,623,898 sf. Lots C, D, and E are surface lots that represent additional future development opportunities.
- Land and air easements are along the West Service Road and near the front entrance on Summer Street.
- According to Boston tax data, the site is primarily classified as tax-exempt/institutional, except for the East corner where the Westin is located, which is classified as commercial.
- The site is within the South Boston zoning district, with subdistricts I-2 General Industrial and M-4 Restricted Manufacturing. It is subject to zoning overlays including the Restricted Parking District and Coastal Flood Resilience Overlay.
- FEMA floodplain boundaries indicate that much of the western edge of the site is within the 100-year floodplain, and City of Boston flooding projections show that almost the entirety of the site is at risk of flooding by 2050.
- City of Boston heat island mapping shows that the area surrounding the BCEC is disproportionately hot compared to the city standard.
- The Mass Highway and Maintenance Facility is required to move based on notification by the MCCA.



Existing Conditions Map | Credit: Touloukian Touloukian

03
Community Engagement

Praised for its modern expansive space and its role for attracting international events to Boston, the BCEC has been described by the Boston Globe as a 'sprawling, state-of-the-art facility' ideal for massive conventions and trade shows.

The BCEC has received accolades for its cutting-edge facilities, technology, location and as an economic driver for the city, helping to bolster the local economy through tourism, hospitality, and related industries.

Playing a pivotal role in putting the Seaport on the map, The BCEC was a catalyst in transforming it into a thriving hub of commerce, culture and innovation.

The BCEC resides in South Boston and is adjacent to the Fort Point Channel and St. Vincent's neighborhood. When the BCEC was proposed, public meetings and discussions were held and agreements with the neighborhood were developed. These agreements are still in place today.

Key Feedback:

- *"MCCA takes up a lot of real estate - we have a responsibility to give back in our role as the owners of public space."*
- *"The Seaport is difficult to get to from neighborhoods around Boston."*
- *"Convention Centers boost the economy but do feel like big concrete blocks with private events."*
- *"There is a tremendous opportunity to showcase what Massachusetts is known for with an international audience."*

The BCEC

There is a tremendous opportunity for the BCEC, to become a beacon for the tourism industry in Boston, sharing our local talent in big business and emerging industries with the world.

Communications

Communications with the local neighborhoods has improved under the recent leadership team, including community collaboration around the new park on Cypher Street. However, Discovery Group and direct Interview participants emphasized that ongoing communications will be paramount.

The existing communications team has an ongoing relationship with South Boston residents and non-profits. Meetings are an avenue to update the local neighborhoods on upcoming conventions, provide information on events at the Convention Center and availability of community space, and to identify local innovators to showcase at targeted conventions.

The new Executive Director should take time to meet with the neighborhoods the first few months in the position as it will be essential to building strong relationships and to fostering collaboration.

Should there be any discussion around new development, the community and the BPDA should be notified to ensure that the Design and Development processes are managed under the Article 80 guidelines.

BCEC Today

Currently, the communications team has several local and citywide initiatives underway:

- $5 million to date from percentage of parked cars, tickets, tickets from gated shows
- Community Partnership Grants and Hospitality fund supports additional neighborhoods in Boston
- 40 Tons of Donated goods through C.A.R.E
- MCCA Arts program
- Holiday programs including Toys for Tots
- Madison Park Partnership to support culinary and hospitality programs
- In kind support including loaning Marquee, equipment at local events

Community + Industry Engagement

As noted in the Community Engagement section, a key recommendation is the creation of **'Convener space'**, a multi-use community space at the BCEC. The space at the BCEC can be activated during and outside of convention dates with the input of the newly formed 'Community Engagement and Collaboration Team'. This space connects local businesses, nonprofits, arts organizations, and industry leaders to the broader community, offering a unique platform for industry showcases, arts exhibits, community hosted events, networking, and non-profit activation. For example, during a convention, the convener space will invite and highlight sector-leading businesses and local cultural and non-profit communities to provide an opportunities to interface with convention audiences and share what makes Massachusetts the innovation center of the U.S.

The communications team is making strides to enhance outreach regarding the availability at Lawn on D. It is recommended that the team build upon this initiative by expanding to all communities in Greater Boston and publicizing the opportunities through the media, social media, and other direct channels.

Additional ideas include:

- Activate the BCEC side of Haul Road.
- Improvements along Track 61 – possibility for Rail Trail or other pedestrian benefits.
- Re-engage the public housing community by D Street – explore opportunities to partner with residents from underserved populations that could be trained for hospitality jobs.
- Grow a hydroponics garden to use for educating as well as used in meals at the Convention Center.

Focus on Art

'The BCEC has an established art organization of over 500 members right next door.'

The BCEC is a long-time sponsor of the Fort Point and South Boston arts scenes. Community discovery groups revealed that the BCEC has an advantage. There is an established art district next door in the Fort Point, and a recognized citywide arts organization, Artists for Humanity, close by in South Boston.

Our interviews offered additional ideas to include:

- Midway Art Report: a new specialty magazine by Fort Point artists could be used to educate conventioneers about the area.
- Use BCEC walls inside and out to tell the story of the neighborhood.
- Incorporate art into wayfinding, crosswalks, and signage, for example, the light poles along D Street. There is an opportunity to brand the 'district' and make visible connections between the BCEC and surrounding neighborhood and hospitality venues.
- Explore how this central location can represent all neighborhoods of Boston – not only through art installments but performance arts and partnerships.

04
Usage & Demand

This section of the report provides an analysis of the usage and demand of the Boston Convention & Exhibition Center (BCEC).

This section aims to assess the current usage and future demand for the Boston Convention & Exhibition Center, located in the Seaport neighborhood of Boston, Massachusetts. The sales and marketing efforts of this venue is led by the Boston Convention Marketing Center (BCMC), which is the single point of contact for event requirement submissions, hotel room blocks, facility contracts, and site visits.

Understanding the patterns of usage and the market demand is essential for optimizing operations, capital planning, and identifying potential market segments for growth. By analyzing historical trends and future patterns, strategic insights can be formed to optimize the convention center's usage and ensuring long-term sustainability.

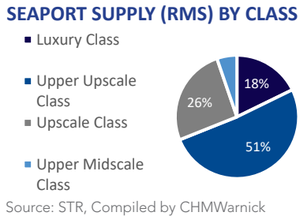
Key Findings:

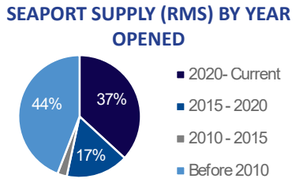
- Explore strategies to increase room block commitments from Seaport Hotels, including those not directly connected to the BCEC.
- Ensure alignment with the overall economic development plan.
- Improve coordination with the MCCA regarding the availability and promotion of the Lawn on D.

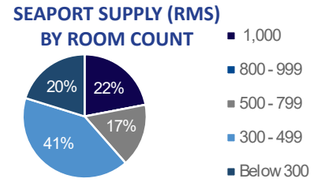
Seaport Hotel Market

Supply Overview

Boston's Seaport District has undergone significant transformation over the past decade. Once an industrial area dominated by shipping and warehouses, the Seaport has experienced rapid redevelopment and is now considered one of the most vibrant and affluent neighborhoods in Boston, featuring modern office buildings and luxury residential towers, and serves as a hub for innovation and technology. With this new development also comes hotels. Seaport is a relatively new hotel market with over one-third of its supply built within the last four years. Given the new construction and high-end positioning of the hotels serving this market, Seaport is a very expensive and high-demand hotel market, which impacts group room block availability.

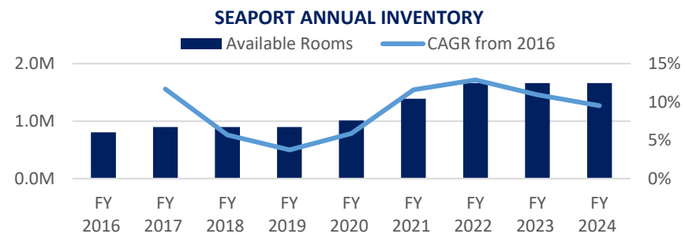






Source: STR, Compiled by CHMWarnick

As of June 2024, there are 12 existing hotels in Seaport with a total key count of 4,551. The product in Seaport is majority upper-priced hotels, representing 87% of all Seaport supply. There are two lower-priced hotels in the market rated as upper midscale by STR with 252 rooms and 326 rooms, representing only 12.6% of the inventory in the Seaport.



Source: Pinnacle Perspective

The average hotel size in Seaport is 400 rooms. Excluding the two largest hotels, the average hotel room count drops to 295 rooms. Only one hotel has more than 1,000 Rooms, The Omni Boston Seaport Hotel, which opened in September 2021, located across the street from the BCEC. The Westin Boston Waterfront has 793 rooms and is adjacent the BCEC. These two hotels comprise 39% of Seaport Inventory. Of the two largest hotels, only the Westin has a Room Block Agreement in place with MCCA.

Excluding the two headquarters hotels, the average room count is rather small and requires room blocks at multiple hotels. While the Hotel Relations team can mitigate the planning time associated with coordinating amongst a wider group of properties, it is still not ideal from a meeting planner perspective to have convention groups divided among so wide a set of properties, and the time investment required for the hotel relations team to coordinate these room blocks is significant.

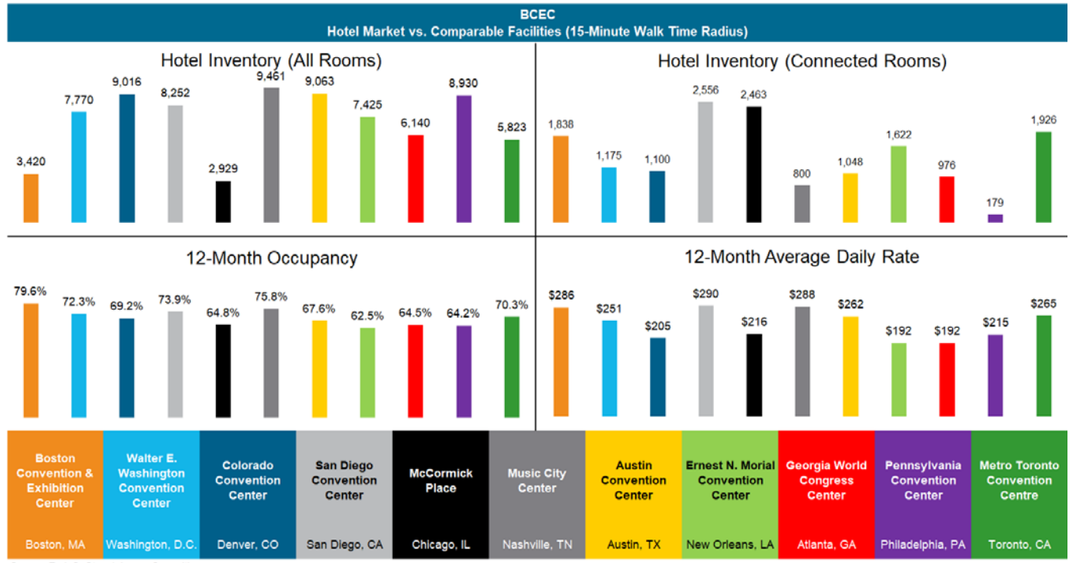
In FY24, citywide events at the BCEC averaged attendance of over 10,700 per event, more than double the current Seaport hotel supply. The BCMC notes that 140,000 RNs are generated by the BCEC outside the Seaport. Meeting planners are forced to look outside Seaport for additional hotels, adding transportation and logistics costs for the event.

Hotel Market Compared to Comparable Facilities

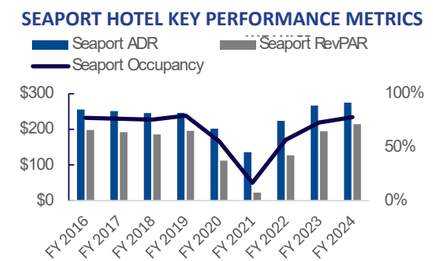
Relative to competitors, the BCEC is significantly undersupplied in terms of walkable hotel rooms relative to benchmark facilities. Although there has been significant hotel inventory growth in the area, the 3,420 rooms within a 15-miunte walk of the BCEC represents only 48% of benchmark average. Not only are there significantly fewer walkable hotel rooms today, lodging inventory is projected to grow much more slowly over the next five years.

Further, BCEC's walkable hotel inventory has highest the occupancy (79.6%) within the comp set. This, in tandem with the high ADR (3rd highest in the benchmark set), contributes to challenges securing room blocks and at reasonable rates.

Seaport is considered one of Boston's most dynamic markets, driven by interest in mixed-use and sustainable developments. Notably, retail has seen the least growth of any of the major land use types, with most growth coming in office, multi-family, and hotel. This is largely due to the fact that the 15-minute walk catchment misses the northernmost corner of Seaport, which contains over 400,000 square feet of retail space, most of which has been built within the last 20 years. This space effectively serves the BCEC, even though it is slightly outside of the walk-time catchment.



Performance



Source: Pinnacle Perspective

In FY24, Seaport achieved an occupancy of 78% and an ADR of $275, resulting in RevPAR of $214. Despite the significant increase in rooms for Seaport (average increase of 9% per year since FY16), FY24 occupancy at 78% is in line with pre-pandemic averages and only 1.4 points shy of peak occupancy. Total occupied rooms in Seaport equaled almost 1.3M in FY24, over 580K greater than FY19 equivalent to 82% growth. The Seaport's rising demand, largely driven by new corporate, especially biotech, presence, has absorbed the increased hotel inventory.

While demand levels are strong, rate growth has been relatively stagnate given the influx of new supply. Since FY 2016, Seaport ADR has grown by an average of 1% per year, below the overall Boston average of 2% per year.

BCEC Historical Events

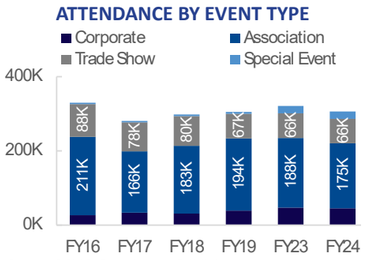
Citywide Sales Events by Type

Overall, the mix of event types has been relatively steady over the analysis period. The BCEC caters towards association events which comprise over half of all events in a given year. Since FY19, Corporate Events have outpaced Trade Shows as the next leading share of events but is still far below the share of Associations. In FY24, Corporate Events represented 24% of all events, while Associations represented 62% and Trade Shows at 10%.

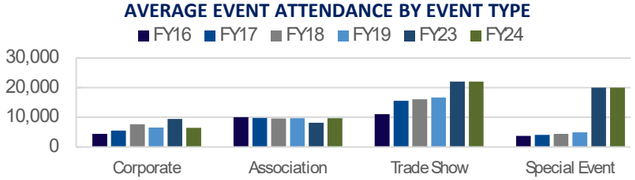
Overall, average attendance for association events has remained relatively consistent over the analysis period. FY24 total Association RNs fell below FY16 and FY18, though fall within 10% of the pre-pandemic average.

While FY23 and FY24 captured the lowest number of Trade Shows over the analysis period (3), average event attendance has grown considerably since pre-pandemic. However, total Trade Show RNs remain well below pre-pandemic years.

The average Corporate Event attendance has fluctuated in years past, however, in FY23 and FY24, the BCEC hosted the highest number of corporate RNs at the BCEC, at 47K and 45K attendees, respectively. This is greater than the pre-pandemic average of 32K by over 43%.



Source: BCMC, Compiled by CHMWarnick



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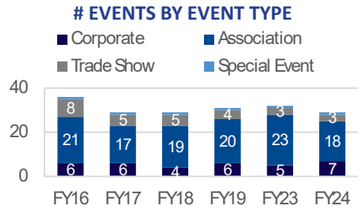


Source: BCMC, Compiled by CHMWarnick

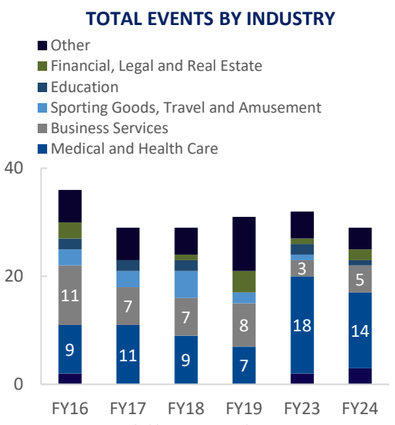
Citywide Sales Events by Industry

Events at the BCEC, using the BCMC's inputted data, were matched with the corresponding Center for Exhibition Industry Research ("CEIR") industry sectors.

Medical and Health Care represent the largest share of total events. Pre-COVID, this industry represented between 23% and 38% of all events, peaking at 11 events in FY17. Since COVID, the number of citywide events within this industry has increased, totaling 14 events in FY24 representing 48% of all events. Average attendance per event has stayed relative consistent. In FY24, total average event attendance equaled 10,900, consistent with pre-COVID averages.

According to CEIR, Medical and Healthcare nationally performed at an 87.2 index in 2023 compared to 2019. With events and attendance well above pre-pandemic levels, the medical segment at the BCEC has outperformed the nation in terms of recovery, driven by Boston's dominance in this sector.

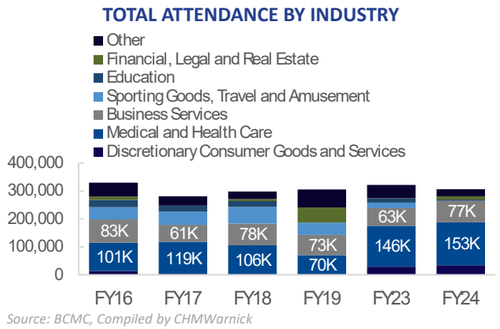
Financial, Legal, and Real Estate, which fully recovered in 2023 on a national basis, remains below peak levels at the BCEC. Average attendance of almost 6,000 attendees per event was well below FY19's peak of 13,500 attendees and below FY18. Overall, total attendance was in line with FY16 and above FY17, but well below FY19's attendance of 54,000.



Source: BCMC, Compiled by CHMWarnick

Business Services (including Commercial, Professional, Engineering, and Publishing/Ad/Media) pre-COVID represented roughly 25% of all events. Since COVID, events in this category decreased and only represented 17% of events in FY24. However, average attendance per event is growing as total FY24 attendance and RNs were on par with FY18 and FY19.

After hosting no events in Discretionary Goods and Services (Special Events, Charitable Fundraiser, Multi-cultural) FY17 through FY19, the BCEC hosted three events in FY24 representing 10% of their overall event mix.



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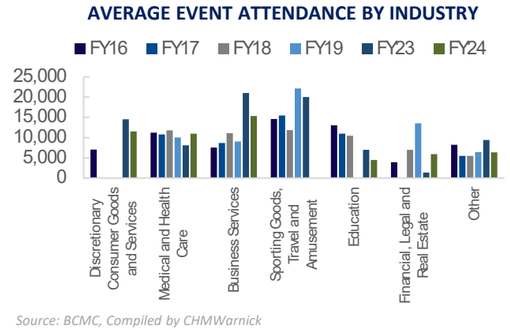


Source: BCMC, Compiled by CHMWarnick

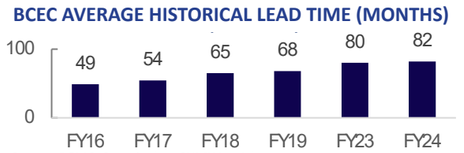
Citywide Sales Historical Lead Time

Over half of all roomnights at the BCEC are generated by events booked over 85 months out. As a result, events are much less susceptible to near-term economic pressures.

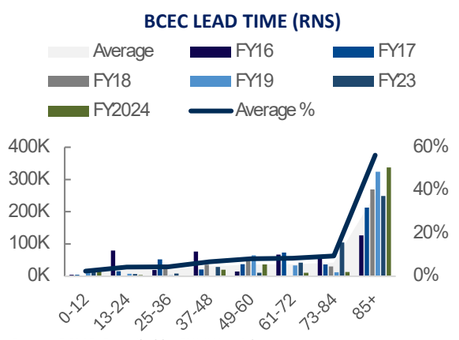
Since FY16, the average lead time increased from 49 months to 82 months. The increase in booking window allows for a better management of inventory, optimization pricing strategies, more accurate forecasting, and identification of need periods earlier in the booking cycle. However, the BCMC noted an increasing struggle in getting groups to book further out, and the longer lead time conflicts with many of the hotel's commission structure incentivizing their employees.

While the average booking lead time has increased, so has short-term demand (0-12 months). In FY23 and FY24, 4% and 5% of all RNs were generated by events booked within the year, while in FY16 and FY17, this totaled 1%. This is consistent with groups across the country following the pandemic as short-term demand outpaced previous trends.

Because of the limited hotel inventory in Seaport, groups rely on hotels throughout Boston, including Back Bay. The BCEC's longer lead time compared to the Hynes might give the BCEC an advantage in securing room blocks, limiting the potential for larger events at the Hynes if hotel rooms are already booked for earlier events.



Source: BCMC, Compiled by CHMWarnick



Source: BCMC, Compiled by CHMWarnick

BCEC Occupancy & Dark Days

Citywide Sales Events by Type

The BCEC is a highly utilized facility. In FY24, monthly average occupancy for the BCEC was over 70% for 8 of 12 months, with October coming just shy at 69%. Including FY16-FY19 and FY23, on average, BCEC monthly occupancy is over practical capacity for half of the year. Overall, there appears to be a very limited windows where the BCEC could accommodate additional events given the high utilization of the facilities.

BCEC Exhibit Hall Occupancy

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2023	FY 2024	Average
July	62%	19%	88%	69%	63%	87%	**65%**
August	47%	78%	73%	63%	47%	29%	**56%**
September	61%	80%	69%	71%	87%	74%	**74%**
October	57%	89%	75%	60%	51%	84%	**69%**
November	74%	57%	66%	61%	57%	69%	**64%**
December	51%	31%	23%	23%	22%	30%	**30%**
January	88%	66%	67%	71%	32%	84%	**68%**
February	70%	69%	68%	87%	61%	80%	**73%**
March	82%	89%	85%	90%	95%	97%	**90%**
April	93%	65%	61%	61%	54%	87%	**70%**
May	65%	78%	79%	69%	85%	76%	**75%**
June	73%	72%	88%	86%	77%	40%	**73%**

Source: BCMC, Compiled by CHMWarnick

There are only six months where the exhibit hall is operating under 70% occupancy, and in four of these months, the exhibit hall is operating at close to its theoretical capacity, ranging from occupancy levels of 64% to 69%. Whereas August exhibit hall occupancy is sub 60%, the Seaport's high market occupancy in this month is nearing 90% occupancy, limiting hotel's availability of room blocks. This leaves only one month (December) of availability to layer on additional events within the average calendar of the BCEC. December's calendar is highly impacted by Christmas/New Years and averages the lowest roominghts/Occupied Days at 346. While January and February, when the BCEC is operating above or near theoretical capacity, average roomnights/Occupied Day equal 923 and 386, respectively, far below the 1,541 roomnights/Occupied Day annual average. These events do little to bring in economic impact to the hotels during these months when transient demand is at its lowest and need is at its greatest.

Total BCEC Dark Days

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2023	FY 2024	Average
July	5	17	3	8	2	2	**6**
August	12	3	4	7	12	20	**10**
September	3	0	4	0	0	2	**2**
October	4	0	2	5	3	0	**2**
November	3	3	4	5	5	7	**5**
December	13	16	17	20	17	18	**17**
January	3	4	4	6	12	4	**6**
February	7	5	4	1	9	4	**5**
March	0	3	4	2	1	1	**2**
April	0	9	2	7	12	0	**5**
May	8	5	0	6	0	2	**4**
June	3	4	2	0	3	13	**4**
Total	61	69	50	67	76	73	66

Source: BCMC, Compiled by CHMWarnick

Seaport hotel market occupancy is lowest in November through February, before returning to levels near 80% in March. In January through March, average BCEC facility occupancy is higher than the hotel market, suggesting that while the facility is occupied, little roomnights are induced into the market.

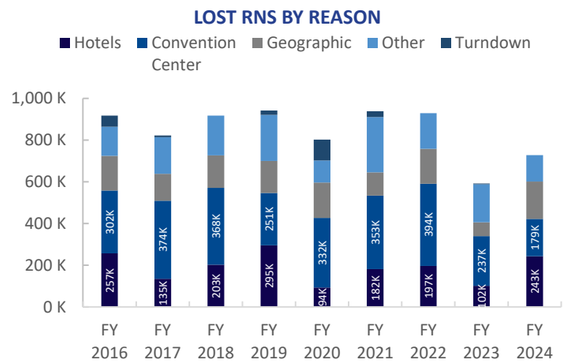
On average, in a typical year, the BCEC has 66 dark days, representing 18% of the total calendar year. December is the month with the highest number of dark days, averaging 17 over the period analyzed. August is the second-highest month, averaging 10 dark days per year.

Given the high utilization of the facility and seasonal patterns of the market, there is limited opportunity to reduce the number of dark days at the facility.

BCEC Lost Business

Excluding FY20 – FY22 for COVID, historically, the BCEC turns away an average of 819K RNs per year. "Convention Center" is the most common reason for lost business which relates to the lack of availability of the space or insufficient space/size to hold the desired event (turning away an average of 310K RNs per year).

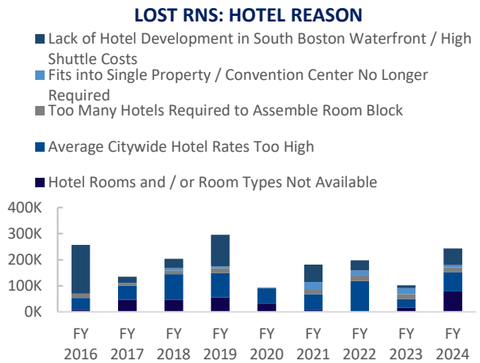
"Hotels" is the second most common factor for lost business, averaging 190K lost RNs per year. This includes lack of availability/hotels, high rates, too many hotels in room block, or converting event to an in-house group. Despite the increase in supply in the Seaport neighborhood over recent years, FY 2024 saw the more room nights lost to hotel reasons compared to convention center reasons. This pattern also occurred in FY19, where almost 300K RNs were lost due to hotel reasons.



Source: BCMC, Compiled by CHMWarnick

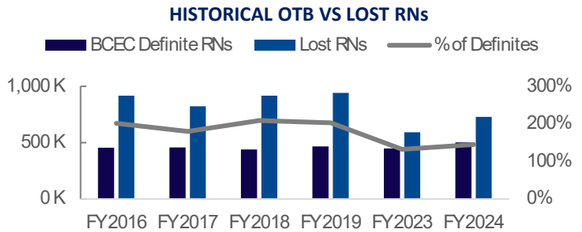
Prior to COVID, "Lack of Hotel Development in South Boston Waterfront / High-Shuttle Costs" was the single highest hotel-related reason for lost business. Since COVID, while still representing a large number of RNs, this single largest hotel-related reason has shifted to high hotel rates. While hotel rooms may be available for a room block, they are at too high of a rate. Hotels tend to quote higher rates if they have enough in-house group and transient demand to fill their hotel. Most of the lost RNs for convention center related reasons is due to the unavailability or insufficiency of the ballroom and/or exhibition hall. Post-COVID, the BCEC started to see more lost RNs as a result of its lack of rooms or size of rooms. However, this category is likely underrepresented as groups will self-select facilities that are able to handle their capacity.

Historically, the BCEC loses more business than they accommodate. Between FY 2016 and FY 2019, and FY 2023 through FY 2024 (COVID years excluded), the facility hosted 2.8M definite RNs but had lost demand of 4.9M RNs, representing 178% of definite demand. Pre-COVID, this metric was consistent between 180% and 209%, averaging 198%.



Source: BCMC, Compiled by CHMWarnick

Between FY 2025 and FY 2033, the BCEC reported total lost demand of 2.6M RNs, on average 287K RNs per year. Most of this lost business demand is through FY 2028, where the lost business percentage of bookings ranged from 90% to 124%, averaging 106%.



Source: BCMC, Compiled by CHMWarnick

Lawn on D

Overview

The Lawn on D operates seasonally, from May 1st through October 31st. Private event sales are led by the BCMC's Event & Media Sales team, which assumed responsibility for sales in FY16. Upon assuming control, the team introduced a simplified sales approach by consolidating various fees into a single rental fee, streamlining the booking process for clients. Clients only pay a rental fee and a food and beverage fee. Each year, BCMC creates marketing materials to promote private event sales at The Lawn on D.

Lawn on D is targeted to the local consumer and competes with smaller venues in the Seaport and throughout Boston. The Event & Media Sales Team observed that some customers who initially book The Lawn on D are later introduced to the BCEC and eventually go on to book larger events through the Citywide Sales team. In addition to private events, the Lawn on D is open to the public during non-private event periods during their Open Lawn hours. Weekdays, local area professionals tend to visit the Lawn on D for their lunch breaks. Open Lawn hours is highly variable based on weather conditions.

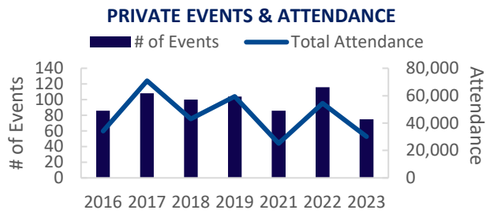
Events

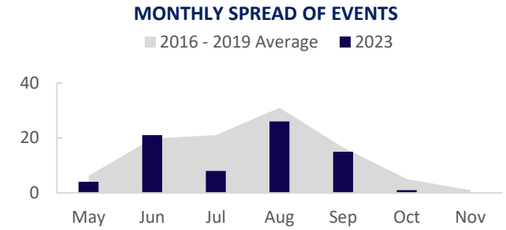
Private: In CY 2023, the Lawn on D hosted 75 private events, the fewest during the analysis period. In conversations with the BCMC, private event sales were impacted by a general trend of limiting available rental days, plus construction which impacted the official opening as well as client's willingness to book due to timing risk.

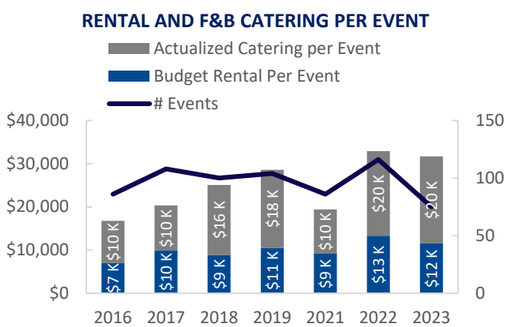
The busiest months for private events on the Lawn on D are August, June, and September. The number of events hosted in these months were in line with the historical pre-pandemic average, while July has the largest variance between 2023 hosted events and its historical average.

The average revenue (Rental and F&B Catering) per event has increased substantially since 2016. In 2023, actualized catering revenue per attendee equaled $50 ($79 combined with Rental), which equates to 50% growth since 2016. However, with fewer average attendees per event, total revenues per event declined slightly in 2023.

Public: In 2019, the Lawn on D welcomed more than 250K visitors and hosted more than 100 public events. In 2022 and 2023, the number of public events declined to roughly between 60 and 70 events, respectively. Attendance in 2023 was only 125K, significantly less than 2019.







Source: BCMC, Compiled by CHMWarnick

Coordination with the MCCA

The MCCA has control over when The Lawn on D is available or unavailable for private events. Since The Lawn on D is seen as a public space, the MCCA limits the number of days it can be reserved for private events, which reduces the overall number of bookings. There is also minimal coordination and communication between the MCCA and the sales team regarding blackout dates, which affects the sales team's ability to finalize deals and align schedules with local businesses and those hosting events at the BCEC who are looking for additional outdoor space. In 2024, the MCCA instituted a new policy allowing only in-the-year, for-the-year contracting at the Lawn on D. This limits the Event & Media Sales Team's ability to use the Lawn on D as a selling tool when selling citywide/group events with longer lead times.

Overall, better coordination and flexibility is needed to optimize the selling on Lawn on D to citywide / group customers. Specifically:

- Blackout Dates set by the MCCA should have consultation from the Event & Media Sales Team and should be flexible if a group meets certain criteria.
- Groups that have future business at the BCEC should be able to contract for space at the Lawn on D within a certain time frame of contracting their event at the BCEC.

Lawn on D | Photo Credit: Touloukian Touloukian Inc.

BCEC Benchmarking

The BCEC is significantly undersupplied in walkable hotel rooms compared to its benchmark facilities, with just 3,420 rooms—only 48% of the benchmark average. Despite significant growth in hotel inventory near the BCEC since the facility's opening, it is still a challenge to secure sufficient room blocks due to the highest hotel occupancy (79.6%) and third-highest average daily rate (ADR) among its competitive set.

Although the area within a 15-minute walk of the BCEC has seen hotel development, its future growth in walkable hotel rooms is projected to lag behind benchmarks over the next five years. Forecasts, which include hotels under construction, in planning, or proposed, suggest a slower rate of expansion in nearby hotel availability compared to other cities. This is due largely to Boston's high construction costs, exacerbating the existing shortfall in hotel room supply. Though the Signature Boston team has been able to overcome this challenge, the hotel market is essentially at capacity, hindering any growth in the BCEC's volume of business.

BCEC
Rankings Amongst Benchmark Convention Centers

	Value	Ranking
Hotel Market Within 15-Minute Walk		
Hotel Inventory (All Rooms)	3,420	10 out of 11
Hotel Inventory (Connected Rooms)	1,838	4 out of 11
12-Month Occupancy	79.6%	1 out of 11
12-Month Average Daily Rate	$286	3 out of 11
Location Attributes		
Retail Businesses (15-Minute Walk)	280	9 out of 10
Daytime Population (15-Minute Walk)	57,236	5 out of 10
Distance From Nearest International Airport (Miles)	4.1	2 out of 10
Enplanements Nearest Major Airport (2023)	19,962,577	4 out of 10
Facility Attributes		
Exhibit Space (SF)	516,000	8 out of 11
Ballroom Space (SF)	40,020	10 out of 11
Meeting Space (SF)	151,403	6 out of 11
Total Function Space (SF)	707,423	8 out of 11
Largest Space (SF)	516,000	7 out of 11
Grand Ballroom Space (SF)	40,020	9 out of 11
Junior Ballroom Space (SF)	0	10 out of 11
Other Ballroom Space (SF)	0	8 out of 11
Meeting Rooms	82	5 out of 11
Demand (Most Recent Year Available)		
Number of Events	93	10 out of 10
Total Attendance	515,081	5 out of 7
Average Attendance per Event	5,539	3 out of 7
Attendance per Square Foot (Exluding Arena Floor)	0.73	5 out of 7
Revenue & Expenses (Most Recent Year Available)		
Total Operating Revenue	$44,151,549	3 out of 7
Total Operating Expenses	$43,910,414	1 out of 7
Net Operating Income	$241,135	2 out of 7
Revenue per Total Function Space SF	$62	4 out of 7
Operating Expenses per Total Function Space SF	$62	7 out of 11

Source: Relevant Facilities, Federal Aviation Administration, CoStar, Esri, Johnson Consulting

The BCEC is competitive with its benchmarks in terms of meeting and exhibit space, as well is in its total number of meeting rooms. However, it falls short in ballroom space, with only one, relatively small ballroom. Most benchmark facilities have multiple ballrooms, offering greater flexibility for events. The BCEC's lack of ballroom space occasionally forces larger catered events into the exhibit hall, increasing costs for customers. Despite this, the facility's overall space ratio—exhibit to ballroom and meeting space—is in line with benchmarks, and the BCEC is flexible enough to support a variety of event types.

While the BCEC hosts fewer total events than its peers, it excels in total and average attendance, indicating a focus on high-impact events rather than overall event volume. Unusual for a publicly owned convention center, it has generated positive net operating income in recent years. However, it lags in food and beverage revenue, likely due in part to its ballroom space deficit. Despite its somewhat smaller size relative to its benchmark set, the BCEC performs well and is in line with the market in terms of revenue per square foot.

Significant undersupply of hotel rooms

BCEC undersupplied in ballroom space

BCEC excels in attracting high-impact events

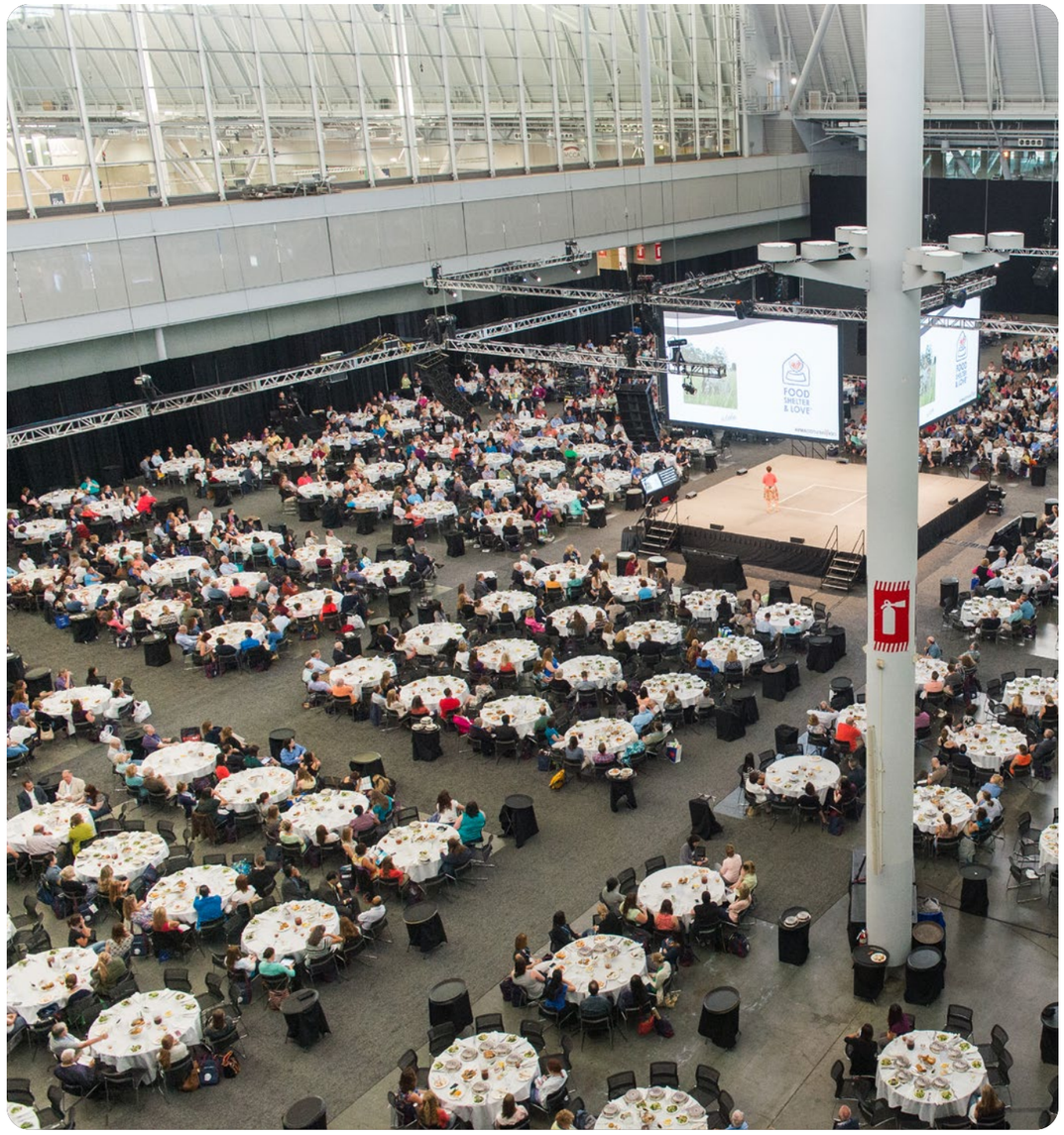


Exhibit Hall | Photo Credit: Signature Boston

BCEC Economic Impact

Boston Convention and Exhibition Center
Historical and Projected Economic Impact

Events and Visitation	FYE 2018	FYE 2019	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028	FYE 2029	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034
# of Events	93	96	85	79	83	86	87	88	88	90	89	90	89	90
Event Attendance	415,219	411,703	445,153	546,837	537,471	571,406	570,520	569,611	572,460	594,182	583,321	594,182	583,321	594,182
Total Visitor-Days*	1,155,217	1,278,393	1,354,973	1,466,710	1,527,063	1,628,943	1,600,458	1,571,648	1,579,506	1,667,661	1,623,583	1,667,661	1,623,583	1,667,661
Total Room Nights*	438,757	465,107	447,225	502,301	542,531	562,057	545,363	528,489	531,132	571,184	551,158	571,184	551,158	571,184
Direct Spending ($Million)	**FYE 2018**	**FYE 2019**	**FYE 2023**	**FYE 2024**	**FYE 2025**	**FYE 2026**	**FYE 2027**	**FYE 2028**	**FYE 2029**	**FYE 2030**	**FYE 2031**	**FYE 2032**	**FYE 2033**	**FYE 2034**
Hotel	$119	$130	$141	$162	$181	$194	$193	$193	$200	$222	$221	$236	$234	$250
Food and Beverage	55	62	74	82	88	97	98	99	103	112	112	119	119	127
Transportation	26	29	34	38	41	45	46	46	48	52	52	55	55	59
Attraction	21	24	28	32	34	37	38	38	40	43	43	46	46	49
Shopping	29	33	40	45	48	53	53	54	56	61	61	65	65	69
Other Industries	46	51	58	62	69	77	77	77	80	89	88	94	94	100
Subtotal	**$296**	**$330**	**$375**	**$420**	**$461**	**$503**	**$506**	**$508**	**$526**	**$579**	**$578**	**$615**	**$613**	**$653**
Operational Spending	$40	$37	$44	$46	$47	$48	$50	$51	$53	$55	$56	$58	$60	$62
Total Direct Spending	**$336**	**$366**	**$419**	**$466**	**$508**	**$551**	**$556**	**$559**	**$579**	**$633**	**$634**	**$673**	**$673**	**$714**
Indirect and Induced Spending	$200	$219	$250	$278	$303	$329	$331	$334	$345	$378	$378	$401	$402	$426
TOTAL SPENDING	**$536**	**$585**	**$669**	**$744**	**$811**	**$880**	**$887**	**$893**	**$924**	**$1,011**	**$1,012**	**$1,074**	**$1,075**	**$1,141**

Direct Earnings and Employment	FYE 2018	FYE 2019	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028	FYE 2029	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034
Earnings ($Million)	$161	$176	$201	$224	$244	$265	$267	$268	$278	$304	$304	$323	$323	$343
Employment (FTE Jobs)	3,328	3,631	4,151	4,616	4,886	5,146	5,030	4,912	4,935	5,236	5,085	5,236	5,085	5,236
Earnings and Employment based on TOTAL Spending	**FYE 2018**	**FYE 2019**	**FYE 2023**	**FYE 2024**	**FYE 2025**	**FYE 2026**	**FYE 2027**	**FYE 2028**	**FYE 2029**	**FYE 2030**	**FYE 2031**	**FYE 2032**	**FYE 2033**	**FYE 2034**
Earnings ($Million)	$257	$281	$321	$357	$389	$423	$426	$429	$444	$485	$486	$516	$516	$548
Employment (FTE Jobs)	5,313	5,798	6,627	7,370	7,801	8,216	8,030	7,843	7,879	8,360	8,120	8,360	8,120	8,360

Fiscal Impact ($Million)	*Tax Rate*	FYE 2018	FYE 2019	FYE 2023	FYE 2024	FYE 2025	FYE 2026	FYE 2027	FYE 2028	FYE 2029	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034
By Types of Taxes															
Hotel Tax	*16.45%*	$19.6	$21.4	$23.2	$26.7	$29.8	$31.8	$31.8	$31.7	$32.9	$36.5	$36.3	$38.8	$38.5	$41.2
Meals Tax	*7.00%*	3.8	4.4	5.2	5.7	6.2	6.8	6.9	6.9	7.2	7.8	7.9	8.3	8.4	8.9
Sales and Use Tax	*6.25%*	6.0	6.8	7.9	8.6	9.4	10.4	10.5	10.6	11.0	12.0	12.0	12.8	12.8	13.6
Total		**$29.5**	**$32.5**	**$36.2**	**$41.1**	**$45.4**	**$49.1**	**$49.2**	**$49.3**	**$51.1**	**$56.4**	**$56.2**	**$59.9**	**$59.7**	**$63.6**
By Jurisdiction															
State Taxes		$16.2	$18.1	$20.5	$23.0	$25.3	$27.6	$27.7	$27.8	$28.8	$31.7	$31.6	$33.7	$33.6	$35.8
Local Taxes		8.2	8.9	9.7	11.2	12.4	13.3	13.3	13.3	13.8	15.3	15.2	16.2	16.1	17.2
Special Authority Taxes		5.1	5.5	6.0	6.9	7.7	8.2	8.2	8.2	8.5	9.4	9.4	10.0	10.0	10.6
Total		**$29.5**	**$32.5**	**$36.2**	**$41.1**	**$45.4**	**$49.1**	**$49.2**	**$49.3**	**$51.1**	**$56.4**	**$56.2**	**$59.9**	**$59.7**	**$63.6**

**Including visitor-days and room nights from attendees, exhibitors, event organizers, etc.*
Source: Massachusetts Convention Center Authority, Johnson Consulting

For fiscal year ending 2024 (FY 2024), the Boston Convention & Exhibition Center (BCEC) hosted 79 total events, attracting over 546,000 attendees. In addition to attendees, other event participants such as exhibitors and show managers contributed to the economic impact through their use of local accommodations. Signature Boston calculated that these events resulted in approximately 502,000 room nights in FY 2024.

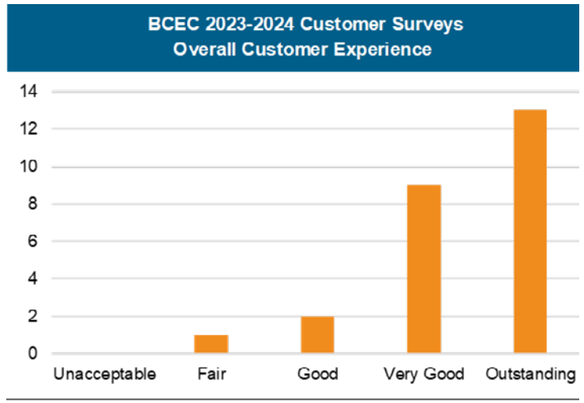
The spending patterns of different event participants, such as attendees, exhibitors, and event managers, vary, influencing their economic contributions. Signature Boston has developed detailed daily spending estimates for these various event participants based on research and surveys; these estimates have been validated by Johnson Consulting and were used in this analysis to derive total spending quantities attributable to the BCEC. For FY 2024, the events at the BCEC are estimated to have generated $420 million in direct spending. Including BCEC's operational expenses, total direct spending in FY 2024 was projected to be $466 million.

This economic activity has broader effects, generating earnings, employment, and tax revenues. In FY 2024, BCEC events are estimated to have contributed $744 million in total spending, $357 million in increased earnings, and 7,370 jobs, along with $41.1 million in tax revenues from hotel and food and beverage taxes. Projections for future years indicate continued growth, with total spending expected to reach $1.14 billion by FY 2034.

BCEC Customer Satisfaction

In FY 2024, BCEC customers reported high levels of satisfaction with their overall experience, as 88% rated it as either "Very Good" or "Outstanding" and the facility received an average satisfaction rating of 4.36 out of 5. The sales process also received strong feedback, with ratings ranging from 4.11 to 4.44, reflecting the excellent service provided by the Signature Boston sales team.

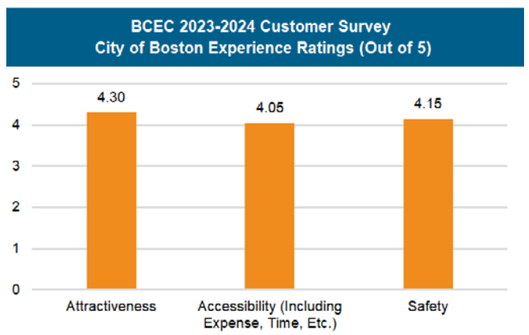
Customers were relatively less enthusiastic about the event day experience, with ratings between 3.76 and 4.1. The weakest areas were Food and Beverage Preparation and Presentation, suggesting that food service is an area where improvements could be made. Vendor services generally received positive feedback; average ratings ranged from 3.83 to 4.36.



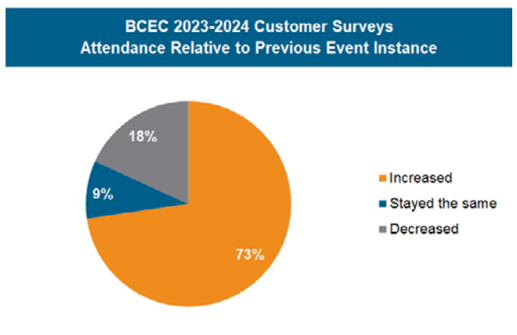
Source: Signature Boston, Johnson Consulting

The BCEC facilities were rated highly overall, and Safety & Security was a standout with an average rating of 4.48 out of 5. However, facility lighting and temperature control were weaker points, with scores of 3.76 and 3.81, respectively. Meanwhile, the City of Boston itself was seen as a strong asset, particularly for its attractiveness and safety, though the availability and cost of taxis lowered accessibility ratings slightly.

BCEC events in FY 2024 showed strong recovery from the pandemic, with 73% growing in size compared to previous event instances and 45% setting attendance records. While this indicates a healthy event schedule, it also suggests risk that some events may outgrow the BCEC in the coming years if growth trends continue.



Source: Signature Boston, Johnson Consulting



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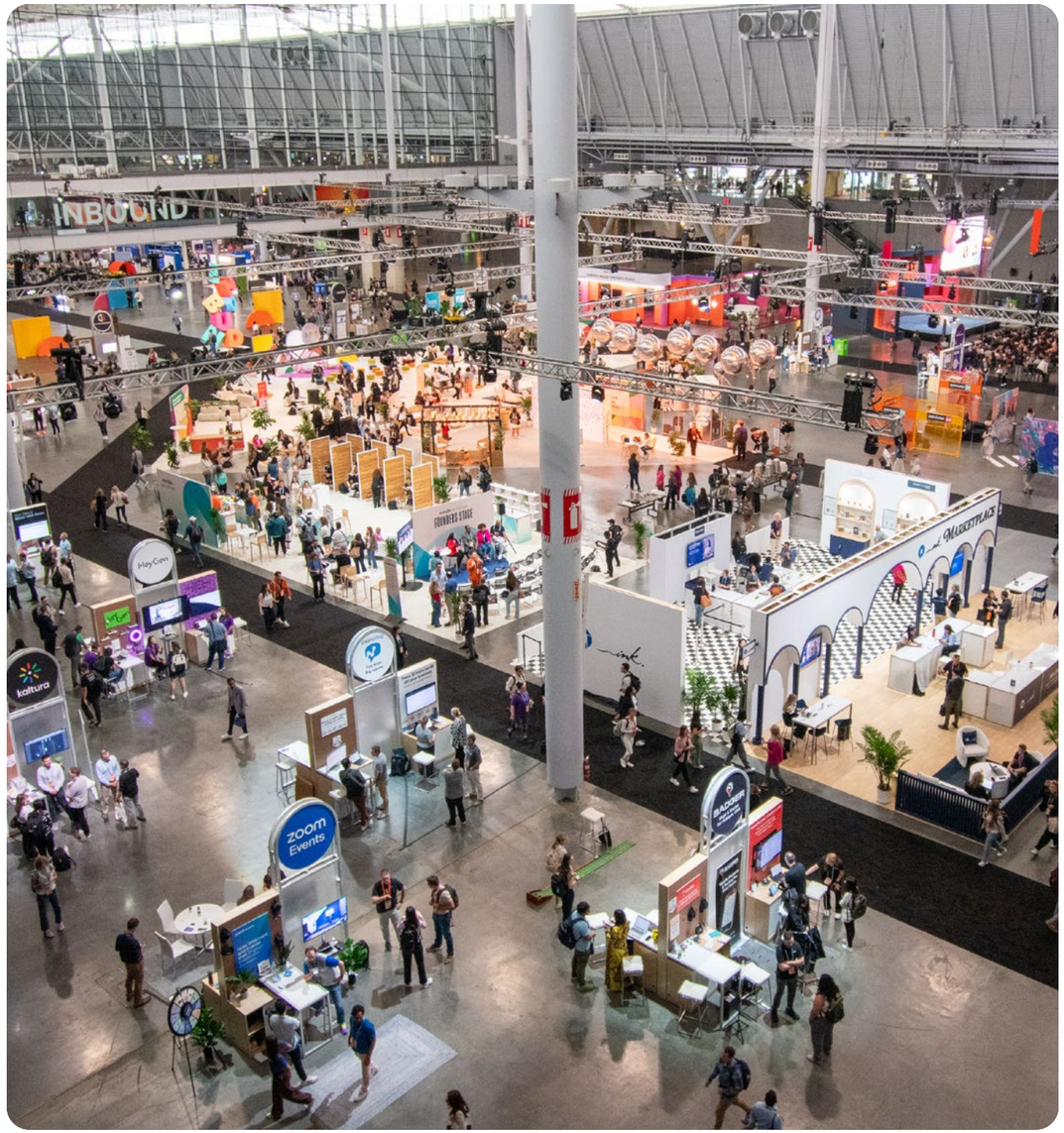


Exhibit Hall | Photo Credit: Signature Boston

05
Financial Analysis

This section of the report provides an analysis of the financial performance and capital requirements of the Boston Convention and Exhibition Center.

The Boston Convention and Exhibition Center (BCEC) is a premier convention facility located in the Seaport District of Boston, Massachusetts. Managed by the Massachusetts Convention Center Authority (MCCA), the BCEC is one of the largest convention centers in New England, and the second largest in Northeastern United States, boasting a massive 516,000 square feet of contiguous exhibition space, 150,000 square feet of flexible meeting space, and a 40,000 square foot ballroom. These features allow it to host events of all sizes, from small business meetings to large trade shows and international conventions.

The Seaport's Role in Boston's Overall Growth

The Seaport District's growth contributes significantly to Boston's economy and enhances the city's image as a global business and cultural center. Its waterfront location, modern architecture, and bustling environment contrast with Boston's historic neighborhoods, offering a well-rounded cityscape that appeals to a broad range of people. In the long term, the Seaport is expected to remain a critical driver of Boston's economic, cultural, and residential landscape, attracting new businesses, conventions, residents, and visitors and reinforcing Boston's position on the national and international stage.

Key Findings:

- An expansion of the BCEC is not feasible without increasing the availability of hotel rooms. The Project Team supports the full development of the expanded Exhibition Hall (180K SF) and Meeting Space (45K–50K SF), but this is contingent upon the confirmation and availability of additional hotel capacity in the Seaport area. The full expansion should not open until this hotel capacity is available simultaneously.
- The Project Team also endorses the addition of a new Ballroom and expanded public spaces for community use. This part of the expansion does not depend on an increase in hotel inventory.
- Furthermore, the team suggests the possibility of tenting or placing a structure over the D Street Lawn to extend its usability during colder or inclement weather, which could otherwise result in event cancellations or costly indoor relocations for users.

Exhibit Hall | Photo Credit: Signature Boston

BCEC Overview & Revenue Per Square Foot

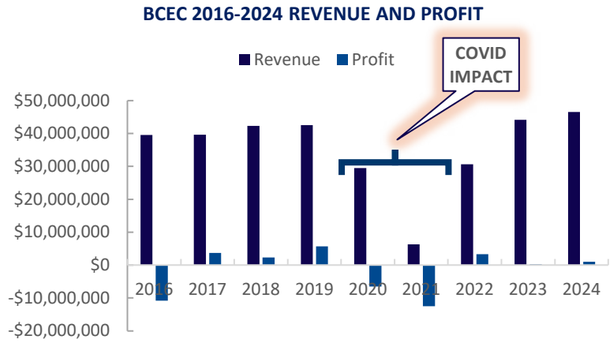
BCEC Overview

The BCEC is a vital contributor to Boston's and Massachusetts' economy, generating significant direct and indirect revenue for the City and State. It attracts hundreds of thousands of visitors annually, with major industry events, conventions, and exhibitions that contribute to hotel occupancy, dining and retail. Local businesses, including hotels, restaurants, and entertainment venues, benefit tremendously from the influx of attendees, many of whom stay several days and explore the City. The Seaport District has thrived in recent years, partly due to the presence of the BCEC. Numerous hotels, restaurants, corporations, and attractions have been developed, contributing to the area's growth.

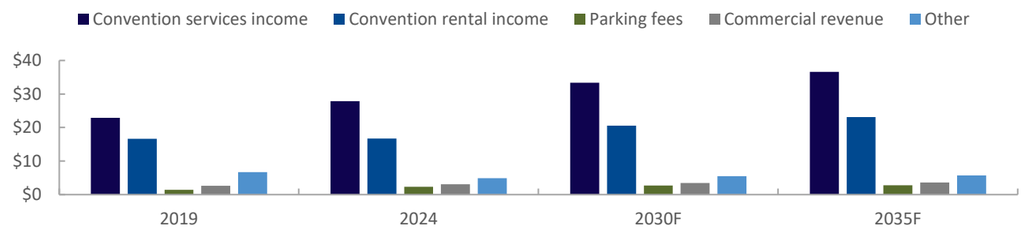
Revenue and Profit Trends

From 2016 to 2019, the BCEC experienced steady revenue growth, with total operating revenues increasing from $39.5 million to $42.6 million. Following the pandemic, the facility experienced a strong recovery, with revenues rebounding to $30.6 million in 2022, reaching $46.5 million in 2024, exceeding 2019's results.

Pre-pandemic profitability experienced significant growth, with a negative profit of ($10.8M)/(27%) in 2016 improving to a positive $5.7M/13% in 2019. Post-pandemic, the profit margin was only 1% in 2023 and 2% for 2024. While profits remain positive, rising costs have posed challenges. Specifically, post-covid Profits were significantly affected by rising labor costs and controllable expenses, which in 2024 increased by 55% and 41%, respectively, compared to 2019 levels.

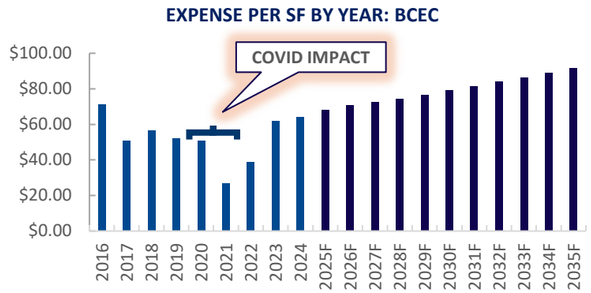


Revenue Per Square Foot



The BCEC experienced relatively stable revenue per square foot (PSF) with figures growing modestly from $55 PSF in 2016 to $60 PSF in 2019. This growth was largely driven by steady increases across convention services income and food and beverage revenues. In 2022, revenue PSF rebounded to $43 as the BCEC began to recover from the pandemic. This recovery continued into 2023, with revenue PSF reaching $62, and further improving in 2024 to $66 PSF. Revenue PSF is projected to continue growing, with the BCEC expected to reach $79 PSF by 2030 and $87 PSF by 2035.

Expense Per Square Foot & Projected Revenues



The BCEC's expense PSF decreased consistently from 2016 to 2019. In 2016, the expense PSF was $71, dropping to $52 by 2019. This decline was primarily driven by reductions in operating salaries and benefits, which decreased from $18 PSF in 2016 to $16 per PSF in 2019. Post-covid, expenses PSF experienced a significant increase, rising from $39 PSF in 2022 to $64 PSF by 2024. This surge was mainly due to increased labor costs and higher expenditures on contracted services.

An evaluation of the MCCA's labor counts and expenses from 2019 to 2024 shows a significant increase at the supervisory level and above, with 19 additional FTEs, representing $2.5 million in added costs. This represents an 11% increase in payroll expenses over the period. The MCCA's expanded staff (i.e. the IT department is now at 44 team members) reflects significant growth in certain employees resources. While a portion of these roles are essential under any organizational structure, the Project Team suggests that the MCCA consider strategic outsourcing. By doing so, MCCA could not only reduce operational costs but also gain access to a broader pool of talent and industry best practices. This approach would enable the MCCA to stay agile and leverage external expertise to continue meeting business needs efficiently.

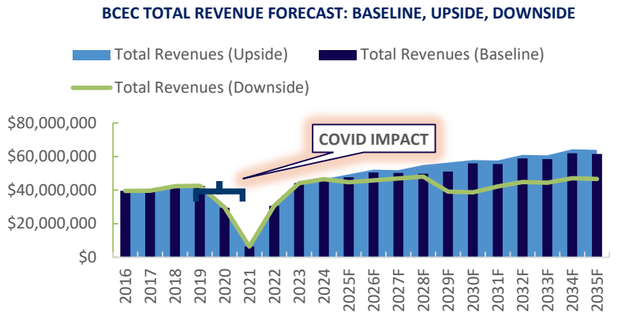
Energy expenditures were also reviewed, revealing that a significant portion of the facility's energy procurement was subject to market-based pricing fluctuations. This approach should be further evaluated for potential improvement in the future. This recent upward trend in expenses raises concerns about cost management and control. Furthermore, the MCCA will need to adopt and integrate new best practices that could lead to additional operational improvements, resulting in cost savings.

Number of City-Wide Events: 2016 - 2024

The BCEC saw its peak number of city-wide events in 2016, hosting 36 events that year. By 2019, this number had decreased to 31. Following the pandemic, the facility has returned to 2019 levels, hosting 31 events in both 2023 and 2024.

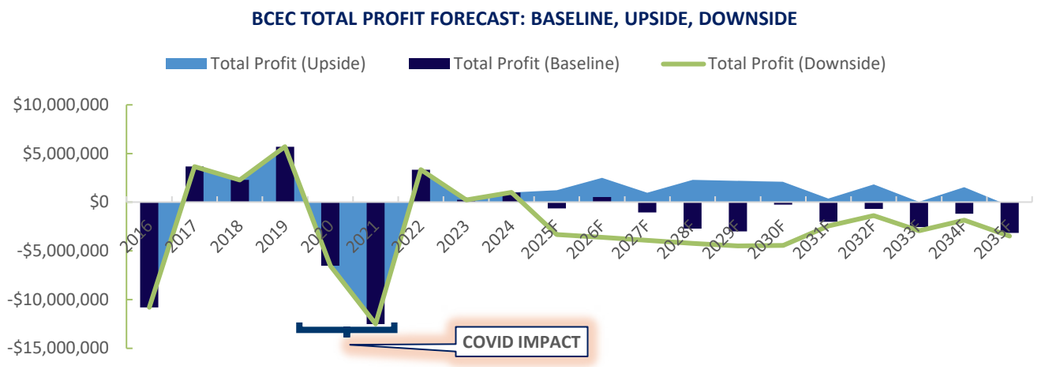
Projected Revenues: Baseline, Upside, & Downside

The BCEC's group pacing and market positioning remain strong, indicating a positive outlook for the facility's projected revenues. Barring any negative impacts from capital projects or unforeseen circumstances, the organization is well-positioned to sustain its success. Revenues for the projected period of 2025 – 2035 are anticipated to total $923 million in the Baseline Scenario. Total operating revenues increase from $47.7 million in 2025 to $61.5 million in 2035, reflecting a 29% growth over the period. The total number of events fluctuate slightly, ranging between 30 and 32 events per year.
The revenue streams showing the most significant growth over the projected period are convention services income, convention rental income, and food and beverage revenues.



Projected Profit & Capital Spend

Projected Profit; Baseline, Upside, & Downside

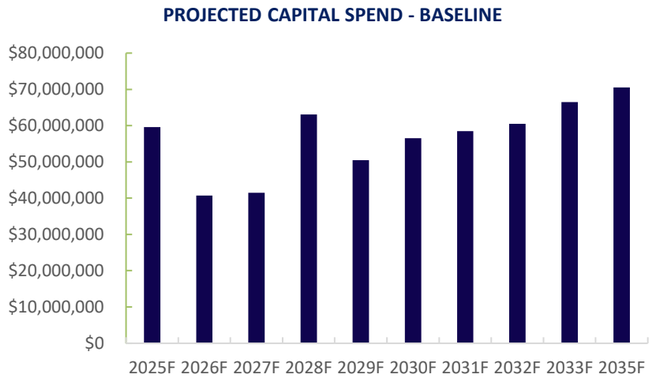


The BCEC is expected to operate at a loss throughout the Baseline forecast period, with annual losses ranging from ($635K) (1%) in 2025 to ($3.2 million)/(5%) in 2035. Salaries and benefits is the largest contributor to the BCEC's total expenses. This expense starts at $18.4 million in 2025, which reflects a +7% payroll adjustment, and steadily increases to $24.7 million by 2035. This 34% increase in labor costs over the forecast period reflects inflationary pressures and wage growth. The Project Team proposes that labor expenses be further reviewed, as the current cost burden is unsustainable for maintaining a profitable facility.

Projected Capital Spend; Baseline, Upside, and Downside

Over the 11-year period from 2025 to 2035, capital spending is projected to total $644 million in the Baseline Scenario. These substantial investments are necessary to address deferred maintenance and ensure the aging facility remains competitive. Prioritizing a balance between completing capital projects and avoiding disruptions to business operations is essential. The capital spend identified by MCCA consultants is anticipated to be spent in its entirety.

A comprehensive review of all future capital projects is required to critically assess their necessity and timing. In modeling potential scenarios, the Upside Case projects ($8.4 million) in savings compared to the Baseline, while the Downside Case forecasts an additional $3.4 million in capital costs.



Consolidated Findings

- The Project Team developed two expansion options: a Full Expansion or a Ballroom Expansion. The Project Team supports the full development of the expanded Exhibition Hall (180K SF) and Meeting Space (45K–50K SF), but this is contingent upon the confirmation and availability of additional hotel capacity in the Seaport area. An expansion of the BCEC is not feasible without increasing the availability of hotel rooms. The full expansion should not open until this hotel capacity is available simultaneously; preferably with significant, codified room-block agreements. The Project Team also endorses the addition of a new Ballroom and expanded public spaces for community use. This part of the expansion does not depend on an increase in hotel inventory.
- The Project Team suggests the possibility of tenting or placing a structure over the D Street Lawn to extend its usability during colder or inclement weather, which could otherwise result in event cancellations or costly indoor relocations for users.
- Explore hotel development options on MCCA-owned land, ensuring land-lease control and, most importantly, establishing a room block agreement that benefits both the MCCA and Signature Boston by securing and committing additional group room inventory.
- Align key sales resources to target new innovation industries across all three facilities. Propose the addition of one new salesperson. Leadership should review the current responsibilities of sales team to determine if any responsibilities can be shifted.
- Develop and link sales systems between Springfield and Boston to create a cohesive strategy.
- Focus on achieving profit objectives throughout all 12 months by minimizing the use of rebates or discounts during slow periods. Identify future need periods and target those dates, implementing a replacement strategy for events that need to be rescheduled.
- Maintain free Wi-Fi in Boston to enhance customer value related to rental income and provide continued differentiation for groups choosing Boston.
- Improved coordination is needed to optimize the selling of Lawn on D to citywide and group customers. Blackout dates should be established in consultation with the Event & Media Sales Team and should remain flexible if a group meets specific criteria.
- Conduct critical operational assessments to identify specific opportunities (cost, process enhancement and revenue opportunities). These assessments will support the development of plans aimed at achieving results in these areas. For example, opportunities may exist in the procurement of products and key services, as well as in technology, security, and transportation.
- To improve operational results, the organization will need to adjust its reporting methods, process approach, and overall operating culture.
- Standardize reporting across all three convention centers by using similar platforms to improve efficiency and enable better benchmarking. This will allow key revenue and cost centers to access reports that are easy to interpret, measure performance, benchmark data, and identify opportunities. Providing more detailed information on performance could also benefit the MCCA Board during key reviews and evaluations.
- With the anticipated increase in capital expenditures, enhanced coordination between capital planning, operations, and sales will be essential to minimize disruptions to events and activities at all facilities.
- Review potential opportunities for naming spaces within the convention centers after historic Massachusetts figures in the impacted communities.

06
Deferred Maintenance

The facility is well maintained, with a commitment to maintain high level operations. Deferred maintenance is a basic requirement of ongoing building operations. A third party study performed in 2015, and again updated in 2020, included a summary of projected needs and costs for the facility. Additional deferred maintenance items and costs were identified within this study. Together, a list of key items are included with overall approximate deferred maintenance costs.

The MCCA previously obtained the services of Simpson, Gumpertz, & Heger (SGH) to develop "Facility Inspection & Fixed Asset Replacement Planning" documents for each facility, which were completed in 2015. SGH also assisted with a 10-year Capital Replacement plan in 2020 to provide an updated assessment of the deferred maintenance lists produced in 2015, with a preliminary forecast of when each system should be repaired or replaced.

Our design team evaluated these documents, along with a collection of other existing condition documents and on-site reviews, to provide an overall list of key deferred maintenance priorities. Recommendations for future repair/replacement require consistent on-site evaluation in order to meet continued operation requirements.

General recommendations include the replacement of major mechanical, electrical, plumbing and fire protection components, according to the individual manufacturer's recommended "useful life" cycle, in order to maintain reliable performance and building safety. The MCCA should continue to perform regular preventive maintenance, timely upgrades, and testing to support and ensure the full extent of the "useful life" cycle. Exterior envelope and interior materials review was based on SGH's report.

The deferred maintenance list shown on the next page represents a consolidated view of the key deferred maintenance items.

Key Findings:

General:
- Coordinate additional third party identified Deferred Maintenance costs already captured in the CCF Fund.

Mechanical + Plumbing + Fire Protection:
- Replace the (2) existing diesel powered 2000 GPM 220HP fire pumps in kind.
- Replace any remaining pneumatic HVAC controls systems with Direct Digital Controls (DDC).
- Replacement of existing air handling units to include energy recovery to be determined by full assessment of equipment.
- Install new heat pump split system data-room specific cooling units for the MDF room. Install new stand-alone split systems for chilled water fan coil units that serve cooling only zones.
- Replace smoke exhaust louvers to prevent snow/water infiltration. Per facility staff, the existing louvers are letting in water during storms.

Electrical + Fire Alarm:
- Replace the existing emergency generator.
- Replace all ballroom and meeting room lighting fixtures.

Entrance Plaza | Photo Credit: Signature Boston

List of New Deferred Maintenance Projects

Item #	SGH Report CRP # (1)	Cap Invest. List # (2)	Asset Title	Location	Description	Total Project Cost (3)	Permit Cost (4)
DF-01	N/A	N/A	Smoke Exhaust Louvers	Facility	Replace smoke exhaust louvers.	$598,000	$367,770
DF-02	N/A	N/A	Direct Digital Controls	Facility	Replace any remaining pneumatic HVAC control systems with Direct Digital Controls. 90% of the control systems have been replaced as part of the SGH report CRP #5.17. This calls for the remaining 10% to be replaced.	$5,102,500	$3,138,037
DF-03	N/A	N/A	Dry Pipe Compressors	Facility	Replace the 3 sprinkler dry-pipe compressors.	$474,500	$291,817
					Grand Total:	**$6,175,000**	**$3,797,625**

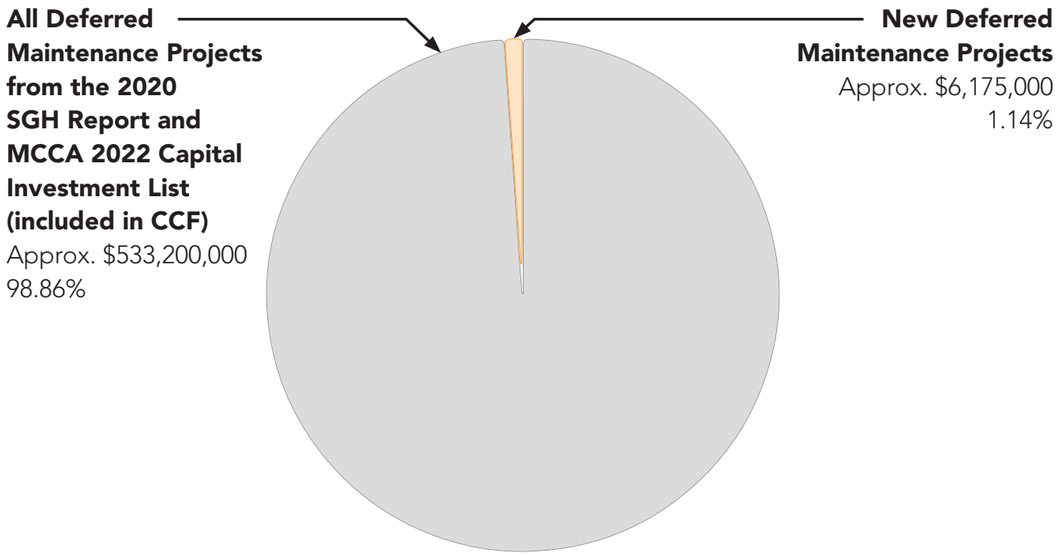
List of Current & Ongoing Deferred Maintenance Projects (see note #2)

Item #	SGH Report CRP # (1)	Cap Invest. List # (2)	Asset Title	Location	Description	Total Project Cost (3)	Permit Cost (4)
DF-04	5.5A-5.5G	N/A	Heating & Cooling Pump Replacement	Facility	Replace heating and cooling pumps that are approaching end of useful life.	See Note #1	See Note #1
DF-05	6.93	N/A	Emergency Generator	Facility	Replace existing emergency generator.	See Note #1	See Note #1
DF-06	8.2	N/A	Fire Pumps	Facility	Replace the (2) existing diesel powered 2000 GPM 220HP fire pumps in kind.	See Note #1	See Note #1
DF-07	5.10.1-5.10.29	N/A	Air Handler Units	Facility	All new air-handlers should include energy recovery technology.	See Note #1	See Note #1
DF-08	6.99 / 6.103-6.108	N/A	Ballroom + Meeting Room Lights	Facility	Replace all ballroom and meeting room lighting fixtures with energy efficient led's	See Note #1	See Note #1
DF-09	N/A	N43	Parking Gates	All Gates	Replace all gates and add at some locations.	See Note #1	See Note #1
DF-10	N/A	P48	Expansion Joints-Interior	Facility	Interior expansion joint covers to be evaluated and replaced.	See Note #1	See Note #1
DF-11	N/A	Not Provided	Dry coolers and MAU	Facility	Replace the BCEC Dry Coolers and the MAU Unit for the CUP. These units are outside and will be completed in the summer. Include water-side dree cooling. This is included on the Capital Investment List with no identification number.	See Note #1	See Note #1
DF-12	N/A	Not Provided	South End Doors	South End Doors	Replace the SouthEast and SouthWest entry and exit doors. These doors are due for replacement due to heavy traffic usage, weather, rot from ice melt, and access control. Doors are required for occupancy and these existing doors are at the end of their useful life and have extensive frame damage that cannot be fixed. This is included on the Capital Investment List with no identification number.	See Note #1	See Note #1
DF-13	N/A	R21	North Lobby Doors	North Lobby Doors	Study all BCEC public facing exterior doors. Review access control, temperature control, operations and aesthetics.	See Note #1	See Note #1
DF-14	N/A	R15	Escalator Modernization	Hall A Escalators	Modernization of B-1 and B-2 escalators in Hall A.	See Note #1	See Note #1
DF-15	N/A	R08	CUP Pump Drives	Facility	Design in FY23. Replace (3) secondary HWP drives and (3) secondary oil/water deperators.	See Note #1	See Note #1
DF-16	N/A	R13	Kitchen Cooler/Freezer Condenser and Evaporator Replacement	Kitchen	Design FY23. Replace kitchen cooler/freezer condenser and evaporator.	See Note #1	See Note #1

Deferred Maintenance Costs

Total Project Costs

- Approx. **$6,175,000** of New Deferred Maintenance Projects. Escalated to FY 2026 (July 1, 2025).
- Approx. **$533,200,000** of All Deferred Maintenance Projects from the 2020 SGH Report and Capital Investment List. (See Notes).
- Coordinate additional third party identified Deferred Maintenance costs already captured in the CCF Fund as per CHMW coordination with MCCA and A&F.



Total Deferred Maintenance Costs:
Approx. $539,375,000

New Deferred Maintenance Projects

All Deferred Maintenance Projects from the 2020 SGH Report and MCCA 2022 Capital Investment List (included in CCF)

Exhibit Hall | Photo Credit: Signature Boston

(1) SGH Report: Provided by the MCCA, a Capital Replacement Program outlining deferred maintencance projects scheduled through fiscal year 2029.

(2) MCCA FY2025 Capital Projects Budget: Provided by the MCCA, a running list of Capital Projects including facility improvements, technology upgrades, and equipment purchases for fiscal year 2025.

(3) Total Project Cost: Hard costs as determined by a cost estimator plus a 30% mark-up for soft costs.

(4) Permit Cost: inclusive to total costs, this is 61.5% of the Total Project Cost. This number should be used for determining MAAB upgrade requirements per the 30% threshold set fourth by the State of MA.

Note #1: Costs are to be identified from the 2020 SGH Report and/or the MCCA Capital Investment Report provided by the MCCA. Project costs have already been captured in the CCF as per CHMW coordination with MCCA and A&F.

Note #2: See the 2020 SGH Deferred Maintenance Project List for a full list of additional project costs. These costs have already been captured in the CCF as per CHMW coordination with the MCCA and A&F. List of Key Deferred Maintenance Projects is a snapshot of the SGH and Capital Projects reports provided by the MCCA. These are highlighted as the more important projects which should be undertaken.

Note #3: The 2020 SGH Costs have been escalated to July 1st 2025 (FY 2026).

07

Sustainability & Decarbonization

The MCCA can serve as a leader in the realm of sustainability while also fulfilling its economic mission. Holistic sustainability, energy efficiency, operational decarbonization, embodied carbon reduction, the creation of healthy, equitable spaces, and community stewardship are at the heart of MCCA's sustainability initiatives.

Sustainable design and operations of all facilities is a core goal of MCCA's mission. As the facility is currently not yet net carbon neutral operations, the MCCA staff is currently developing ongoing energy conservation measures, fuel switching options, and opportunities to implement on-site renewable energy generation (solar) and off-site renewable energy procurement (VPPA). Although a comprehensive plan is not yet fully coordinated, a comprehensive sustainability framework, path for operational decarbonization, and embodied carbon reduction strategy will help MCCA quantify and track the extensive sustainability and carbon neutral initiatives already underway at the BCEC.

Establishing a well-developed sustainability framework is valuable for informing many aspects of the MCCA's buildings and operations – from policy and procurement decisions to facility design requirements. Identifying pathways for net carbon neutral operations is critical for any future renovation of MCCA facilities. Benchmarking of present-day energy usage and emissions provides a valuable metric by which to assess the strategies available to achieve operational carbon neutrality.

Lastly, with regard to embodied carbon, key considerations for both the existing systems and major renovations have also been highlighted. For major renovations and interior fit-outs, prioritizing embodied carbon reduction is of utmost importance. Minimizing embodied carbon should be a priority for new capital projects, vendors, and event operations.

Key Findings:

- Develop holistic sustainability guidelines tailored to MCCA's priorities should be applied across all facilities. Establish a formal energy emissions baseline.
- Develop an investment-grade ASHRAE Level 3 Audit, before implementing energy conservation measures. Ensure all measures implemented align with the long-term decarbonization goals.
- Conduct further analysis to refine the optimal pathway for fuel switching. Natural Gas is currently used in space heating, domestic hot water heaters, and various cooking equipment.
- Resolve constructability and scheduling constraints for solar PV at the existing BCEC. Plan solar PV with future expansion options.
- Continue refining the need to procure any additional off-site renewable energy as future projections in electricity demand are refined.
- Identify work plan to make the BCEC net carbon neutral operations to align with BERDO emission standards. Continue to voluntarily report BCEC energy usage to BERDO.
- Expand advanced energy metering and submetering to internally track energy performance.
- Review options for expansion that align with long term planning and sustainability goals.

Sustainability & Decarbonization

- Sustainability Framework
- Operational Carbon
- Embodied Carbon
- Energy Efficiency

Sustainability Framework

Sustainable design and operation of MCCA facilities is a core driver for this organization. A structured sustainability framework that provides guidelines and quantifiable metrics can enable MCCA to track progress, set goals and targets, and measure success.

Goals

Sustainability touches on every aspect of building, operations, and events at MCCA facilities. Currently, the MCCA does not have a comprehensive document to guide, track, and report sustainability progress. A holistic framework can provide sustainable guidance for built projects and vertical development, horizontal site and infrastructure projects, vendor services and operations, and event management. While numerous state and local regulations, policy drivers, codes, and priorities are in place, a consistent, comprehensive, and holistic framework to guide all four facilities does not exist. Further, there are many sustainability best practices that reach beyond minimum regulations and policies: energy efficiency, operational and embodied carbon, water conservation, waste management, health and wellbeing of building occupants, stormwater management, and biodiversity-- that enhance MCCA's investments and provide co-benefits in MCCA's role as a community steward.

Objectives

- Understand, align, and meet or exceed MCCA's sustainability goals and metrics with current energy codes, regulations, public agency requirements, reporting frameworks and local/regional goals.
- Develop holistic, streamlined processes and consistent metrics for tracking, quantifying, and implementing sustainability initiatives, measures, and data collection and tracking across all MCCA facilities.

Recommendations

- Continue to meet all requirements of the MA Energy Code and the MA Stretch Code.
- Elect to design major renovations and interior fit-out projects to LEED Silver certifiable (in line with Executive Order 594 requirements) and elect to pursue full certification on all projects.
- Although optional for MCCA, continue to commit to report existing building performance via BERDO.
- Elect to establish formal sustainability guidelines and requirements for all MCCA facilities.
    a. Benchmark the MCCA's sustainability initiatives against peer institutions and organizations.
    b. Identify project-appropriate certification opportunities for building, site, and infrastructure projects.
    c. Establish flexible, but measurable "good, better, best" guidelines for vendors and events management that target sustainability goals that are meaningful and aligned with MCCA's mission.
- Elect to create a clear messaging platform/strategy for communicating MCCA's "good work" and community stewardship in the form of a comprehensive website, tracking tools, and/or yearly sustainability reports.

Focus Areas

A holistic sustainability framework should establish strategies, metrics, and set goals in the following areas:

Energy Efficiency and Operational Carbon: Increasing energy efficiency and reducing operational carbon with the goal of fully decarbonizing building systems is a primary goal for all MCCA facilities. An in-depth analysis of existing conditions and identification of high-level strategies is included in this report.

Embodied Carbon: Prioritizing tangible strategies for reducing embodied carbon in interior fit-outs, major renovations and vendor activities is also a goal for MCCA. While strategies will be unique to each condition and are often project specific, high-level strategies, metrics and targets are recommended.

Water Conservation and Rainwater Reuse: The conservation of potable water use (both inside and outside the facility) is also identified a priority for MCCA facilities. Reductions in potable water inside the building can be achieved via use of low-flow plumbing fixtures. Reductions in potable water consumption outside the building can be achieved with site design strategies that include the use of drought-resistant native vegetation. Rainwater reclamation, water sub-metering, and leak detection systems should also be considered with each project.

Waste Management: Construction waste reduction and waste diversion should be made a priority for any building and site related projects. From an operational waste perspective, the greatest source of waste at the convention centers and exposition halls is the waste generated by events. Targeting strategic opportunities for waste diversion, composting, and tracking of waste are ongoing measures at the BCEC facility which can further be optimized and quantified.

Health and Wellbeing of Building Occupants: Enhancing the health and wellbeing of building occupants can be addressed in a variety of ways, focusing on providing access to daylight, provision of high-quality water and air, good acoustics, opportunities for socialization, access to healthy food, and the creation of outdoor spaces for recreation and enjoyment. Healthy material selections for building projects and vendors should be considered not only for embodied carbon considerations, but also with regard to the health and well-being of people who come into contact with these materials at all points and ethical sourcing considerations.

Landscape, Stormwater Management, Biodiversity, and Biophilia: The incorporation of landscape and low-impact development strategies can provide aesthetic enhancements and help mitigate stormwater management issues while also supporting biodiversity, providing recreational space, reducing the urban heat island effect, and elevating connections to nature and biophilia. Opportunities for urban farming, bee apiaries, or hydroponics should also be considered. Bringing biophilic elements into the building can enhance occupants' happiness levels, reduce anxiety, and contribute to wayfinding.

Entrance Plaza | Photo Credit: Signature Boston

Operational Carbon

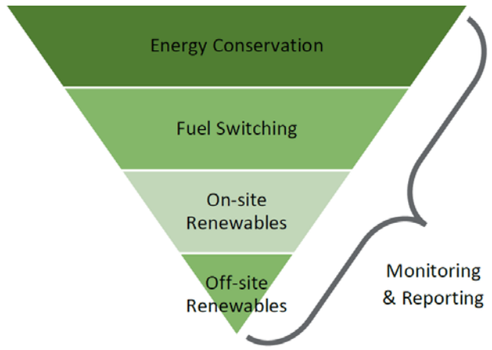
A top priority for the MCCA is to achieve Operational Carbon Neutrality by 2030 for all four facilities.

Goals

Set within a broader sustainability framework, a top priority for the MCCA is to achieve **carbon neutral operations**. Carbon neutral operations means all energy used on-site comes from carbon-free sources. This differs from Net Zero Energy operations (on-site energy demand equals on-site energy supply) in that it requires all purchased energy to come from carbon-free sources and does not require all energy to be generated on-site. Carbon neutral operations can be achieved by the following steps:

Energy conservation to save money and reduce electricity and natural usage.

1. **Fuel switching** to eliminate all remaining on-site natural gas usage (i.e., Scope 1 emissions).
2. **On-site renewable energy generation** to save money and reduce demand for purchased electricity.
3. **Off-site renewable energy procurement** to eliminate remaining energy-related GHG emissions.
4. **Monitor and report** progress toward carbon neutral operations to maintain accountability and serve as a leader for the Commonwealth of Massachusetts and the events industry.



Four-Tiered Approach to Decarbonize Existing Buildings

Objectives

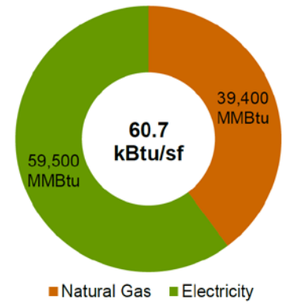
- Refine, develop, and implement cost-effective Energy Conservation Measures for each site.
- Upgrade or retrofit all appropriate systems from natural gas to electric alternatives.
- Upgrade or retrofit all heat pump equipment to use low global warming potential (GWP) refrigerants.
- Maximize the cost-effective installation of on-site renewable energy.
- Procure carbon-free energy sources for all remaining purchased energy.
- Monitor and report decarbonization process.

Existing Conditions

The existing assessment for operational carbon can be divided into **energy uses** and **energy supply**.

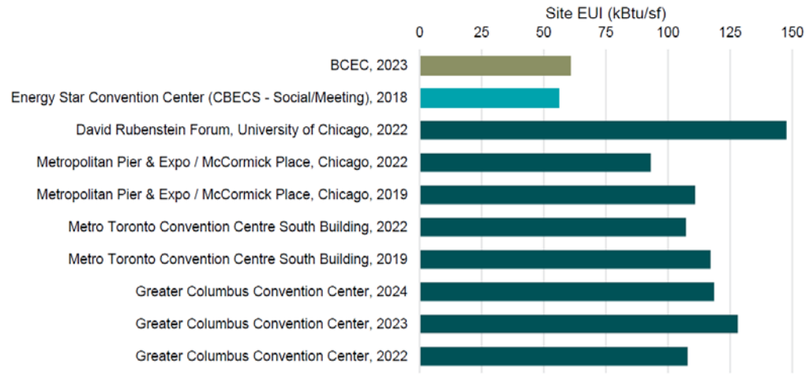
Energy Usage: Electricity is used for lighting and plug loads throughout the facility, ventilation, centralized cooling, and localized restroom DHW supply. Natural Gas is used in centralized boilers for space heating, domestic hot water (DHW) heaters in the kitchen, and for various cooking and catering equipment in the kitchen and concession areas.

In 2023, the BCEC consumed approximately 59,500 million British thermal units (MMBtu) or 17,400 Megawatt hours (MWh) of electricity and approximately 39,400 MMBtu or 394,000 therms of natural gas, totaling 98,900 MMBtu per year. As a 1,628,000 square foot (sf) facility, 98,900 MMBtu translates to an energy use intensity (EUI) of approximately 60.7 thousand British thermal units per square foot (kBtu/sf).



Annual Energy Usage at BCEC

Energy Usage Benchmark: Benchmarking energy usage against peer facilities is a challenge because public data is limited for convention center and exhibition hall facility types across North America (and statistically significant trends are challenging due to the wide variability of energy uses). That said, when compared against a sampling of similar facility types located in similar climates that all publicly report energy performance, the BCEC uses roughly 50% less energy per square foot than the average EUI of these facilities.

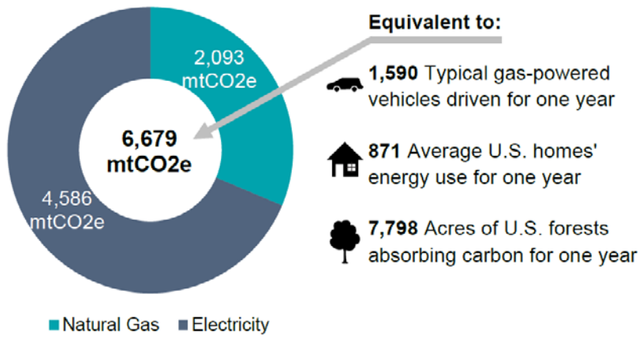


Existing Energy Usage Benchmark Against Peer Facilities

Operational Carbon (continued)

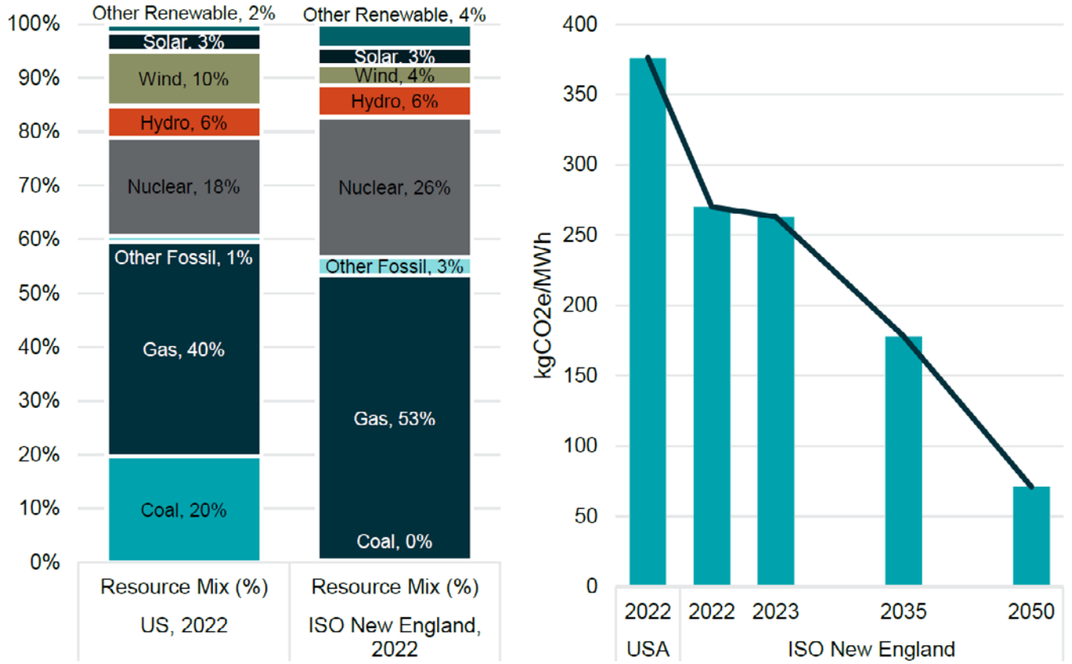
Existing Conditions (continued)

Energy Sources: Electricity is delivered to the site by Eversource, and natural gas is delivered by National Grid. Based on the greenhouse gas (GHG) emissions factors in kilograms of carbon dioxide equivalent ($kgCO_2e$) per MWh for electricity (263 $kgCO_2e$/MWh, ISO New England 2023) and $kgCO_2e$ per MMBtu for natural gas (53.1 $kgCO_2e$/MMBtu, US average) this equates to approximately 6,700 metric tons of CO_2 equivalent ($mtCO_2e$) per year.



Annual Operational GHG Emissions at BCEC

Aerial View | Photo Credit: Signature Boston



Comparison of ISO New England Energy Mix and Emissions Factor to US Average

Energy Sources Benchmark: Currently, the BCEC does not procure any renewable electricity beyond what is served by the ISO New England grid on average. For context, the 2023 emissions factor for ISO New England is about 30% less than the national average emissions factor of 376 $kgCO_2e$/MWh (eGRID, 2022). As more renewable energy is added to the grid, the ISO New England emissions factor is projected to drop to 178 $kgCO_2e$/MWh by 2035 and 71 $kgCO_2e$/MWh by 2050 (BERDO, 2024). Natural gas emissions factors are not expected to change through the planning horizon.

Operational Carbon (continued)

Recent and Ongoing Efforts

To reduce energy usage and supply energy from lower carbon sources, the MCCA has been implementing many efforts at the BCEC.

Lighting Retrofits and Controls Upgrades: Over 1,100 MWh in electricity savings has been experienced to-date from recent controls upgrades. Most of the facility has been retrofitted with LED lighting, yielding further savings. Additional 200 MWh or more is expected from further upgrades that are in progress.

Solar Photovoltaics (PV): An initial phase PV array at 1,134 kW-DC capacity on the west roof with 1 to 2 MW battery energy storage has been proposed. The interconnection requirements and constructability of necessary roof upgrades and related noise impact to customers has interrupted the project, but alternative approaches are being considered. If completed, this project would generate approximately 1,290 MWh of electricity per year, 7% of current annual demand.

Virtual Power Purchase Agreement (VPPA): A VPPA is a type of contract for off-site energy procurement. The MCCA has finalized a contract worth 19,500 MWh per year of renewable electricity for a period of fifteen years. This VPPA is expected to eliminate all BCEC Scope 2 emissions with some remaining supply to potentially offset other MCCA facilities. The MCCA Board has authorized a second VPPA worth 20,000 MWh per year for fifteen years which is expected to further reduce Scope 2 emissions across all MCCA facilities.

Demand Response: As an energy cost savings measure, the BCEC participates in the Eversource demand response program. When called to, the BCEC can opt to shed non-critical loads during periods of high grid demand. This indirectly supports contributes to GHG reduction by supporting grid flexibility which mitigating reduces demand for natural gas "peaker plant" generating stations.

Climate Action Plan (CAP): The MCCA is developing a CAP for all MCCA facilities. While not directly a decarbonization strategy, the CAP establishes a formal GHG inventory and baseline for Scope 1 and 2 emissions. Adopting a CAP is an important step toward carbon neutral operations, as it establishes accountability and transparency for reporting progress toward an established goal.

Recommendations

Energy conservation measures (ECMs) beyond recent and ongoing efforts at the BCEC are identified in the recent ASHRAE Level 1 Audit Report (October 2024). Key ECMs include:

1. Upgrading or resetting temperature and equipment controls for ventilation and refrigeration equipment
2. Installing energy recovery and free cooling at strategic locations
3. Replacing the existing gas-fired DHW water heaters with heat pump water heaters.
    a. Note: this overlaps with a key fuel switching strategy described below.

Combined, the ECMs identified have the potential to conserve 481 MWh of electricity and 15,000 MMBtu of natural gas per year. Refer to the ASHRAE Level 1 Audit Report for more details.

Fuel switching from natural gas to electric alternatives falls under three categories of natural gas use:

Natural Gas Use	Recommendation	Considerations
Space heating is provided by three gas-fired boilers at the central heating plant (one primary and two supplemental).	To decarbonize space heating, it is recommended to evaluate the potential to install air-source heat pumps to meet the majority of heating demand; retain one or two existing boilers to meet peak demand[1]; and site new equipment in the mechanical room, on the mechanical room roof, or at grade outside the mechanical room (elevated for flood resilience).	A focused engineering study is required to validate the recommended solution and refine a lifecycle cost optimized decarbonization pathway. Existing electrical capacity and rooftop structural capacity may be constrained to support the new equipment.
DHW for kitchen use is provided by two gas-fired condensing boilers. (Restroom DHW is provided by local electric boilers.)	To decarbonize DHW, it is recommended to evaluate the potential to replace the gas-fired water heaters with heat pump water heaters. This has been reviewed at a preliminary level during the ASHRAE Level 1 audit.	Further study is required to select a heat pump water heat with adequate capacity, design the supply and return connection to the existing hydronic system, and validate constructability considering structural and space constraints.
Cooking and catering include various electrical and natural gas equipment.	To decarbonize cooking and catering, it is recommended to replace the natural gas equipment with electric alternatives.	Further study is required to compile an inventory of existing gas-using equipment, identify like-for-like electric alternatives, and verify the local electric circuit capacity in the locations where the equipment would be installed.

[1] The natural gas consumed by retaining existing boilers for peak load only is understood to be minimal enough to comply with the BERDO emissions standard. To be verified during detailed analysis.

Operational Carbon (continued)

When a lifecycle cost optimized solution to decarbonize space heating and cooking/catering equipment, is identified, assuming air source heat pumps comprise a majority of the solution, demand for natural gas is estimated to reduce by approximately 24,000 MMBtu per year with a corresponding increase of electricity demand by approximately 3,000 MWh per year. (DHW decarbonization is already captured in the ECMs).

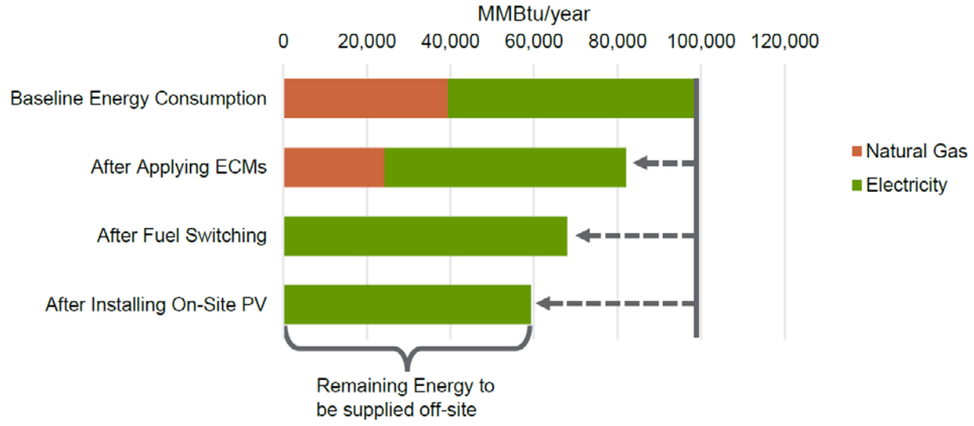
On-site renewables have been evaluated for the existing BCEC rooftops. On-site renewables are challenging for two reasons:

1. The central barrel vault construction creates structural and waterproofing challenges for a PV installation, and the barrel geometry limits daily solar exposure for part of the roof. However, innovative technologies like thin-film PV panels may be worth further evaluation.

2. The flat roofs on the east and west sides provide opportunities for PV installation, but as identified in previous reports the need for roof upgrades and constructing the array connections may interrupt event schedules. Alternative construction approaches are being evaluated for a first phase of PV on the west flat roof.

If construction constraints resolved and PV can be installed on both the east and west roofs, up to approximately 2,000 kilowatts (kW) of capacity may be available, enough to generate roughly 2,500 MWh or 15% of present-day electricity demand at the BCEC.

The combined effect of implementing the recommended strategies for energy conservation, fuel switching, and on-site renewable energy generation is a meaningful reduction in demand for off-site energy sources and the associated GHG emissions. Additional study is required to work out the details of some recommendations including resolving constructability and refining the most life cycle cost effective pathway, but assuming all recommendations are implemented the BCEC may experience up to approximately a 40% reduction in demand for off-site purchased energy and associated GHG emissions.



Projected Impact of Recommended Strategies on Off-Site Energy Demand

Carbon-free energy procurement is necessary for carbon neutral operations. As illustrated above, the combination of ECMs, fuel switching and on-site renewable energy generation can have a substantial impact on net energy demand, but there still is expected to be demand for approximately 60,000 MMBtu (17,400 MWh) of off-site purchased electricity. With the purchase of off-site electricity comes associated GHG emissions. Over time, some of these annual emissions will reduce as the electric grid continues to get cleaner, but current projections show the electric grid will not be fully carbon-free within the timeframe of the MCCA's carbon neutrality target. Therefore, supplemental clean energy procurement is required.

To do this, the MCCA may consider any of the three pathways established by BERDO (which the MCCA is not required to follow, but is recommended for consistent implementation of GHG reduction strategies):

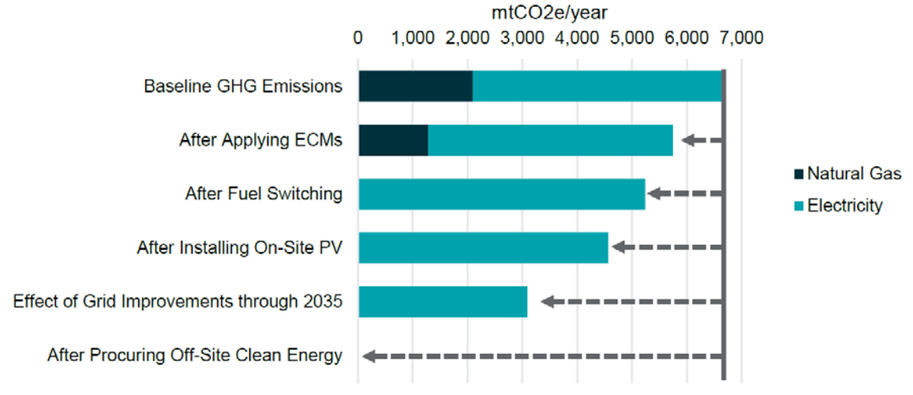
1. Enrolling into the Boston Community Choice Electricity and choosing the "Standard" or "Green 100" service.

2. Buying and retiring Mass Class I Renewable Energy Certificates, either unbundled or bundled as part of a PPA inside ISO New England.

3. Signing additional VPPAs outside ISO New England.

The MCCA is following pathway 3, establishing a virtual power purchase agreement (VPPA) to procure approximately 19,500 MWh of carbon-free electricity per year for fifteen years. This is expected to meet or exceed 100% of 2023 electricity demand at the BCEC. Additionally, the MCCA Board has authorized a second VPPA worth 20,000 MWh per year for fifteen years. Based on current estimates, this may also be enough to meet future electricity demand at the BCEC after implementing energy conservation, fuel switching and rooftop PV. It is recommended to continue reviewing this and other VPPA options as the preceding strategies are refined.

Procuring carbon-free energy in addition to implementing all site-level recommendations results in a clear pathway to carbon neutral operations at the BCEC.



Projected Reduction in GHG Emissions from Recommended Strategies

Operational Carbon (continued)

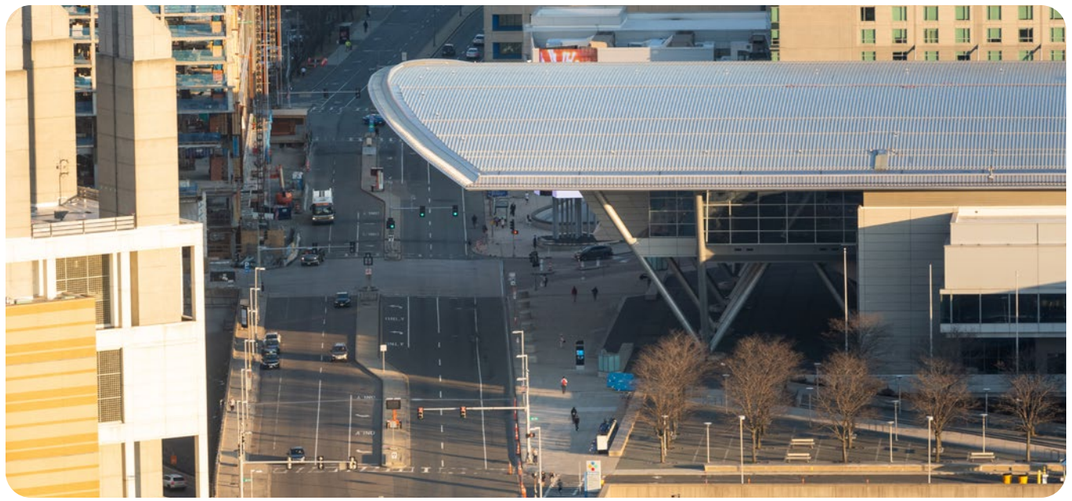
Underscoring all this effort, **monitoring and reporting** progress toward carbon neutral operations through established and transparent channels builds trust and accountability for the MCCA to follow through on its goals. As stated, the MCCA is not required to adhere to BERDO. However, the associated emissions disclosure platform is well established for Boston area facilities to report to; has a straightforward reporting process; and contributes to the BCEC demonstrating local leadership. As such, it is recommended the MCCA continue reporting energy and emissions trend data to the BERDO platform moving forward.

Beyond BERDO, there may be additional opportunities to explore more granular energy data monitoring and reporting, such as timeseries data and submetering, through other platforms which may benefit the MCCA through greater insight into energy usage trends.

Conclusion

In summary, the BCEC has a viable pathway to achieve carbon neutral operations by implementing a combination of energy conservation, fuel switching, on-site renewable energy generation, off-site renewable energy procurement, and ongoing monitoring and reporting.

The greatest potential obstacle to achieving carbon neutral operations is decarbonizing space heating. The potential constraints for space, electrical capacity and structural capacity may render decarbonization space heating cost prohibitive. Further study is required to refine the constraints analysis and develop a life cycle cost optimized implementation plan.



Aerial View | Photo Credit: Signature Boston

Embodied Carbon

Understanding, measuring and quantifying embodied carbon baselines will enable MCCA to establish reduction targets for all qualifying projects.

Goals

When considering full carbon neutrality, embodied carbon – the GHG emissions associated with the production, transportation and installation of materials – is an essential yet historically underemphasized element however an increasing number of institutions and jurisdictions are starting to take embodied carbon measuring into account. There are many opportunities to effectively assess and reduce the embodied carbon of materials at all scales of facility design and operation. Prioritizing tangible strategies for reducing embodied carbon in interior fit-outs, renovations, and vendor activities is a goal for MCCA. While the specific strategies will be unique to each condition and project, establishing high-level strategies, metrics and targets for vertical development, horizontal development, and event management are recommended.

Objectives

- Require whole project LCAs for all significant capital projects.
- Quantify embodied carbon for key materials.
- Require all significant capital projects to demonstrate a 10% reduction in embodied carbon.
- Calculate embodied carbon for all MEP and interior fit-out projects.
- Reduce embodied carbon for key materials.
- Understand additional embodied carbon impacts.

Recommendations

- For major renovations, interior fit-out projects, or MEP upgrades more then $1M: require a baseline and proposed LCA to be run.
- Identify a target **Embodied Carbon Reduction** (potentially 10% from baseline) as project goals.
- For all projects requiring more than 10 yards of concrete, require EPDs for each mix.
- For all projects with key interior materials (ACT, carpet, or drywall), require EPDs for each product type.
- Require teams to evaluate the embodied carbon of at least three different structural systems and explore a variety of bay sizes prior to the completion of SD.
- Explore opportunities for key uses of alternate materials, such as mass timber, in projects.
- Consider providing pre-vetted standard products which comply with EC reduction targets.
- Require each project team to identify opportunities for end of life product reuse.
- Require construction teams to track onsite utility and fuel use related to construction.
- The MCCA has entered into a professional services agreement for a Climate Action Plan (CAP) and a building decarbonization study with PowerOptions. Consider including the above embodied carbon recommendations in this study.

Energy Efficiency Summary Outline

DMI has completed an ASHRAE Level 1 energy audit for the Boston Convention and Exhibition Center (BCEC) to help determine the building's current energy performance and to identify energy savings measures to reduce operating costs. The audit is based on:

- 2001 construction drawings; and,
- A site visit to meet with facility operations staff and tour the facility to gain an understanding of how the building's HVAC&R systems operate; and,
- EMS screenshots of the HVAC&R systems.

The audit has focused on HVAC&R systems. The building envelope is expected to be the original construction and associated U-value, but due to the capital cost of upgrading the envelope, envelope ECMs have not been included.

A summary of utility consumption for 2023 is below.

Area	Electric		Gas		Total EUI
Ft^2	kWh	$kBTU/ft^2$	Therms	$kBTU/ft^2$	$kBTU/ft^2$
1,628,000	17,448,001	36.6	414,955	25.5	62.1

This energy usage corresponds to an energy use intensity of 62.1 $kBTU/ft^2$/year, which is less than the average EUI of 77 kBtu/ft2/year for large halls or social/meeting buildings in climate zone 5A according to the DOE's Building Performance Database.

Digital signage | Photo Credit: Signature Boston

Entrance Plaza | Photo Credit: Signature Boston

Energy Efficiency Recommendations

Building Location		Energy Efficiency Measure	Annual Savings Estimates			Carbon Savings (Tons)	Cost Estimate ($)	Simple Payback (years)
			kWh	therms	$			
Facility	**1**	Kitchen Heat Pump Water Heater	-23,000	17,000	$23,088	87.8	$486,675‡	21.1
Facility	**2**	Meeting Room Space Temperature Setbacks	4,100	3,900	$6,862	21.1	$161,298	23.5
Facility	**3**	Condenser Water Reset	21,000	0	$3,506	2.2	$2,503	0.7
Facility	**4**	Kitchen Hood Controls	40,000	2,200	$10,164	15.9	$68,135	6.7
Facility	**5**	Walk-in Freezer and Cooler Controls	71,000	0	$11,855	7.6	$125,145‡	10.6
Facility	**6**	AHU-3A and 3B Scheduling	260,000	4,000	$49,748	48.9	$2,053	0.05
Facility	**7**	AHU Energy Recovery	60,000	125,000	$208,018	669.8	$4,866,750‡	23.4
Facility	**8**	MDF Room Water-Side Free Cooling	48,000	0	$8,015	5.1	$264,195	33.0
Facility	**9**	Chiller VFD Retrofit*	81,000	0	$13,525	8.6	$798,147‡	59.0
		Total:	**562,100**	**152,100**	**$334,780**	**867.1**	**$6,775,350**	**20.2**
						Total Project Cost(3)	**$8,807,955**	

Fuel Switching Recommendations

Item #	Title	Location	Description	Total Project Cost (3)	Permit Cost (4)
DC-01	**Kitchen Electrification**	All Kitchen Space	Kitchen Electrification (conversion of all gas appliances to electric alternatives).	$1,859,000	$1,143,285
DC-02	**Fuel Switching**	Facility	Replace kitchen gas DHW water heaters with electric heat pump water heaters. Replace space heating gas boilers at the central heating plant with hydronic air cooled heat pumps. Provide additional supplemental electric service to meet new loads.	$105,300,000	$64,759,500
			Grand Total:	**$107,159,000**	**$65,902,785**

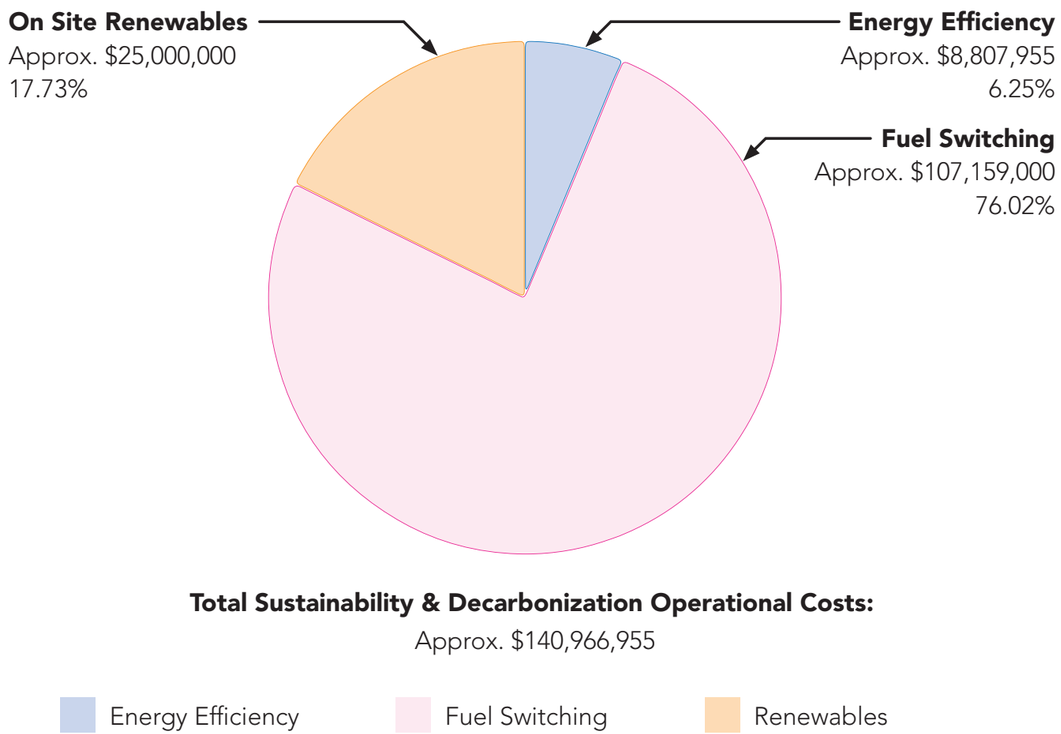
Renewable Generation Recommendations

Item #	Title	Location	Description	Total Project Cost (3)	Permit Cost (4)
DC-03	**Solar Panels**	Meeting Space Rooftops	Install 2MW-PV solar panels on meeting space rooftops. See sustainability report for scope.	$25,000,000	$15,375,000
DC-04	**VPPA**	Facility	This is to be procured in 2025	See Note #3	See Note #3
			Grand Total:	**$25,000,000**	**$15,375,000**

Sustainability & Decarbonization - Capital Costs

Total Project Costs

- Approx. **$8,807,955** of Energy Efficiency Recommendations From ASHRAE Level 1 Review. Escalated to FY 2026 (July 1, 2025).
- Approx. **$107,159,000** of Fuel Switching Recommendations: Escalated to FY 2026 (July 1, 2025) (see note #4).
- Approx. **$25,000,000** of Renewable Generation Recommendations: Escalated to FY 2026 (July 1, 2025).
- Off-site VPPA operation costs are not included.



Total Sustainability & Decarbonization Operational Costs:
Approx. $140,966,955

Energy Efficiency | Fuel Switching | Renewables

Exhibit Hall | Photo Credit: Signature Boston

(1) SGH Report: Provided by the MCCA, a Capital Replacement Program outlining deferred maintencance projects scheduled through fiscal year 2029.

(2) MCCA FY2025 Capital Projects Budget: Provided by the MCCA, a running list of Capital Projects including facility improvements, technology upgrades, and equipment purchases for fiscal year 2025.

(3) Total Project Cost: Hard costs as determined by a cost estimator plus a 30% mark-up for soft costs.

(4) Permit Cost: inclusive to total costs, this is 61.5% of the Total Project Cost. This number should be used for determining MAAB upgrade requirements per the 30% threshold set fourth by the State of MA.

Note #1: Costs are to be identified from the 2020 SGH Report and/or the MCCA Capital Investment Report provided by the MCCA. Project costs have already been captured in the CCF as per CHMW coordination with MCCA and A&F.

Note #2: See the 2020 SGH Deferred Maintenance Project List for a full list of additional project costs. These costs have already been captured in the CCF as per CHMW coordination with the MCCA and A&F. List of Key Deferred Maintenance Projects is a snapshot of the SGH and Capital Projects reports provided by the MCCA. These are highlighted as the more important projects which should be undertaken.

Note #3: The 2020 SGH Costs have been escalated to July 1st 2025 (FY 2026).

Note #4: Operational budget adjustment.

*ECM 9 is a tentative measure. It is unclear if it has already been implemented.

08
Climate Resilience

Addressing the impacts of climate change continue to be a critical part of our long term future. Our review of the Boston Convention & Exhibition Center's (BCEC) exposure to climate risk and resilience allows us to evaluate current and future climate-related hazards and provide recommendations to enhance the long-term resilience of these facilities, integrating protective measures into their design and operations.

A comprehensive analysis was conducted to evaluate the BCEC's climate implications and how its operations intersect with broader environmental factors. The facility's contributions to climate change were examined, focusing on topics such as greenhouse gas emissions, waste management, urban heat island effects, and impacts on local biodiversity.

An in-depth hazards review was also performed that considered extreme temperatures, winter weather, wind, seismic activity, and various types of flooding, including coastal, stormwater, and groundwater flooding. This review identified coastal and stormwater flooding and extreme heat as the most critical risks to the BCEC. The risk of flooding is high due to the BCEC's location in a coastal area vulnerable to sea level rise and storm surge. According to the Massachusetts Coast Flood Risk Model, the BCEC is projected to experience flooding under future scenarios for 2030, 2050, and 2070. Climate projections also indicate that the number of days exceeding 90°F in Boston is expected to nearly double by the 2050s, placing additional strain on cooling systems during heatwaves affecting occupant comfort.

Our findings underscore the necessity for immediate and long-term actions to mitigate these vulnerabilities, enhance the BCEC's resilience to climate change, and align its operations with sustainability goals. By addressing these challenges proactively, the BCEC can safeguard its operations and serve as a model for sustainable facility management in the region.

Key Findings:

- Prepare for future flood risk by elevating ground floor material and system vulnerabilities. Plan to protect critical infrastructure by compartmentalizing and dry flood proofing systems that will be exposed to flood waters. Consider deployable barrier retrofits at site, facade, and interior levels to protect facility and reduce post-flood downtime.
- Combat urban heat island by renovated large paved areas to maximize shaded areas with trees and shading devices. Prioritize planting of large canopy trees where possible to provide shade, reduce heat absorption, provide for biodiversity, increase storm water transpiration, and reduce overall site and building temperatures.
- See Sustainability chapter for detailed recommendations on reducing greenhouse gas emissions and optimizing energy resilience.

Climate Implications

The BCEC's operations have several climate implications, including contributions to greenhouse gas emissions, waste generation, urban heat island effects, and impacts on local biodiversity. Addressing these implications is essential for reducing the facility's environmental footprint and enhancing its resilience to climate change.

Biodiversity

The BCEC has extensive hardscape on-site, which limits the presence of vegetation and reduces habitat for local flora and fauna. This lack of green space diminishes the area's biodiversity. By incorporating additional tree planting in asphalt areas, adding green roofs and planting native vegetation, the facility can support local ecosystems, improve air quality, and enhance the aesthetic appeal of the area.

Recommendations

- Introduce native Massachusetts plant species throughout the site, focusing on areas like the Summer Street Plaza, entrance zones, and along Fargo Street. Native plants are well-adapted to local conditions, support wildlife, and require less maintenance.
- Consider establishing dense, biodiverse mini-forests known as Miyawaki Forests on available land such as Cypher Street and Haul Road buffer zones. These forests grow rapidly and support a wide range of species, enhancing urban biodiversity.
- Develop continuous green pathways that connect existing green spaces, allowing wildlife to move freely and promoting ecological connectivity. Planting trees and shrubs along these corridors can provide habitats and improve the aesthetic appeal of the area.
- Where feasible, install green roofs to create additional habitats, reduce stormwater run-off, and lower building temperatures. Green roofs can support a variety of plant species and provide refuge for birds and insects.
- Use organic fertilizers and pest control methods to minimize chemical inputs. Organic practices improve soil health, protect water quality, and support a broader range of organisms.

Urban Heat Island Effect

The urban heat island (UHI) effect poses a significant challenge for the Boston Convention & Exhibition Center (BCEC), largely due to its extensive hardscape surfaces that absorb and retain heat, leading to higher local temperatures. Mitigating this effect is essential for reducing energy consumption, enhancing occupant comfort, and contributing to broader climate resilience efforts.

The BCEC has already taken steps to address the UHI effect by utilizing a reflective white roof, which reflects sunlight more effectively than traditional dark roofs. This measure reduces heat absorption and helps maintain lower indoor temperatures, decreasing the demand on cooling systems. Additionally, existing green spaces such as the Lawn on D, Front Plaza, and D Street Common provide natural cooling through vegetation, offering shaded areas and reducing ambient temperatures around the facility.

However, the facility faces challenges due to its large paved parking lots and service areas composed of continuous asphalt. These extensive hardscape areas significantly contribute to heat retention and exacerbate the UHI effect. The need for open paved spaces to accommodate event staging and logistics further complicates efforts to reduce heat absorption in these areas.

Recommendations

- Increase green spaces by planting trees and shrubs around the facility to provide shade and reduce ambient temperatures.
- Retrofit parking areas with tree trenches and landscaping to reduce heat absorption and support rainwater infiltration.
- Install green roofs or cool roofs to improve insulation and reduce rooftop temperatures.

Waste and Toxic Substance Disposal

The BCEC generates significant waste due to its large-scale events and daily operations, making effective waste management a critical component of its sustainability strategy. Reducing waste not only minimizes greenhouse gas emissions associated with landfill decomposition—particularly methane, a potent greenhouse gas—but also aligns with environmental responsibility and regulatory compliance.

Between July 2023 and June 2024, the BCEC made considerable strides in waste reduction by successfully diverting over 150 tons of organic waste from landfills through composting. This initiative has not only reduced methane emissions but also enriched soil and decreased the reliance on chemical fertilizers, actively removing carbon from the atmosphere. Composting has become a core part of the BCEC's standard practices, especially in back-of-house areas where waste is generated from food preparation and staff operations. The BCEC has prioritized waste diversion by donating surplus food and furniture from events to organizations such as the Boston Food Bank and local vocational schools like Madison Park.

Despite these successes, the BCEC faces challenges in managing waste generated by guests during events. The front-of-house waste streams present difficulties in waste separation and composting logistics, and are currently undergoing revisions to standardize composting practices and improve waste sorting.

Recommendations

- Expand composting efforts to include front-of-house operations, educating staff and event attendees on proper waste disposal.
- Automate waste tracking and reporting to accurately measure waste diversion rates and identify areas for improvement.
- Partner with local organizations to donate surplus food and materials, reducing landfill waste.

Greenhouse Gas Emissions

The BCEC contributes to greenhouse gas emissions through energy consumption for heating, grid energy consumption, as well as waste generation. Reducing these emissions is necessary for mitigating climate change impacts. See the Sustainability chapter for detailed emissions and decarbonization discussion.

Review of Hazards

An assessment of climate risks specific to the BCEC was conducted, considering past events, current hazard levels, and future projections influenced by climate change. The highest risks identified are associated with coastal and stormwater flooding and extreme heat. Extreme wind poses a moderate risk, while groundwater flooding and extreme winter weather present low risks. Given their high-risk levels, coastal flooding, stormwater flooding, and extreme heat are the priority hazards requiring immediate attention.

In addition to these, extreme wind poses a moderate risk due to potential damage to the building's exterior and the risk of windborne debris. Groundwater flooding, though currently a low risk, could become more significant over time due to rising groundwater levels associated with sea level rise, potentially affecting the facility's foundations. By acknowledging and monitoring these additional hazards, the BCEC can develop comprehensive strategies to enhance its overall resilience to a range of climate-related risks.

Climate Risk	BCEC
Riverine Flooding	---
Coastal and Tidal Flooding	High
Stormwater Flooding	High
Groundwater Flooding	Low
Extreme Heat	High
Extreme Winter Weather	Low
Extreme Wind	Moderate
Seismic	Low
Hail	Low

Summary Table of Climate Risks for BCEC Renovation
Source: Climate Resilience Design Standards Tool (Resilient MA Action Team), FEMA National Risk Index

Exhibit Hall | Photo Credit: Signature Boston

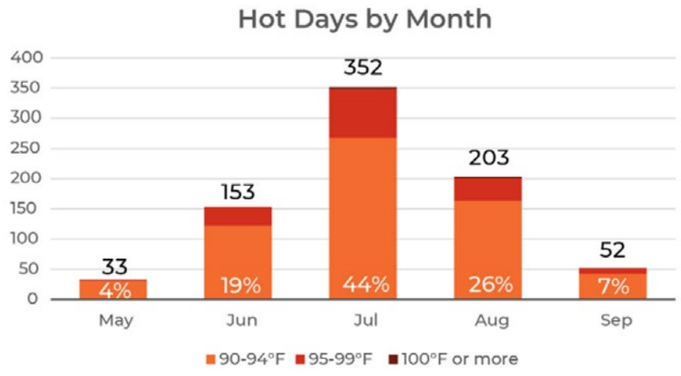
Priority Hazards

Extreme Heat

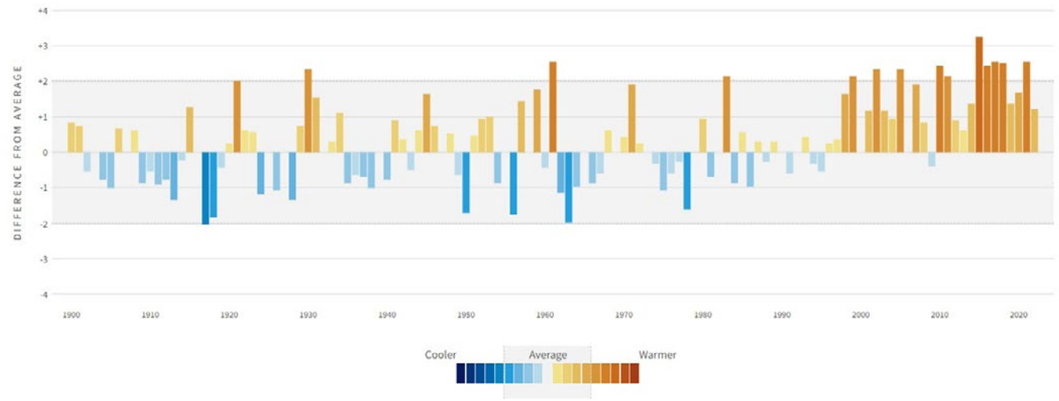
The BCEC is at high risk from extreme heat due to rising temperatures and more frequent heatwaves projected for the region. Climate models indicate that by the 2050s, the number of days exceeding 90°F in Boston is expected to nearly double, and days over 95°F could quadruple by the 2030s under high emissions scenarios. The facility's extensive hardscape surfaces and limited green spaces contribute to the urban heat island effect, exacerbating local temperatures and placing additional strain on cooling systems, potentially affecting occupant comfort and increasing energy consumption.

Recommendations

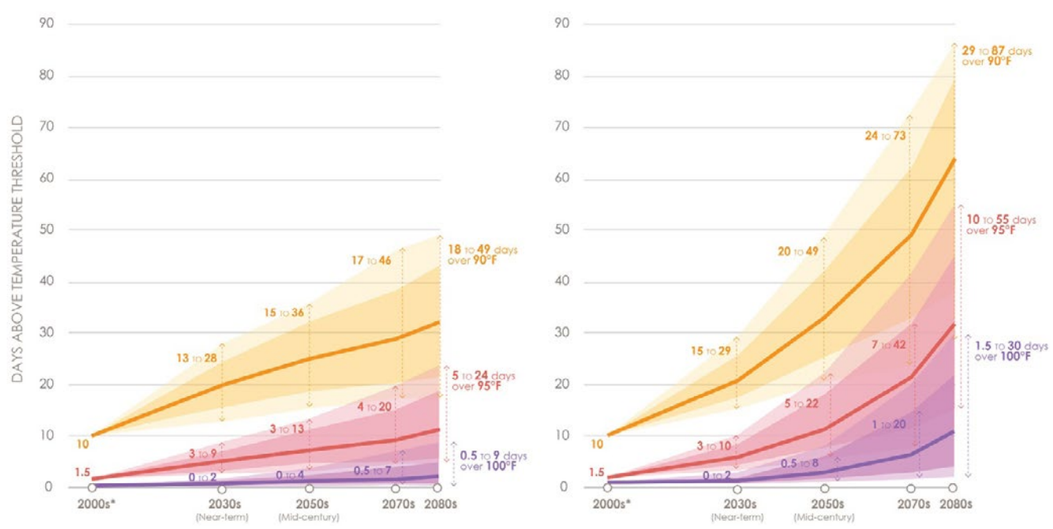
- Incorporate high-efficiency HVAC systems capable of operating effectively during prolonged periods of extreme heat to maintain comfortable indoor conditions.
- Increase green spaces around the facility by planting trees and shrubs to provide shade, reduce ambient temperatures, and mitigate the urban heat island effect.
- Implement green roofs or cool roofs on new structures to reduce heat absorption, improve insulation, and lower indoor temperatures.
- Retrofit large paved areas with tree trenches, landscaped islands, and permeable pavements to reduce heat absorption and support stormwater infiltration.
- Utilize reflective materials for roofs and pavements to decrease heat retention and reduce surface temperatures, enhancing occupant comfort.
- Design building orientation and facade treatments to minimize solar heat gain, using shading devices and high-performance glazing where appropriate.
- Encourage energy conservation practices among staff and event organizers to reduce internal heat generation and overall cooling demand.



Average Number of Days Exceeding 90°F in Boston from 1960-2020
Source: Heat Resilience Solutions for Boston



September Temperature Difference from 20th Century Average in Suffolk County, MA
Source: National Centers for Environmental Information



Projected Hot Days for Boston Regarding a Reduced Emissions Scenario (RP4.5) (Left)
Versus a Business-As-Usual Scenario (RCP8.5) (Right)
Source: Heat Resilience Solutions for Boston

Priority Hazards (continued)

Stormwater Flooding

The BCEC faces a high risk of flooding due to its proximity to the coastline, low elevation, and the compounded effects of climate change. According to the Massachusetts Coast Flood Risk Model, the BCEC is projected to experience flooding under 100-year storm scenarios for 2030, 2050, and 2070, with potential flood elevations reaching up to 21.5 feet Boston City Base Datum (BCBD) by 2070. The facility's loading docks and west side are particularly vulnerable, sitting at elevations as low as 16 feet, and the exposition hall is at 18 feet. Conducting deeper study and designing additional flood mitigation measures should be a major priority for the facility. Future storm surge flood events could cause significant damage to site systems and interior spaces, force significant downtime, and create hazardous conditions for occupants. Additionally, increased stormwater runoff from intense precipitation events and rising groundwater levels due to sea level rise contribute to the overall flood risk, potentially impacting the facility's foundations and underground infrastructure.

Challenges

- One of the main challenges is the vulnerability of critical equipment and infrastructure located at or below the exhibit level (18 feet), which are at risk of flooding from both coastal surges and stormwater inundation.
- The complex interplay of multiple flooding sources, including storm surge, sea level rise, heavy precipitation, and elevated groundwater levels, complicates mitigation efforts and necessitates a comprehensive approach to flood protection.
- Additionally, the insufficiency of existing stormwater infrastructure to handle projected increases in water volumes may exacerbate surface runoff and lead to localized flooding during intense rainfall events.
- The potential hydrostatic pressure from rising groundwater levels poses risks to the facility's foundations and sub-grade structures, which could lead to structural damage and long-term integrity issues.

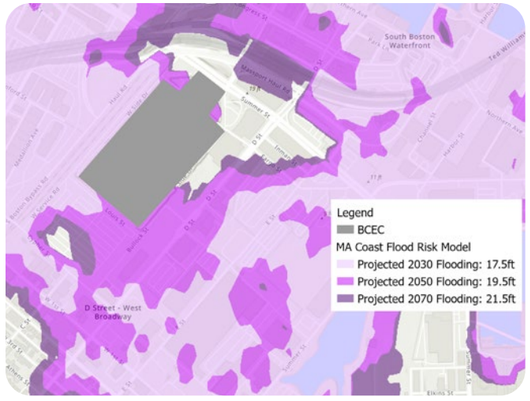
Recommendations

- Implement comprehensive flood protection measures that address coastal, stormwater, and groundwater flooding. This includes constructing flood barriers or berms around the facility perimeter to prevent coastal surge infiltration, waterproofing building exteriors to guard against water ingress, and installing backflow preventers on utilities to prevent sewage and stormwater backflow. Elevating critical equipment above projected flood levels and compartmentalizing sensitive areas with watertight enclosures can protect essential systems from damage. Using flood-resistant materials in vulnerable areas will enhance the building's ability to withstand flood events without significant damage.
- Upgrade and enhance stormwater management systems by incorporating green infrastructure solutions such as permeable pavements, bioswales, and green roofs to reduce surface runoff and promote natural infiltration. Installing detention basins or underground tanks will temporarily store excess stormwater during peak events, alleviating pressure on municipal drainage systems and reducing the risk of localized flooding. Regular maintenance and inspection of existing drainage systems will ensure they function effectively during storm events.
- Monitor and manage groundwater levels by installing groundwater monitoring wells around the facility to track changes over time and anticipate risks associated with rising groundwater tables. Implementing waterproofing techniques for foundations and sub-grade structures will prevent water ingress due to elevated groundwater levels. Designing foundations to withstand increased hydrostatic pressure will protect the structural integrity of the building as groundwater levels rise.
- Develop and maintain an integrated emergency response plan that establishes clear protocols for flood warnings, staff training, and the deployment of flood mitigation equipment to ensure swift and coordinated action during flood events. This plan should consider all types of flooding hazards, including coastal surge, stormwater runoff, and groundwater infiltration, and outline specific actions for each scenario. Regular drills and training sessions will prepare staff to respond effectively, minimizing risks to safety and disruptions to operations.

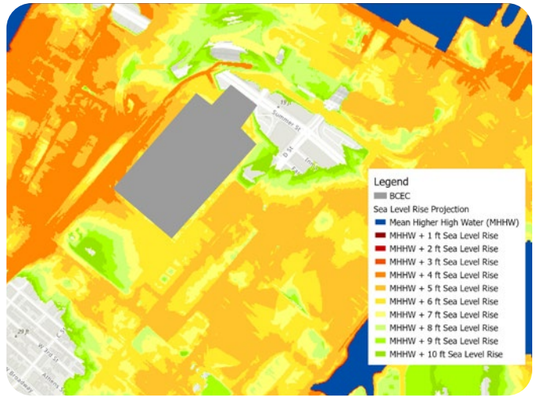
Location and Coastal Condition	Elevation (ft)	Notes, Source
Compliance		
Effective FIRM BFE	16.5	FEMA Effective FIRM (7/3/2024)
Effective FIRM DFE	17.5	Coastal A Zone + 1ft freeboard
CFROD SLR – BFE	20.0	BPDA Zoning Article 25A
CFROD SLR – DFE	22.0	BPDA Zoning Article 25A
Climate Change Considerations		
Projected Sea Level Rise Inundation (Current MHHW+5ft)	16.2	NOAA
Projected Sea Level Rise Inundation (Current MHHW+10ft)	21.2	NOAA
Projected 100-Year Storm Coastal Flooding 2030 (SLR + Storm Surge)	17.5	Massachusetts Coast Flood Risk Model (MC-FRM)
Projected 100-Year Storm Coastal Flooding 2050 (SLR + Storm Surge)	19.5	Massachusetts Coast Flood Risk Model (MC-FRM)
Projected 100-Year Storm Coastal Flooding 2070 (SLR + Storm Surge)	21.5	Massachusetts Coast Flood Risk Model (MC-FRM)
Current Structural Conditions		
Loading Dock Roadway	16.0	As Built Drawings
Exhibit Level (Critical equipment)	18.0	As Built Drawings

Elevations Related to Flood Mitigation Design at BCEC (Boston City Base Datum)

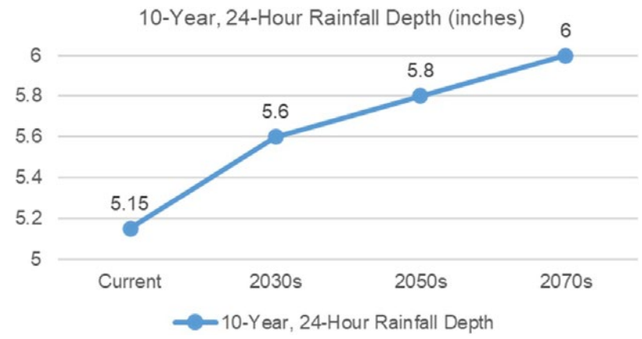
Priority Hazards (continued)



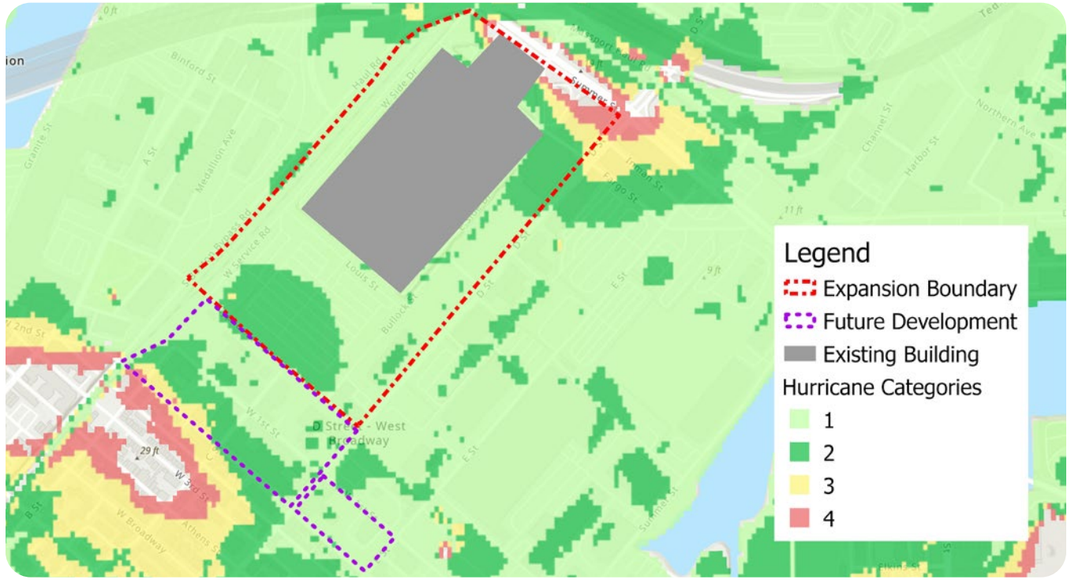
Projected Coastal Flooding
Driven by Sea Level Rise and Storm Surge
Source: Massachusetts Office of Coastal Zone Management



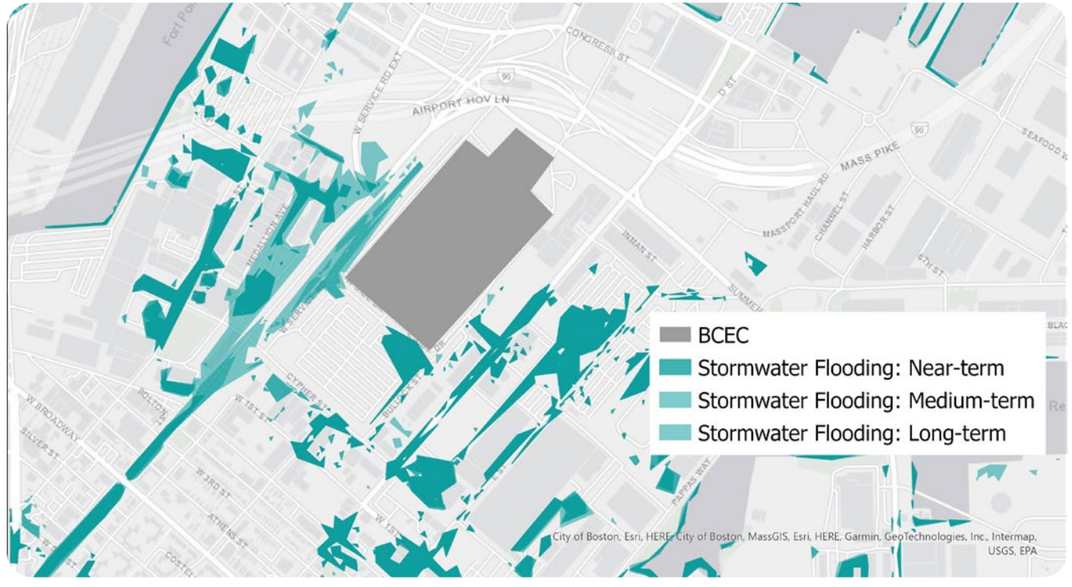
Projected Sea Level Rise Inundation of Coastal Areas from Rise in Sea Level Above Current Mean Higher High Water (MHHW) Conditions, Source: NOAA



Boston Extreme Precipitation Event Projections Considering the Middle Range Scenario
Source: City of Boston Climate Vulnerability Assessment, 2016



Worst-Case Scenarios of Storm Surge Inundation. Massachusetts Office of Coastal Zone Management
Massachusetts Sea Level Rise and Coastal Flooding Viewer. Woods Hole Group, 2022



Stormwater Flood Map
Source: City of Boston, Climate Ready Boston Map Explorer: Stormwater Flooding and Ponding Map

09
Emergency Response

The Boston Convention and Exhibition Center (BCEC) is a key facility in both Boston's economic ecosystem and the Commonwealth's emergency management infrastructure. This review identifies key opportunities to enhance the BCEC's emergency response and highlights gaps that need to be addressed to ensure it can effectively support the community during critical times.

The BCEC has demonstrated flexibility in supporting emergency response, most notably during its conversion into a 1,000-bed COVID-19 field hospital in 2020. As one of the largest convention centers in the Northeast, its vast infrastructure, strategic location, and logistics capabilities position it as a valuable resource in the Commonwealth's emergency management system. The BCEC is particularly well-suited for roles such as:

1. Emergency Distribution Hub

Its extensive storage spaces and proximity to major transportation routes make the BCEC ideal for distributing emergency supplies, medical equipment, and other resources on a city or regional level.

2. Temporary Medical Facility

With a proven ability to quickly adapt into a medical facility, the BCEC can provide temporary healthcare services during public health crises and mass casualty events.

3. Community Warming and Cooling Hub

The BCEC's HVAC systems and vast indoor spaces make it a strong candidate for serving as a climate-controlled refuge during extreme weather conditions like heatwaves or cold snaps, providing comfort and safety for vulnerable populations.

Key Findings:

- Enhance Energy Resilience of the facility. The current backup power system only supports essential life safety functions, such as emergency egress lighting and a limited number of elevators. In the event of a grid outage, there is no backup power for air circulation, heating, or most lighting, which severely limits the facility's ability to operate as an emergency shelter or extended-stay facility. Expanding back-up power and lighting infrastructure, as well as backup generator capacity and fuel storage is critical to enhancing the BCEC's resilience during long-duration power outages.
- Improve Infrastructure for Temporary Housing or Shelter Operations by retrofitting key areas to accommodate emergency sheltering needs, including adding hookups for mobile shower and restroom facilities, expanding accessible spaces, and implementing carbon monoxide detectors. This would make the BCEC more suitable for large-scale sheltering operations during natural disasters or public health emergencies.
- Operations should continue to evaluate additional demands and uses when the facility is fully occupied or empty.

BCEC Emergency Response Context

While the Massachusetts Convention Center Authority (MCCA) operates the Boston Convention & Exhibition Center (BCEC) and possesses significant infrastructure, it does not have a formal emergency response mandate. The designation of specific emergency response roles and responsibilities for the BCEC would be determined by state agencies responsible for emergency management and planning, such as the Massachusetts Emergency Management Agency (MEMA). This assessment focuses on the material and operational capacities of the BCEC, recognizing that any expansion into emergency roles would require coordination with external authorities, and the need for external parties to establish the any formal emergency response designation and work closely with the MCCA to ensure organization alignment and preparedness. This study did not review current MCCA's operational emergency procedures. The MCCA is particularly well-equipped for logistical support and command center functions but faces challenges in roles that involve providing direct care and services to crisis-affected populations due to contractual and operational constraints.

Identified Gaps in Emergency Response Capacity

While the BCEC has a significant potential to serve in various emergency response roles, several critical gaps limit its ability to fully realize this potential:

Emergency Response Gaps

Energy Resilience: The current backup power system only supports essential life safety functions, such as emergency egress lighting and a limited number of elevators. In the event of a grid outage, there is no backup power for air circulation, heating, or most lighting, which severely limits the facility's ability to operate as an emergency shelter or extended-stay facility. Expanding backup generator capacity and fuel storage is critical to enhancing the BCEC's resilience during long-duration power outages.

Undercapacity for Sheltering: While the BCEC has space for temporary housing, significant constraints limit its ability to serve as a long-term emergency shelter:

- **Limited shower and restroom facilities:** the loading dock area can accommodate portable showers and toilets, but structured schedules and additional staffing would be required to manage these services effectively during emergencies.
- **Accessibility:** the current number of accessible restrooms and spaces is insufficient for large-scale sheltering events, and MCCA would need to invest in portable accessible facilities to meet ADA requirements.
- Operational Challenges: the BCEC's primary operational focus on hosting large-scale events requires careful alignment with emergency response roles. If the facility is to be repurposed for emergency operations, adjustments to staffing, contracts, training, and logistical planning are needed. MCCA staff would support external agencies in response efforts, and not lead or provide front line roles in a emergency response scenario. In the Commonwealth oversight of shelter operations would be governed by the city, State or Federal government and managing these activities would not be the responsibility of the MCCA. Emergency services would be provided by such operational organizations like the American Red Cross or National Guard.
- Contract Challenges: Based on current business practices, there are some circumstances which the BCEC could not to be used as a shelter given contracts with clients or labor contracts.

Recommendations for Enhancing Emergency Response

To fully align the BCEC's emergency response capabilities with the facility's potential roles, the following key actions are outlined.

Recommended Actions

- **Increase Backup Power Capacity:** Conduct a critical load study to identify essential systems that require backup power (HVAC, lighting, communication systems), and plan for the installation of additional generators and fuel storage. This will allow the facility to function effectively during extended power outages, ensuring continuity of services like heating, cooling, air circulation, and essential lighting.
- **Improve Infrastructure for Temporary Housing or Shelter Operations:** Retrofit key areas to accommodate emergency sheltering needs, including adding hookups for mobile shower and restroom facilities and expanding accessible spaces. This would make the BCEC more suitable for large-scale sheltering operations during natural disasters or public health emergencies.
- **Continue Strong Partnerships with Emergency Management Agencies:** Continue fostering close working relationships with local and regional agencies such as MEMA, the Massachusetts Department of Public Health, and the Boston Office of Emergency Management. Regular participation in multi-agency drills, training, and emergency planning exercises will ensure the BCEC's emergency protocols are aligned with broader state and federal strategies.

Limitations of the BCEC for Certain Emergency Roles

While the BCEC can play an important role in many emergency response scenarios, it is not well-suited for use as a community storm shelter during events like hurricanes or severe flooding. Its extensive glass surfaces, vulnerability to flooding in the Seaport District, and reliance on limited backup power make it less ideal for such roles without significant infrastructure upgrades. Additionally, the facility's location and design pose challenges for sustained shelter operations in the event of severe weather.

Conclusion

The BCEC holds significant potential to serve as a critical asset in the Commonwealth's emergency response efforts, especially in areas such as resource distribution, medical facility support, and climate-controlled sheltering. However, to fully realize this potential, the facility must address key infrastructure limitations—particularly in backup power and sheltering capacity. By addressing these challenges, the MCCA can ensure that the BCEC remains a resilient and adaptable resource for both Boston and the Commonwealth during future emergencies.

10
Transportation

Assessment of the BCEC's transportation and access conditions include evaluating its infrastructure, vehicular circulation, safety, curb use, transit options, loading docks, parking, and pedestrian/bicycle facilities. High-priority recommendations include on-site truck marshalling, ADA-compliant ramps, upgraded bike infrastructure, and improved wayfinding.

The transportation infrastructure near and on-site of the BCEC has several areas for future development aimed at enhancing accessibility, efficiency, and convenience for all users. Key recommendations for pedestrian infrastructure include collaborating with the City of Boston to remodel nearby ramps and crosswalks will ensure ADA compliance and include detectable warning panels where necessary.

Regarding bike infrastructure, the MCCA should work with the City of Boston to explore upgraded bike infrastructure surrounding the Site, including upgrading current bike racks to compliant designs and increasing their visibility and accessibility that will boost utilization. Promoting cycling as a viable commuting option through increased awareness about available bike parking and integrating it with main entrances, as well as enhancing signage and developing better access routes for cyclists, will improve safety and usability.

As site circulation for cars, vans and buses is currently quite functional, continued consolidation of parking to on-site locations can improve overall access. Modernizing and providing additional detailed wayfinding signs to direct vehicles from Summer Street to the various parking and drop off areas will improve navigation.

By executing these recommendations, the BCEC can provide a well-integrated, efficient, and user-friendly environment that accommodates the diverse needs of its guests, employees, and service providers and promotes sustainable transportation modes.

Key Findings:

- Conduct an inventory of pedestrian wayfinding signage to identify and address gaps, ensuring consistent, simple, and well-placed signs for improved visitor navigation.
- Conduct an ADA compliance review of ramps and coordinate with City of Boston to prioritize high-use pedestrian corridors for improvements.
- Upgrade bike racks in the bike cage to newer models, relocate short-term parking near main entrances, and improve employee awareness to encourage cycling.
- Consider conducting a feasibility study to explore benefit of a consistent and active MCCA shuttle bus system.
- Coordinate with the City of Boston on safety initiatives for vulnerable users.
- Convert the Summer St. taxi stand to a 5-minute passenger pick-up zone.
- Enhance wayfinding signage to direct parkers to on-site surface lots.
- Explore ways to maximize on-site truck marshalling or an additional long term, off site truck marshalling area.

1. Pedestrian Infrastructure

Summary

- The sidewalks around the vicinity of the BCEC and internal to the Site are generally compliant with the City of Boston Guidelines providing safe and accessible environments for pedestrians.
- Crosswalks and ramps are provided at intersections abutting the Site and are generally in good conditions.

Findings & Recommendations

- Internal to the Site, pedestrian wayfinding signs are minimal, especially on Level 0, potentially causing confusion especially for non-local visitors. Recommendation includes a full inventory of wayfinding signage and identification of gaps/needs for additional signs and/or improved pedestrians signs. Signage to be consistent in design and be placed in well-lit and visible locations near key pedestrian desire lines. This additional study would also remove any signs that are damaged, outdated, no longer relevant or inconsistent with how BCEC exhibit halls are to be accessed. Knowing that BCEC visitors include international travelers, simple and easily recognizable signs are recommended.
- Several locations do require a deeper ADA compliancy review related to ramps, including Summer Street at the BCEC West Side Driveway lack of detectable warning panels. Sidewalks under the jurisdiction of the City of Boston would benefit from a coordinated effort between City staff and MCCA, where MCCA can highlight high use pedestrian corridors relevant for BCEC for the city to address and prioritize as they execute ADA/ramp reconstruction and improvement efforts.

2. Bike Infrastructure

Summary

- The bike infrastructure around the BCEC includes buffered bike lanes on Summer Street, generally buffered bike lanes on D Street, and a new, bi-directional grade-separated bike facility on Cypher Street.
- Multiple Bluebikes stations are conveniently located within a quarter mile, including at The Lawn on D and near the BCEC main entrance on Summer Street.
- The Site offers secure, long-term, weather-protected bike parking for 40 bikes in a bike cage on Level 0 near East Side Drive. Another 25 bike parking spaces are provided near entrances for short-term parking.

Findings & Recommendations

- Field observations show underutilization of on-site bike parking facilities, with low occupancy even during events. Access to the bike cage is not convenient and requires cyclists to use the ramp from Level 1 to Level 0. Bike racks in the bike cage should be upgraded to newer models that allow for easier and safer locking mechanisms, per the latest Boston Bike Parking Guidelines. Similarly, MCCA should consider relocating bicycle short-term parking spaces to near main entrances. Employees could benefit from more direct marketing of bike parking options (as well as opportunities to shower on-site), so they can consider cycling as a commute mode in the future. Increasing awareness and visibility of bike parking areas and promoting cycling as a feasible commuting option will allow for a possible reduction in automobile reliant employee trips, to serve the goal of a more resilient and sustainable BCEC.

Bike Storage | Photo Credit: VHB

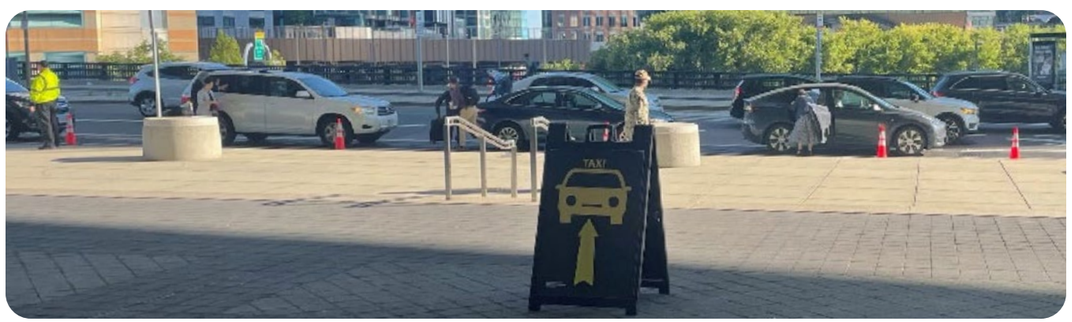
3. Passenger Vehicle Access and Parking

Summary

- The BCEC employs a detailed plan that outlines where different transportation modes are expected to pick-up/drop-off visitors. The plan's intent is to ensure that no passenger pick-up/drop-off occurs on Summer Street except for the dedicated taxi stand.
- The internal roadway network provides multiple options to access different points of BCEC. Level 1, which is primarily accessed via Summer Street, features a one-way, clockwise circulation with two travel lanes and ample drop-off zones along the West Side Drive and East Side Drive. Level 0, accessed from ramps located on the north and south sides of the BCEC and connecting to Level 1, provides main connection points to the North Lot (surface parking lot) and South Lot (surface parking lot).
- The BCEC offers approximately 2,000 parking spaces, including 1,343 in the South Lot and 192 spaces in the North Lot, mostly dedicated to staff parking.

Findings & Recommendations

- The dedicated taxi stand on Summer Street was found to be utilized by mostly rideshare pick-up/drop-off activity (Ubers/Lyft), vs traditional taxis/cabs. The MCCA to consider coordinating with the City of Boston to update/change the taxi stand designation to a 5-minute passenger pick-up/drop-off zone to better align with visitor experience and expectations. Geofencing opportunities can be studied/proposed to limit rideshare activity to designated zones, thereby reducing conflicts by incorrect or double parking, and improving the guest experience. MCCA wayfinding signage can be incorporated to align with guest arrival experience.
- Visitors who drive to BCEC and require parking, may experience some confusion around parking lot access. The MCCA to consider providing more wayfinding signage to direct parkers from Summer Street and other access roadways to the surface lots provided on Site. Signage could be electronic/variable with feedback to drivers on where to park depending on their time or arrival (North Lot vs South Lot vs. offsite in case of overflow).
- Based on MCCA staff interviews and limited in-field observations, findings indicate that the existing surface lots rarely reach full capacity, even during event days. Most BCEC guests are not local, and usually fly to Boston and stay at a nearby hotel that allows walkable access to BCEC. In the case of local/regional events, that require vehicle parking beyond what BCEC has available on-site, overflow parking lots are made available to guests. Overflow lots are owned/operated by others and are only engaged for infrequent events when on-site parking is insufficient.



Taxi Stand on Summer Street | Photo Credit: VHB

Parking Supply BCEC Site	Grand Total[1]	Reserved	Standard Spaces	HP-Accessible Spaces	EV Spaces
North Lot	192	34	148	4	6
South Lot[2]	1,343	0	1,318	25	0
Bullock Street Lot	Approx. 20	20	0	0	0
West Service Drive Lots	Approx. 30	30	0	0	0
Off-site[3]	Approx. 415	n/a	415	n/a	n/a
Grand Total	Approx. 2,000	84	1,881	29	6

[1] Based on VHB Staff observations conducted September 3, 2024, and BCEC Existing Floor Plans provided by Touloukian Touloukian Inc.
[2] South Lot count includes the area used as truck marshalling zone.
[3] Off-site parking supply is estimated.

Parking Usage BCEC Site	Capacity[1]	Occupancy Typical Day[2]	Time of Observation	Occupancy Event Day[3]	Time of Observation
North Lot	192	130 spaces (70%)	Afternoon	82 spaces (40%)	Morning
South Lot	1,343	54 spaces (5%)	Afternoon	185 (15%)	Morning

[1] Based on VHB Field observations conducted September 3, 2024, and Existing BCEC Floor Plans provided by Touloukian Touloukian Inc.
[2] Based on VHB Field observations conducted September 3, 2024
[3] Based on VHB Field observations conducted September 10, 2024, during the Veeva R&D Summit which hosted approximately 3,700 guests on-Site

4. Transit and MCCA Shuttle

The BCEC is well-served by multiple MBTA public transportation options, including the Silver Line routes SL1, SL2, and SL3 and local bus routes 4 and 7, in addition to the Red Line and Commute Rail (0.5 mile from BCEC at South Station). An MBTA bus stop is located on Summer Street in a very prominent location right at the entrance to BCEC.

The MCCA currently operates limited shuttle buses for employee parking access from the South lot primarily. MCCA does not currently offer any consistent or active shuttle service, outside of the limited parking support. Typically, BCEC staff works with event hosts to plan shuttle services operations for an event on a case-by-case basis. The event host is responsible for providing shuttle buses.

Findings & Recommendations

- MCCA shuttles are not provided on a consistent schedule or route, which makes it unreliable for trip planning. MCCA could formulate a more official timetable and take on a more active role in transportation of guests to/from the BCEC and major transportation hubs. Although BCEC does have great access to public transit, an additional, or supplemental connection to some larger hubs may be considered a benefit to employees and visitors alike. The shuttle system could also be utilized for guest transfers between MCCA facilities (BCEC, HCC and BCG primarily) in case of event overflow spaces or parking overflow needs. A deeper review of transportation data points is needed to allow for detailed shuttle schedule and routing recommendations.

5. Trucks/Service and Loading

Summary

- The BCEC's off-street loading facility efficiently manages event logistics with 62 loading docks and 5 roll-up doors, actively supervised by a dock manager. Loading docks are accessed from dedicated truck routes on South Boston Bypass and Cypher Street, which helps maintain safety by minimizing conflicts between trucks, pedestrians, and cyclists on neighborhood/local roadways.

Findings & Recommendations

- The BCEC currently marshals trucks on site and at the 415 Summer Street Lot. There is currently no known issues with this arrangement, and no further truck marshalling suggestions are being presented assuming that the 415 Summer Street Lot remain a marshalling location.

- In the future, If the BCEC moves forward with a potential expansion, an additional truck marshalling location could be required during construction, and potentially after completion of the new construction to accommodate loading requirements.

Roadway Safety and Crash Analysis

- Within the Study area, there were 29 crashes reported over a 3-year period. Four of the crashes involved vulnerable roadway users (cyclists and pedestrians).

Findings & Recommendations

- While even one crash is too many, the level of crash activity when compared to levels of general vehicle volumes on these roadway corridors, do not appear to be at a concerning level with the City of Boston or the State of Mass (no active Highway Safety Improvement Program clusters are present, nor have any Roadway Safety Audits been filed with MassDOT for study locations. MCCA should continue to coordinate with the City of Boston on initiatives to enhance safety near the BCEC, especially for vulnerable roadway users. Any requests from the City for additional safety measures, such as sight line improvements, enhanced signage, elimination of conflict zones, etc. – should be evaluated and implementation should be coordinated.

Surface Parking Lot | Photo Credit: VHB

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) strategies aim to reduce vehicle miles traveled, increase travel choices, improve sustainability, and support economic development by enhancing transportation system efficiency.

A review of BCEC transportation programs, concluded the following:

- BCEC employee and visitor auto mode share ranges between 35% and 75%, depending on event type (local/ regional draw vs. national/international draw).
- BCEC's current TDM program includes provision of bicycle parking, charging market rate parking fees to visitors, providing transit information screens inside BCEC lobby, allowing flexible work schedules and telecommuting for some employees, and providing EV-charging spaces on site
- Additional TDM strategies are available to MCCA to help reduce reliance by BCEC visitors and employees on single occupancy vehicles.
- Massachusetts has committed to achieving net-zero greenhouse gas (GHG) emissions by 2050. Aligned with these policies in decarbonizing the statewide transportation sector, it is suggested the MCCA evaluate it's commitment to Executive Order 594, Fleet conversion, EV charging, Base energy code per state and local requirements – as well as city of Boston policies and regulations on EV readiness and NetZero code. Additionally, third party guidance such as U.S. Green Building Council (USGBC) / Leadership in Energy and Environmental Design (LEED) and Green Business Certification Inc. (GBCI) parksmart may also be appropriate to pursue.

Existing TDM Measures at BCEC

The following is a list of TDM measures provided by BCEC to help reduce reliance on single-occupancy vehicles by visitors and employees:

- Charging market rate parking fees to visitors;
- Providing real-time transit screens in visible locations with MBTA transit schedules and Shuttle bus schedules
- Allowing flexible work schedules and telecommuting for employees. (administrative staff have option to work 3 days a week in the office with 2 days from home).
- Preferential parking – 6 Electric vehicle (EV) parking spaces

Bike Lne on Summer Street | Photo Credit: VHB

Best Practices in TDM

TDM as a practice supports actions to reduce single occupancy vehicle trips, with the goal of encouraging carpooling/ vanpooling, commuting by bicycle and walking, as well as increased use of area's public transportation system and other sustainable modes by employees and visitors.

Best practices in TDM employed locally with Boston area agencies, institutions and private developers, and available to MCCA for consideration, are summarized into the following groupings:

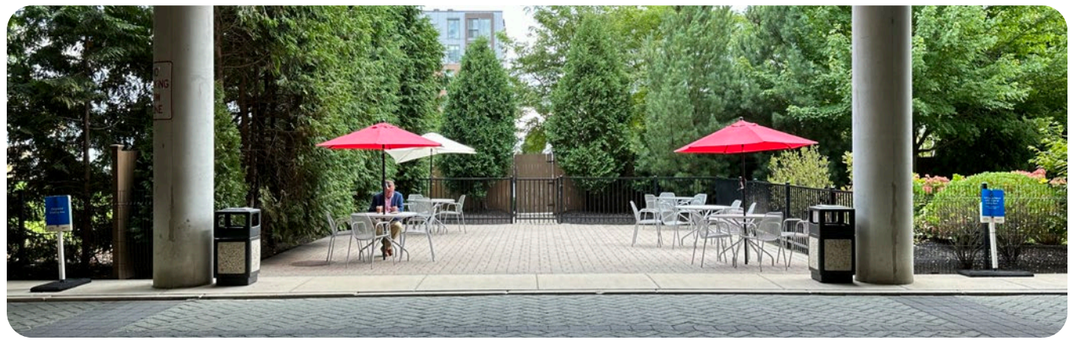
TDM Resources/Support Services
- Designation of an on-site Employee Transportation Coordinators (ETC
- Joining a Transportation Management Associations (TMA)
- Marketing and Promotion Materials

Public Transportation Strategies
- Setting aside pre-tax funds for purchase of transit passes
- Subsidizing monthly transit passes

Parking Strategies
- Charing market rates for parking
- Limiting parking supply at destination
- Providing preferential parking spaces for carpools/vanpools
- Access to Ridematching programs

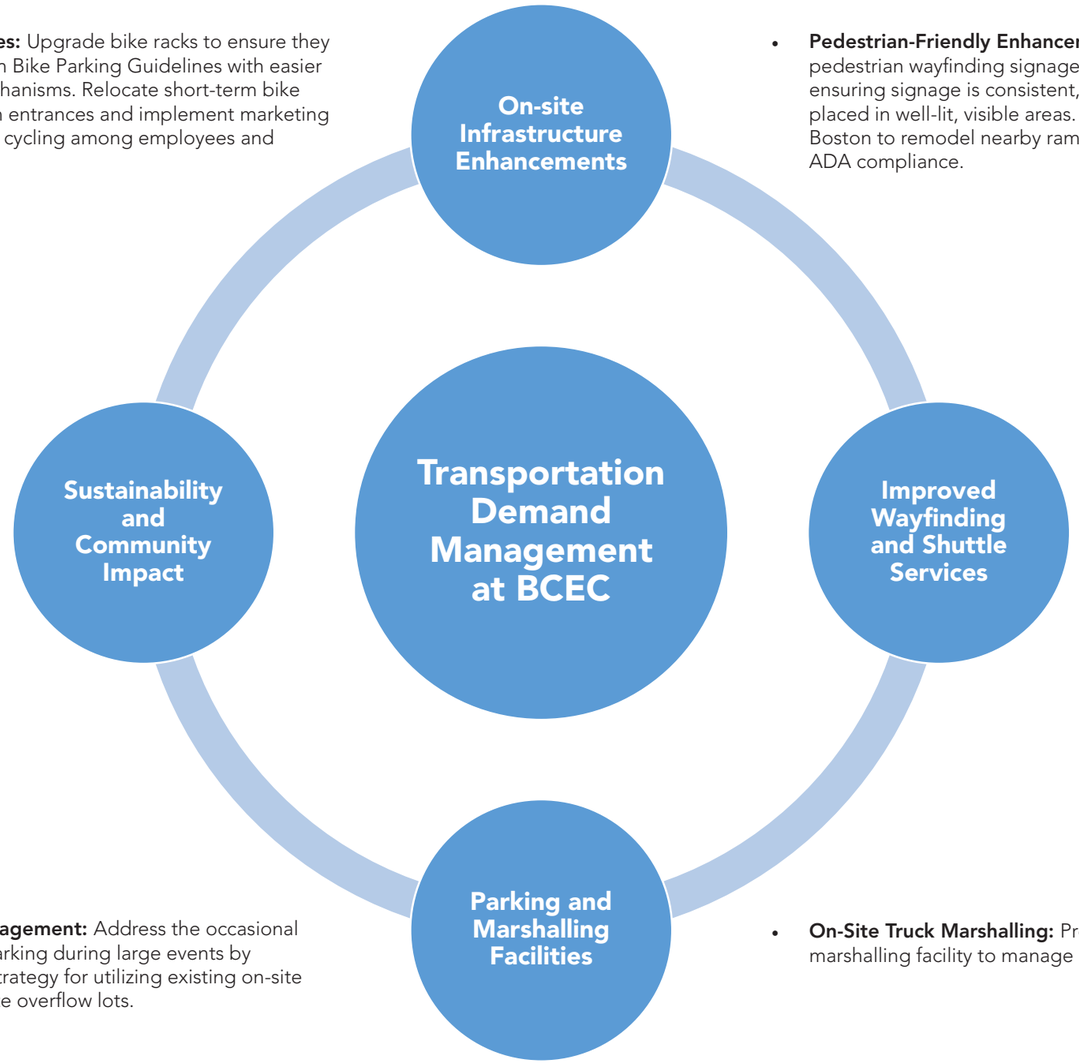
Bicycle and Pedestrian Amenities and Incentives
- Long-term and short term bike parking on site
- On-site showers, lockers and changing rooms
- Bicycle repair station
- BlueBikes
- Subsidized BlueBikes membership
- Emergency ride home
- E-bicycle / e-cargo bike program
- Multimodal transportation subsidy
- Subsidized carshare

Flexible Work Schedules and Telecommuting



Lawn on D level 0 access | Photo Credit: Touloukian Touloukian Inc.

An efficient, inclusive, and sustainable transportation ecosystem at BCEC, driven by strategic TDM policies, enhances the overall visitor and employee experience while supporting regional economic development and environmental goals.



- **Bike-Friendly Facilities:** Upgrade bike racks to ensure they meet the latest Boston Bike Parking Guidelines with easier and safer locking mechanisms. Relocate short-term bike parking closer to main entrances and implement marketing strategies to promote cycling among employees and visitors.

- **Pedestrian-Friendly Enhancements:** Improve existing pedestrian wayfinding signage, especially on Level 0, ensuring signage is consistent, easily recognizable, and placed in well-lit, visible areas. Coordinate with the City of Boston to remodel nearby ramps and crosswalks to ensure ADA compliance.

- **Enhanced Signage:** Install detailed wayfinding signage to direct vehicles from Summer Street to various surface lots. Potentially utilize electronic/variable signage to provide real-time feedback to drivers about parking availability.

- **Shuttle Timetable:** Consider establishing a consistent timetable for MCCA shuttles, improving reliability and connecting BCEC to major transportation hubs. Consider expanding shuttle services to link MCCA facilities, especially during overflow events.

- **Surface Parking Management:** Address the occasional need for additional parking during large events by developing a better strategy for utilizing existing on-site surface lots and off-site overflow lots.

- **On-Site Truck Marshalling:** Preserve the on-site truck marshalling facility to manage logistics efficiently.

- **Decarbonization Goals:** Implement policies supporting Transportation Demand Management (TDM) aimed at reducing vehicle miles traveled, improving air quality, reducing greenhouse gas emissions, and decreasing congestion.

- **Promoting Alternative Transport:** Increase awareness of alternative transportation modes such as cycling, walking, and public transit by providing better access, infrastructure, and clear, consistent information.

11
Capital Planning

Capital planning for the existing BCEC focuses on improving sustainability & landscape, modernizing wayfinding and digital signage with ROI opportunities, and key operational improvements that advance the efficiency of facility functions. As an occupied building, capital improvements may impact operations, further coordination with staff and event planning will be required.

Sustainability:
Beautifying the existing perimeter of the BCEC is a target goal for the existing facility and will help reduce urban heat-island effects around the facility. Numerous landscape improvements are being proposed to help "green" the building perimeter edges. Efforts to connect the BCEC to the Fort Point neighborhood are also being proposed via an elevated landscaped walkway over Track-61 through MCCA owned air rights.

Digital Signage:
Numerous locations are outdated. Converting static signage into digital signage throughout the facility will improve wayfinding, increase ROI and minimize overhead and staff expense with unnecessary static sign turnover.

Operations:
The MCCA staff and BCMC have identified areas where the efficiency of operations can be improved. These include:

Key Findings:

- Provide various landscape improvements around the facility.
- Connect the BCEC to the Fort Point community via an elevated pedestrian walkway. This will require additional easements and possible land acquisition as well as coordination with Fort Point area improvements.
- Implement solar panels above the existing meeting-room rooftops.
- Convert the existing underutilized cafeteria into a kitchen and food prep area to serve meeting rooms on multiple levels.
- Install automated shade devices to the Ex-Hall clearstory windows as well as the south window at Ex-Hall C.
- Install Electric Vehicle (EV) chargers per City of Boston guidelines.
- The BCEC is currently undergoing a series of capital projects including new food and beverage spaces, updated signage, and overall facility upgrades. It is recommended that these efforts are continued to be planned and implemented.

Aerial View | Photo Credit: Google Earth

List of Projects and Cost Estimates

Note #1: These projects are highlighted from a Capital Projects report provided by the MCCA and are already captured in the CCF as per CHMW coordination with MCCA and A&F. Some projects are already approved and underway and any future capital planning should be coordinated as necessary
Note #2: Per the MCCA, these projects are to be re-imbursed by the food vendor and should not be included in the CCF fund.

Item #	Title	Location	Description	Investment (1)	Experience (2)	Complexity (3)	Impact (4)	Priority (5)	Total Project Cost (6)	Permit Cost (7)
			Signage						**$22,187,088**	**$13,645,059**
P01	**Digital Signage**	Facility	Add new digital signage throughout the facility. See AV report for scope and screen costs. See engineering reports for Mechanical and Electrical scope.	$$	♡♡♡	^^	High	1	$22,187,088	$13,645,059
P02	**(R-16) Marquee Update**	Front Entrance	Replace front facing sticks and tiles and interior electrical and data components.	$$$	♡♡♡	^^	High	1	See Note #1	See Note #1
P03	**(R-TBD) Video Wall Update**	Front Entrance	Replace front facing sticks and tiles and interior electrical and data components.	$$$	♡♡♡	^^	Medium	1	See Note #1	See Note #1
P04	**(R-TBD) Static Pendant Signage to Digital Displays**	Level 2 Ballroom Access Area	Purchase, install and convert 4 static pendant wayfinding signage to digital displays, using 98" stretch displays. These converted pendant displays will be located on Level 2 heading up to the Ballroom. About $4,500 a piece.	$	♡	^	Medium	2	See Note #1	See Note #1
P05	**(R-TBD) Digital Signage Network Update**	Facility Wide	Purchase and install 15 new 98" displays throughout the BCEC Digital Signage Network (DSN). All 15 displays will be swapped for current 65" displays. These new displays will increase revenue potential as well as improve the client experience.	$$	♡♡	^	Medium	2	See Note #1	See Note #1
			Food & Beverage						**$20,800,000**	**$12,792,000**
P06	**Food Hall Conversion**	Food Hall	Convert existing food hall to a prep kitchen for west side meeting rooms. See engineering reports for MEP/FP scope.	$$$	♡♡	^^	High	1	$20,800,000	$12,792,000
P07	**(R-04) North Lobby Coffee**	North Lobby	Design new F&B location to replace (2) Outtakes locations on east and west side of BCEC north lobby. Also convert former FedEx space to F&B location.	$$$	♡♡♡	^	Medium	1	See Note #1&2	See Note #1&2
P08	**(R-05) Nor-Easter Exchange**	North Lobby	Design new F&B location to replace (2) Outtakes locations on east and west side of BCEC north lobby. Also convert former FedEx space to F&B location.	$$$	♡♡♡	^	Medium	1	See Note #1&2	See Note #1&2
P09	**(R-06) Retail Market North Lobby (Grab & Go)**	North Lobby	Design new F&B location to replace (2) Outtakes locations on east and west side of BCEC north lobby. Also convert former FeDex space to F&B location.	$$$	♡♡♡	^	Medium	2	See Note #1&2	See Note #1&2
			Meeting Rooms						**$0**	**$0**
-	-	-	-	-	-	-	-	-	-	-

Project Priority & Total Cost

In order to help prioritize the list of capital projects, the Team created a series of categories which culminate in a priotization level of 1-3 where (1) is the highest priority and (3) is of a lower priority.

Priority is determined by cross referencing four categories:

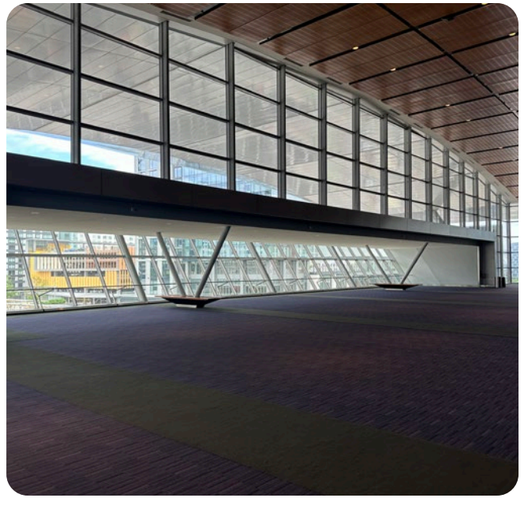
(1) Investment: how much the project will cost.
(2) Experience: level of improvement for user experience.
(3) Complexity: how disruptive the project would be to ongoing operations.
(4) Impact: how effective the project will be, derived by cross refencing ROI and User Experience.

(5) Priority: by cross referencing the above categories across the listed projects, a prioritization level is determined with the intent of framing future planning studies, schedules, and budgets.

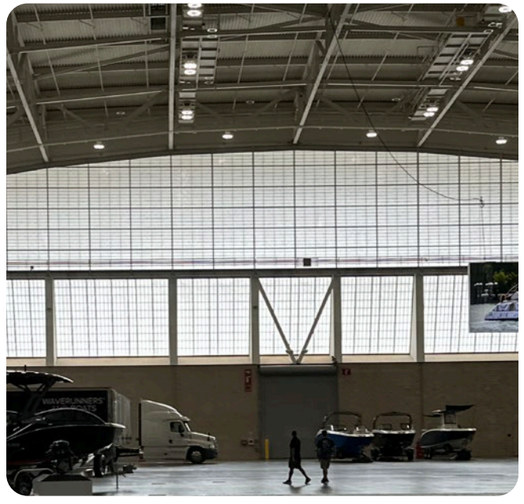
(6) Total Project Cost: Hard costs as determined by a cost estimator plus a 30% mark-up for soft costs.

(7) Permit Cost: inclusive to total costs, this is 61.5% of the Total Project Cost. This number should be used for determining MAAB upgrade requirements per the 30% threshold per the state of MA.

Existing Photos

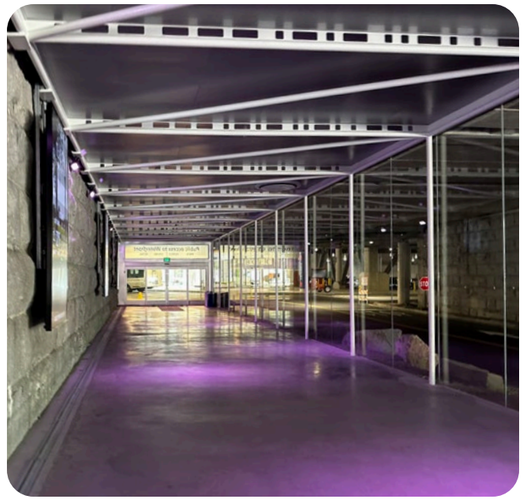


Ballroom Prefunction | Photo Credit: Touloukian Touloukian Inc.

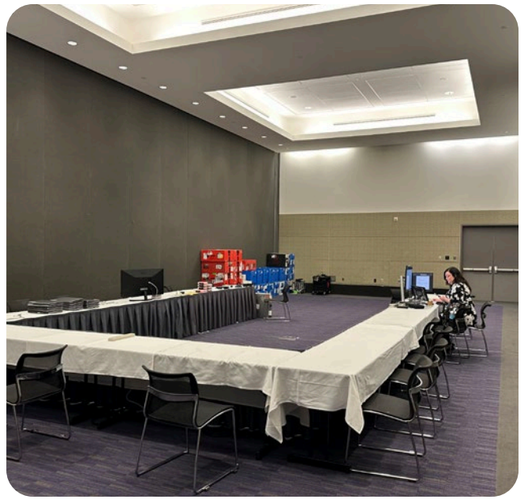


Exhibition Hall | Photo Credit: Touloukian Touloukian Inc.

Lawn on D | Photo Credit: Touloukian Touloukian Inc.



Level 0 Omni Hotel Passageway | Photo Credit: Touloukian Touloukian



Meeting Room | Photo Credit: Touloukian Touloukian Inc.

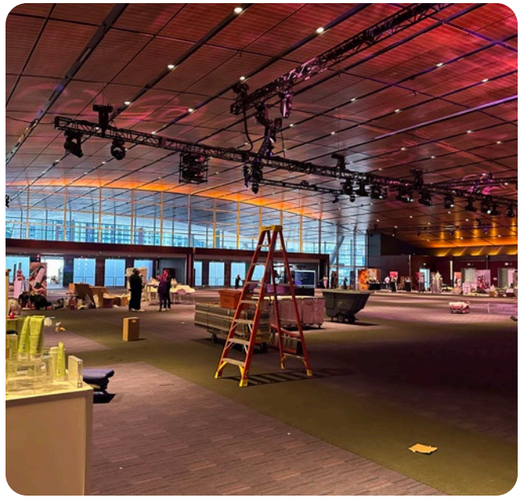
Summer Street Entrance | Photo Credit: Touloukian Touloukian Inc.

List of Projects and Cost Estimates

Note #1: These projects are highlighted from a Capital Projects report provided by the MCCA and are already captured in the CCF as per CHMW coordination with MCCA and A&F. Some projects are already approved and underway and any future capital planning should be coordinated as necessary
Note #2: Per the MCCA, these projects are to be re-imbursed by the food vendor and should not be included in the CCF fund.

Item #	Title	Location	Description	Investment (1)	Experience (2)	Complexity (3)	Impact (4)	Priority (5)	Total Project Cost (6)	Permit Cost (7)
			General Infrastructure						**$38,781,109**	**$23,850,381**
P10	**Exhibit Hall Shade Device**	Upper Ex-hall Clerestory	Install an automated shading device for the upper clerestory of the Exhibit Halls - See engineering reports for Electrical scope.	$$	♡♡	^^^	High	1	$3,770,000	$2,318,550
P11	**Landscape Improvements**	Exterior	Provide landscape improvements around the BCEC to provide additional shade to improve heat island effects. See Landscape report for scope.	$$	♡♡♡	^^	Medium	2	$28,221,869	$17,356,449
P12	**EV Chargers**	Parking Spaces	Install new EV chargers - see traffic report for scope. See engineering reports for Electrical scope.	$$	♡♡♡	^^	Medium	2	$6,789,240	$4,175,382
P13	**(S25) Cypher Street Beautification**	Exterior	Update the landscaping around Cypher Street.	$$$	♡♡♡	^^	Medium	2	See Note #1	See Note #1
P14	**(K81/L38) Sidewalk Replacement / Valet Turnout**	Summer Street	Replace Summer Street sidewalk, security bollards, and granite curb.	$$$	♡♡	^^^	Low	1	See Note #1	See Note #1
P15	**(S11) House Sound Study Assessment**	Facility Wide	Study and perform an assessment of the BCEC sound system. This system also integrates with life safety audio for evacuations and fire alarms. The outcome of the assessment will diagnose current system issues and limitations as well as recommendations towards a new future system to operate the BCEC house sound throughout the venue. Sound does not work in most of the ballrooms.	$$$	♡♡	^^	High	1	See Note #1	See Note #1
P16	**(TBD) Lutron Lighting Cotrols**	Facility Wide	Install Lutron Lighting System - Scope to be determined by MCCA	$	♡	^^	Medium	1	See Note #1	See Note #1
P17	**(R32) IT Fiber Improvements**	Facility Wide	Assess active and abandoned fiber to determine. Make recommendations for improvements, termination, etc. and develop design docs.	$$$	♡	^	Medium	1	See Note #1	See Note #1
P18	**(R09) Low Mechanical Roof Membrane**	Low Roof	Design and phase replacement of BCEC low roof membrane.	$$$$	♡	^	Medium	1	See Note #1	See Note #1
P19	**Truck Marshalling**	Facility	Coordinate additional truck marshalling lot in association with the HCC chapter requirements. Align with BCEC expansion goals.	$$$$	♡	^	Medium	1	See Note #1	See Note #1
								Grand Total:	**$81,768,198**	**$50,287,441**

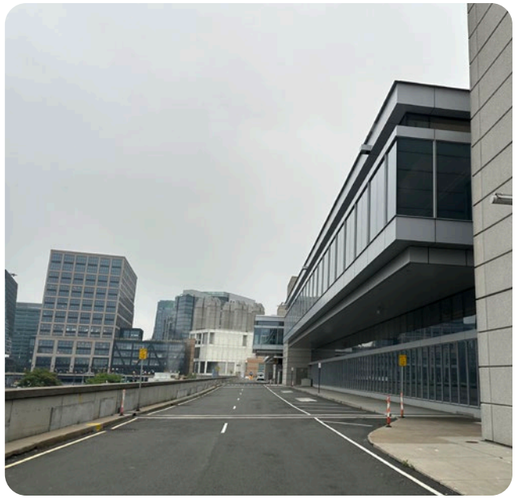
Existing Photos



Ballroom (North wall) | Photo Credit: Touloukian Touloukian Inc.

Pre-registration| Photo Credit: Touloukian Touloukian Inc.

Entrance view from Summer St. | Photo Credit: Touloukian Touloukian Inc.



East Drive | Photo Credit: Touloukian Touloukian Inc.

Summer Street Plaza | Photo Credit: Touloukian Touloukian Inc.

Loading dock and bypass buffer | Photo Credit: Touloukian Touloukian Inc.

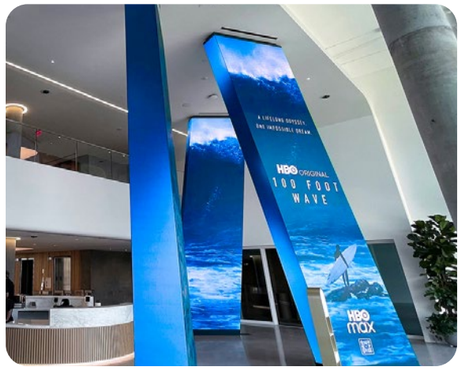
Level 0 Entrance | Photo Credit: Touloukian Touloukian Inc.

Roof | Photo Credit: Touloukian Touloukian Inc.

Capital Projects Overview

Electric Kitchen | Photo Credit: Gastronomy Consultation

P06 | Food Hall Conversion This project includes the conversion of the existing food hall into a prep kitchen that will accommodate the needs of the west side meeting rooms.



WarnerMedia | Photo Credit: Audiovisual Consulting Team

P01 | Digital Signage New digital signage is proposed to be added throughout the facility to accommodate any advertising or wayfinding needs and provide the guests with a more immersive visual experience.

Motorized Shades | Photo Credit: architectural window treatments

P10 | Exhibit Hall Shade Device An automated system of motorized rolling shades is proposed for the clerestory of the upper Exhibit Halls to provide a flexible system of daylight control.

Solar Panels | Photo Credit: Office of Energy Efficiency

DC-03 | Solar Panels This project includes the installation of solar panels on the rooftops of the meeting rooms on both the east and west side of the facility.

Underpass Park, Toronto | Photo Credit: Geo Swan, CC0

P11-1 | Fargo St. Park The project includes a publicly accessible stair and elevator allowing access to Level 0 from Level 1 and the Summer St. Bridge down to Haul Road. The plaza will be able to be rented by convention hosts and sponsors and support food trucks for events. The adjacent 'Miyawaki' forest will support biodiversity, attract pollinators, and create habitat for birds.

Fan Pier, Boston | Photo Credit: KMDG

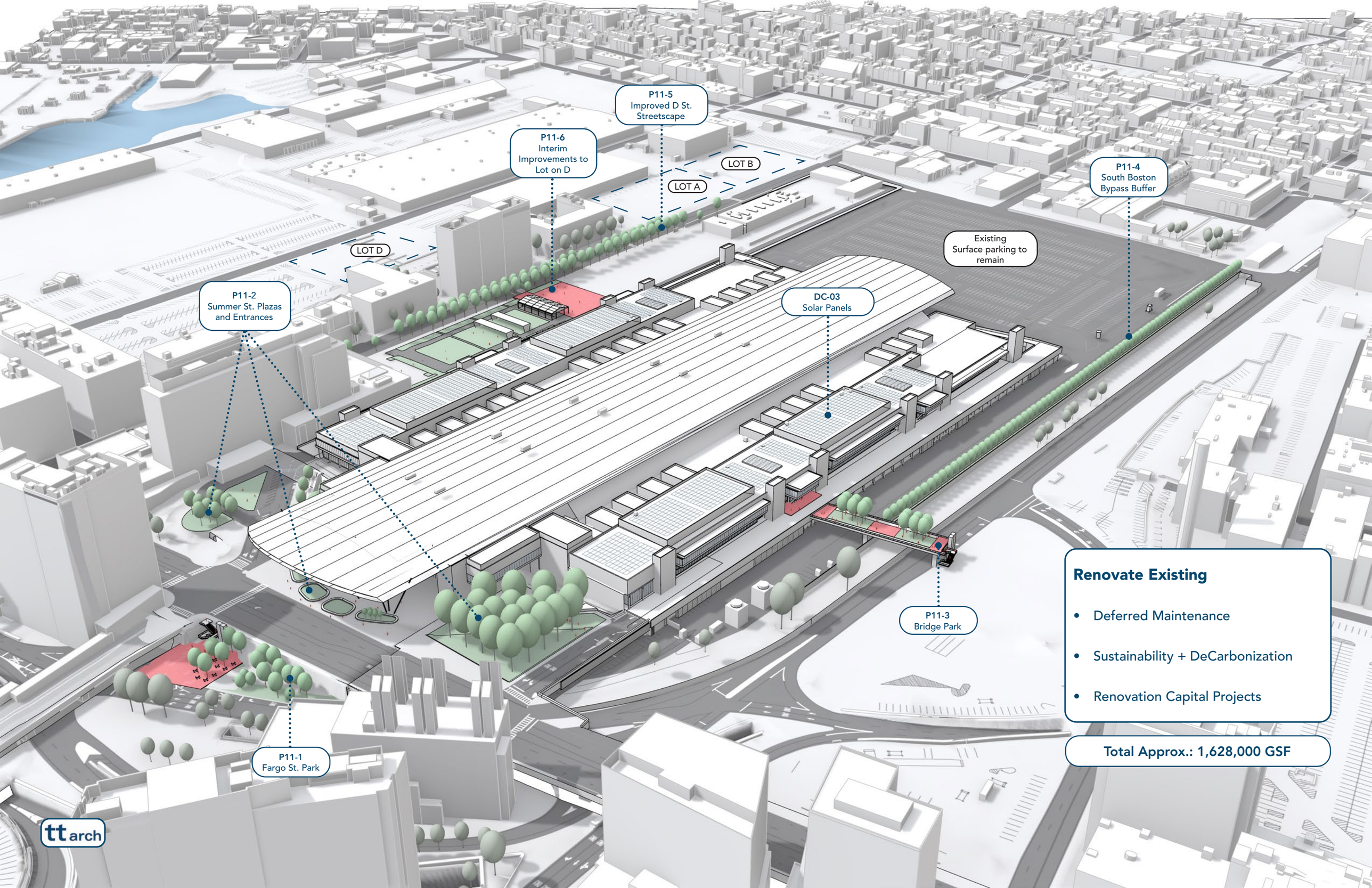
P11-2 | Summer St. Plazas & Entrances The Summer St. entrance will be enhanced by sculptural plant beds with seat walls supporting shade tolerant native plant species.The trees in the existing plaza on the west side of the Summer St. entrance will remain, but the plaza itself will be enhanced by improved seating options, and welcoming site lighting.

Rose Kennedy Greenway, Boston | Photo Credit: KMDG

P11-4 | South Boston Bypass Buffer Along with the Cypher St. improvements projected to be built in 2025, trees and shrubs will be planted in the buffer zone adjacent to the loading dock and truck marshalling area. This new zone will increase site biodiversity, mitigate the Urban Heat Island effect and provide a visual and acoustic buffer.

Superkilin Park, Copenhagen | Photo Credit: KMDG

P11-6 | Interim Improvements to Lot on D This area will be paved to provide a temporary space that will be used for different functions, support flexible uses, host community events, provide long and short-term storage. A temporary paved surface in this location is preferable for large public events. This area can support the urban farming initiative.


P11-5
Improved D St.
Streetscape
P11-6
Interim
Improvements to
Lot on D
LOT B
LOT A
LOT D
P11-4
South Boston
Bypass Buffer
Existing
Surface parking to
remain
P11-2
Summer St. Plazas
and Entrances
DC-03
Solar Panels
P11-3
Bridge Park
P11-1
Fargo St. Park
Renovate Existing
• Deferred Maintenance
• Sustainability + DeCarbonization
• Renovation Capital Projects
Total Approx.: 1,628,000 GSF
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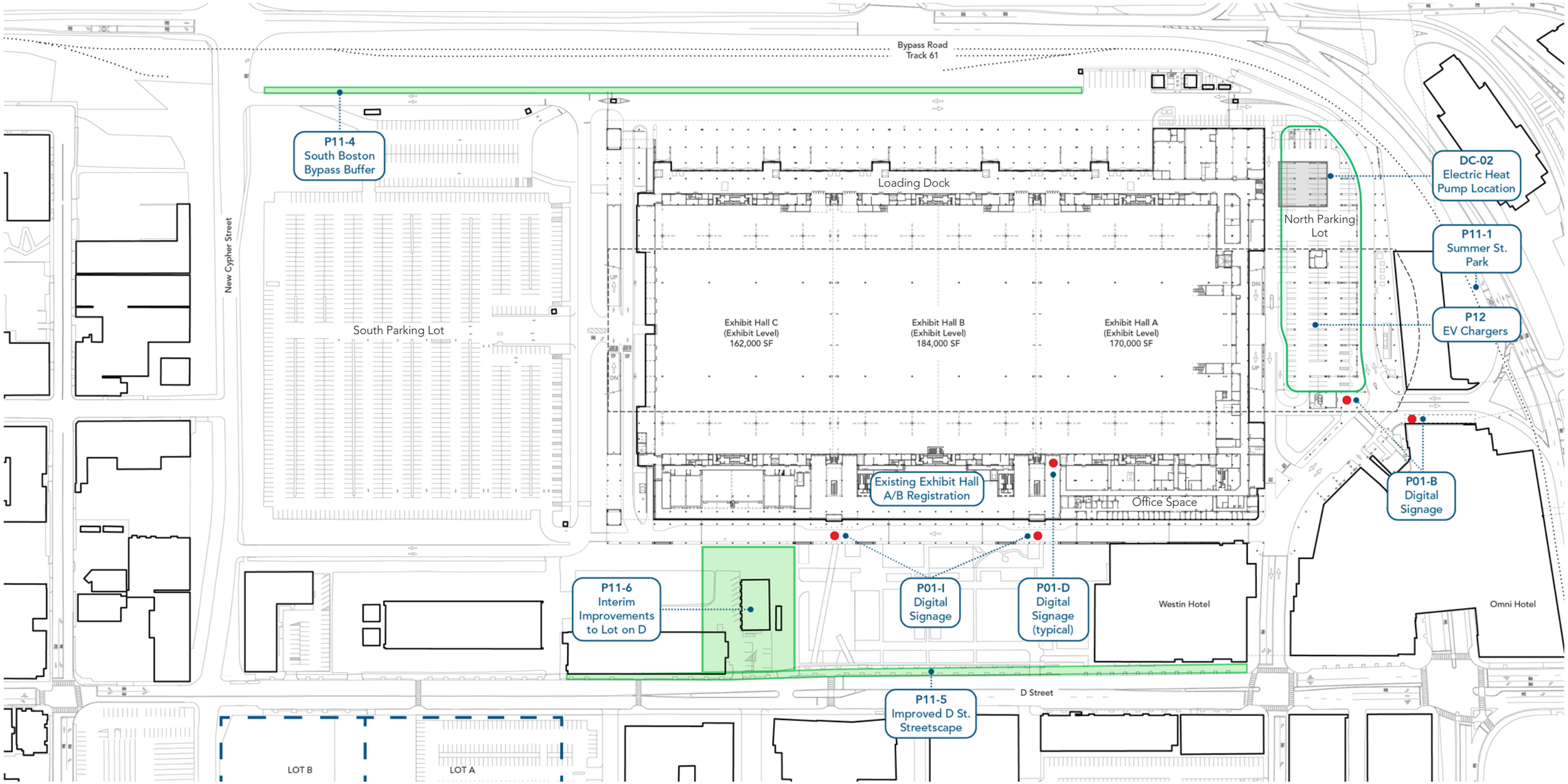
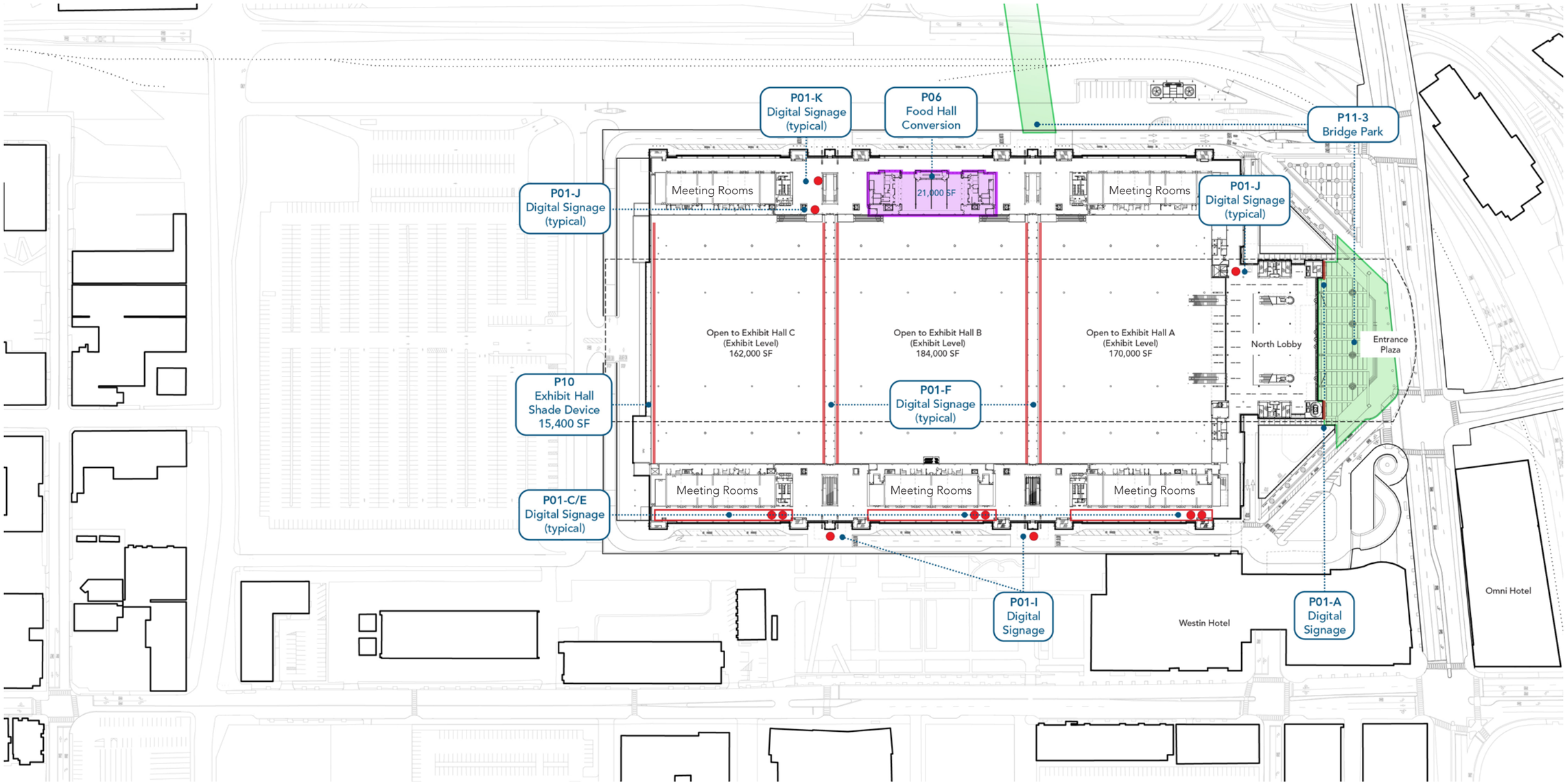


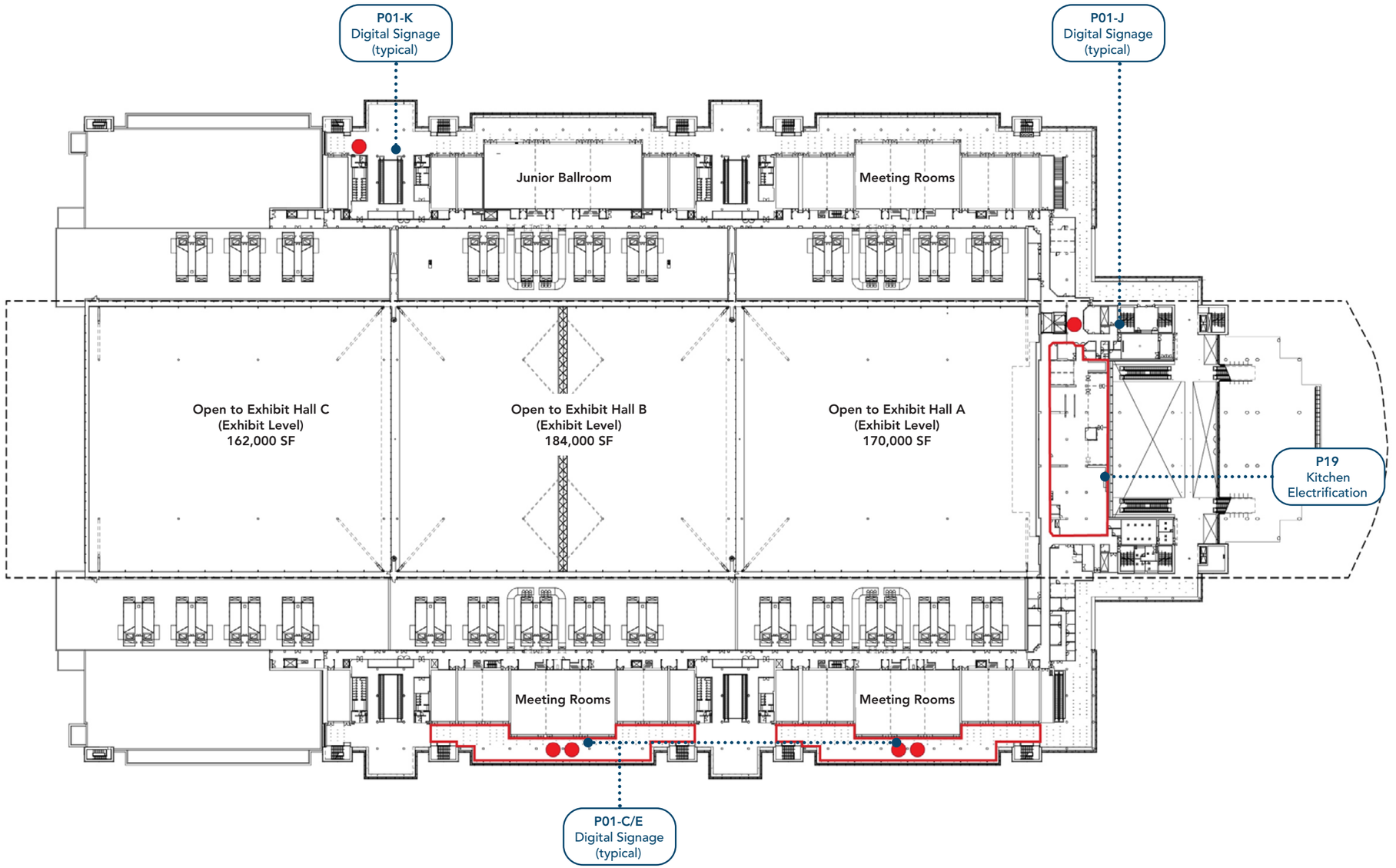
Proposed Level 0 Plan

Credit: Touloukian Touloukian Inc.



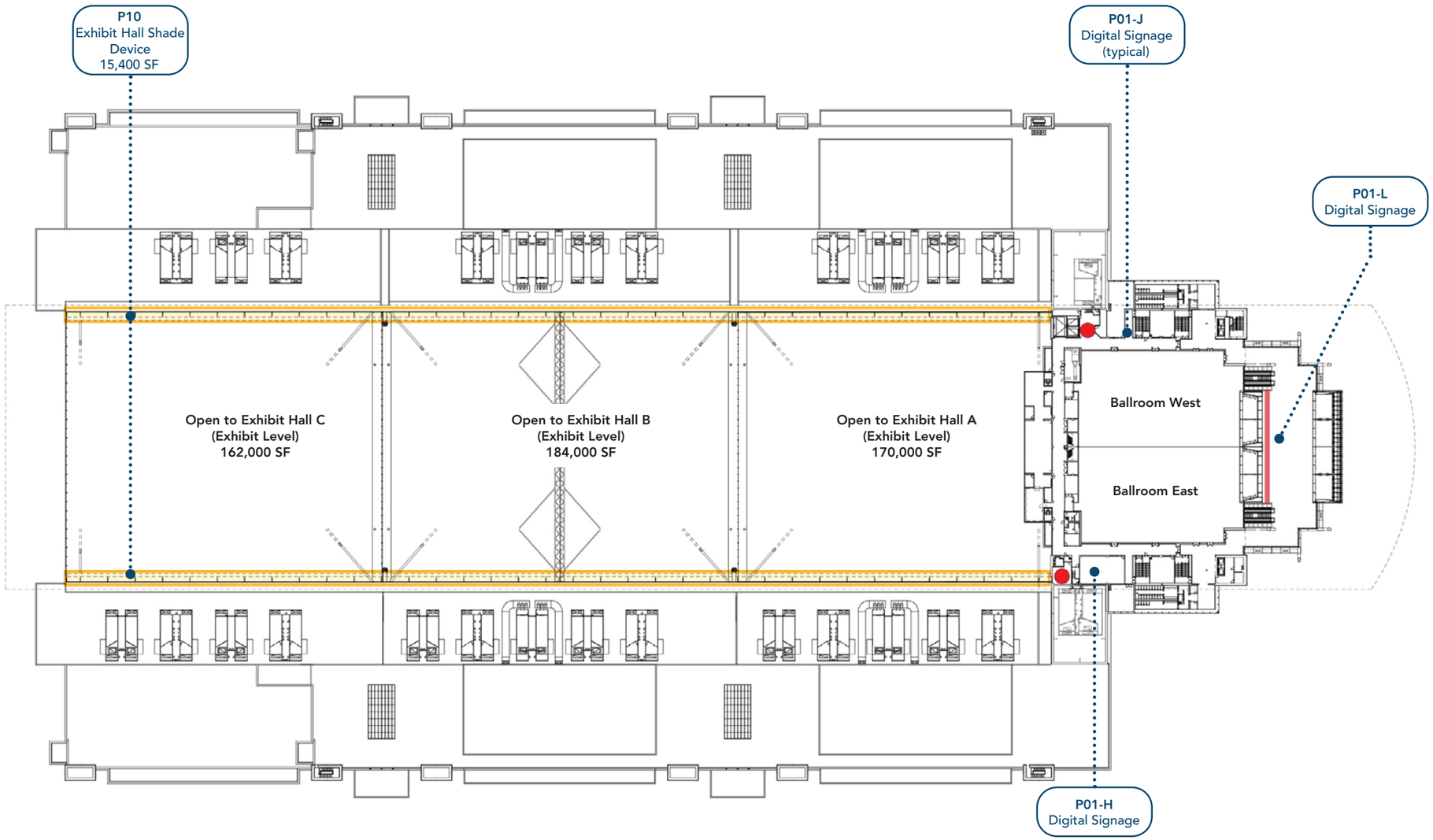
Proposed Level 1 Plan

Credit: Touloukian Touloukian Inc.



Proposed Level 2 Plan

Credit: Touloukian Touloukian Inc.

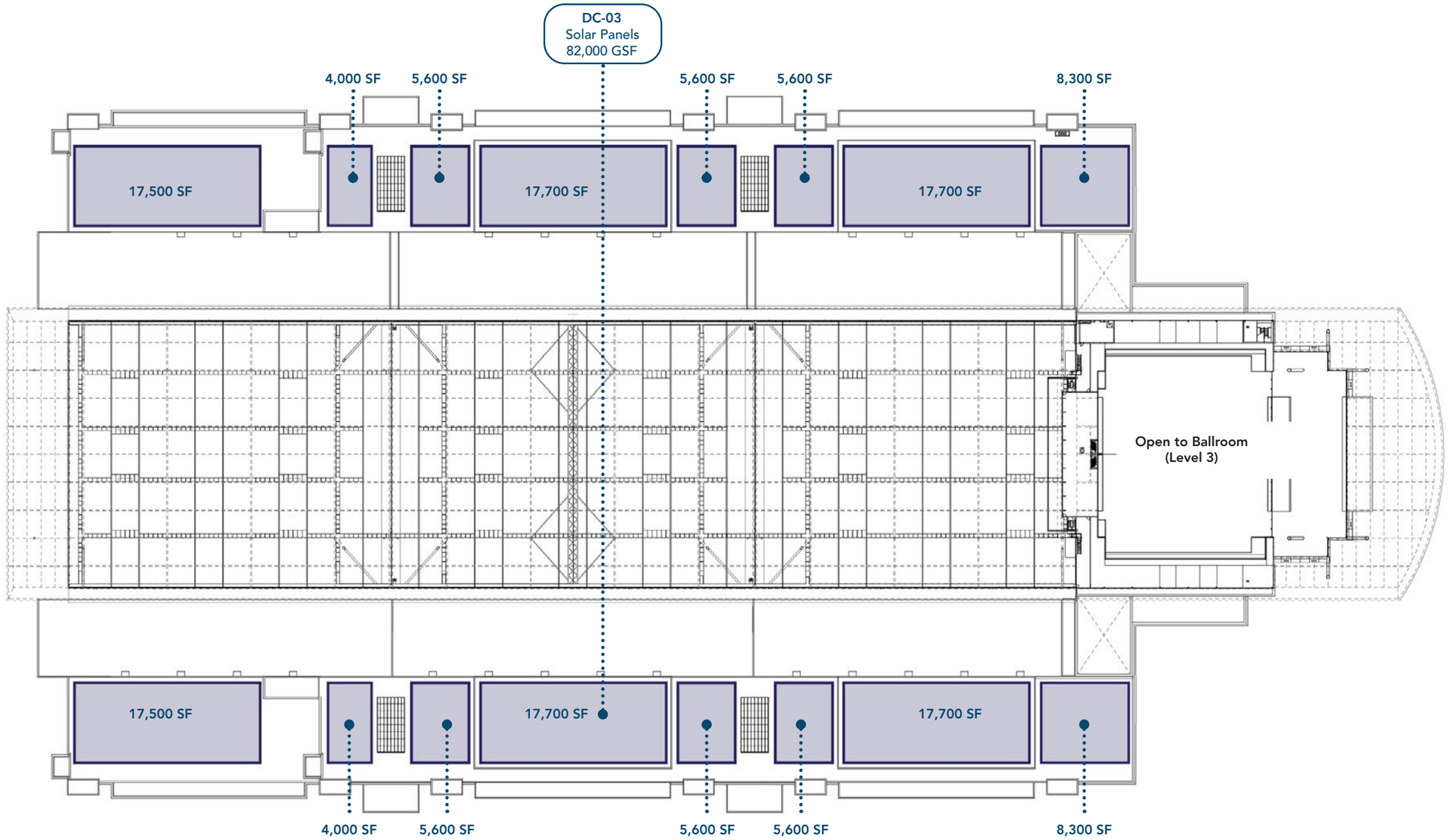


0 50 150 250 ft

N

Proposed Level 3 Plan

Credit: Touloukian Touloukian Inc.



0 50 150 250 ft

Credit: Touloukian Touloukian Inc.

Proposed Level 4 Plan

N

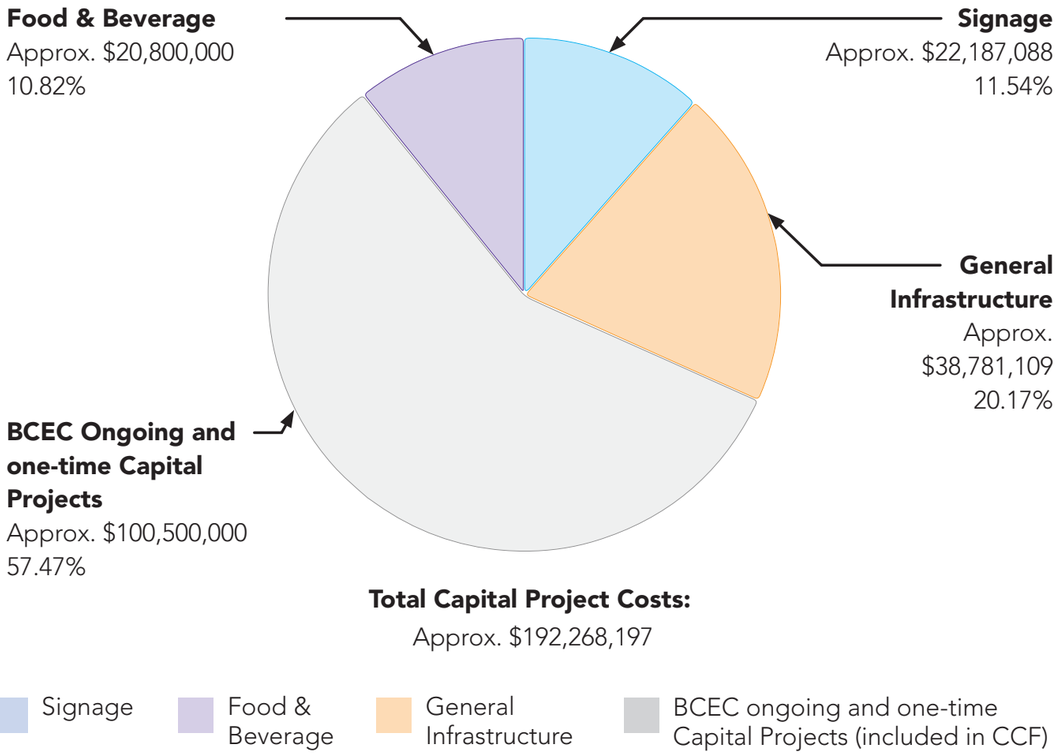
Summer Street Plaza | Photo Credits: Signature Boston

Summer Street Plaza | Photo Credits: Signature Boston

Capital Project Costs

Total Project Costs

- Approx. **$22,187,088** of Signage Recommendations. Escalated to FY 2026 (July 1, 2025).
- Approx. **$20,800,000** of Food & Beverage Recommendations. Escalated to FY 2026 (July 1, 2025).
- Approx. **$38,781,109** of General Infrastructure Recommendations. Escalated to FY 2026 (July 1, 2025).
- Approx. **$100,500,000** of BCEC Ongoing and one-time Capital Projects (included in CCF).



View from Summer Street | Photo Credit: Signature Boston

11A
BCEC Expansion

For over a decade, the BCEC has been the subject of several different expansion plans. Initially introduced in 2007, these plans aim to increase the facility's capacity for hosting additional groups, enhance revenue for the MCCA and the Convention Center Fund, and stimulate positive economic growth for the region.

Signature Boston and MCCA support a proposed expansion with 180,000 SF of exhibit hall space, a 75,000 SF Ballroom, and additional meeting rooms without the need of additional hotel rooms. Their goal is to attract more citywide events during the setup and teardown periods of other BCEC events, thereby optimizing the entire event calendar and enabling the rapid succession of citywide events.

While several factors suggest that expansion could be successful, such as the BCEC's high exhibit hall occupancy and smaller facility metrics compared to competing destinations, the lack of sufficient hotel inventory in the Seaport will be a major constraint on the success of an expanded convention operation. Full expansion is proposed only if additional hotel rooms and corresponding room blocks become available in Seaport.

This section of the report details a couple of options relative to expansion, the projected impact and related factors.

Key Expansion Options:

- The Project Team supports the full expansion of the Exhibition Hall (180K SF) and Meeting Space (45KSF–50KSF), but only if the increase in Seaport hotel inventory is addressed and confirmed. The expanded facilities should not be opened until the additional hotel capacity is concurrently available.
- The Project Team supports the addition of a new Ballroom along with additional public spaces for the Community use. This expansion does not require additional hotel inventory.
- Explore hotel development options on MCCA-owned land, ensuring land-lease control and, most importantly, establishing a room block agreement that benefits MCCA and Signature Boston in securing and committing additional group room inventory.

Overview

In recent years, there have been multiple discussions and plans developed regarding the expansion of the BCEC to accommodate increasing demand, while maintaining Boston's competitiveness in the national convention market. In 2014, the Massachusetts State Legislature approved a $1 billion plan to expand the facility by 1.3 million square feet. This plan was suspended in 2015 and since then, the MCCA has shifted the focus towards planning and completing renovations and improvements to existing facilities, including addressing the $100+ million in deferred maintenance projects at the Hynes. While not explicitly part of our scope in this study, the Project Team examined a variety of options relative to expansion and developed assumptions around the preliminary impact and benefit to the BCEC, hotel market, Convention Center Fund and broader economic impact. Toward this end, our analysis considered convention center lost business/unaccommodated demand, exhibit hall occupancy, event booking and demand data, event patterns, local market lodging supply and demand and related market dynamics. In developing the approaches regarding the future expansion plans of the BCEC, the Project Team held numerous meetings with A&F, Signature Boston, Meet Boston, hotel community leaders and existing customers.

Expansion Options & Considerations

The Project Team suggests that A&F consider and allow for further study of the following options:

Status Quo while Addressing Capital/Deferred Projects & Decarbonization

This option focuses on executing projects currently identified by the MCCA to maintain the facility at its existing size and configuration, with total project costs estimated at approximately $1.2 billion. Approximately 85% of this budget is allocated to addressing deferred maintenance, making it essential for these projects to be planned and implemented to preserve the facility.

Additionally, this option includes a variety of decarbonization initiatives to address sustainability goals and overall reduction of the center's emission footprint. There are a range of options within Decarbonization with costs estimated at $140 million detailed in this plan.

Option 1: Full Expansion (Solving for 800 – 1,000 Dedicated Hotel Rooms)

This option outlines the full expansion of the BCEC, which includes the addition of a new Exhibition Hall (180,000 square feet), additional Meeting Space (45,000 to 50,000 square feet), and the additional Ballroom (75,000 square feet). The BCEC has consistently demonstrated levels of occupancy that suggest the facility is operating at capacity for the majority of months out of the year, coupled with strong turn away demand at levels that exceed the business accommodated today. This expansion is expected to enable Signature Boston to accommodate additional citywide events during the setup and teardown days of other BCEC events to optimize the entire event calendar and have the ability to host citywide events in quick succession.

This expansion would also address and include the Ballroom addition discussed in Option 2 and could possibly facilitate the addition of theater space in the new Exhibit Hall, which was another request heard from local community constituents.

The preliminary total cost estimate for an expansion is in the magnitude of $1.9 billion. The expansion is estimated to generate an incremental +200K to 225K hotel rooms and $3.26 billion in local economic impact over a 10-year period. An expansion would also require additional funds be earmarked in the CCF for future capital needs/ongoing maintenance.

While demand exists, current committable hotel inventory is insufficient to support the full expansion of the BCEC. Expanding the facility absent the available rooms inventory would negatively impact customer satisfaction, the reputation of the center and impact booking potential. Therefore, the Project Team proposes that full expansion not be pursued until a plan is in place to address the additional required hotel capacity concurrent with the expansion. It is estimated that an additional 800 to 1,000+ "committable" rooms in the Seaport – meaning the MCCA has access to room block agreements and/or full control of facilities to ensure availability for groups – are necessary to support the expansion.

In terms of bringing the necessary hotel capacity to the local market and ensuring necessary control of "committable" rooms, there are events but options worth exploring, including:

- Encouraging expansion of existing privately-owned hotels and negotiating room block agreements (e.g., Westin, aloft/Element);
- Soliciting private development of hotels on MCCA controlled land (parcels to be determined) where leases can be conditional upon room block commitments; and,
- Bond-financed hotel development, where MCCA is the owner of the hotel or a public/private partnership.

Option 2: Ballroom Addition

This option includes the addition of a second Ballroom space of approximately 75,000 square feet. This addition would not only support the BCEC in generating incremental revenue by accommodating groups and local events but is also estimated to generate in the range of 25K to 26K room nights for the local hotel community. Further, based on the Project Team's extensive research relative to community needs, it is recommended that the Ballroom addition include approximately 20,000 square feet of "multi-purpose" space. This space would be used to showcase local Boston companies and groups to allow for better integration and connectivity between the community and the conventions that come to town, telling the "Massachusetts Story" and making for a more integrated experience for local businesses and event attendees. An additional Ballroom of this size will address the current space deficit and better position the BCEC relative to competing facilities, as well as provide a space that is highly desired by the community.

Total costs related to a Ballroom addition are in the range of $450 to $500 million, with an economic impact in the range of just over $395 million over a 10-year period.

Summary

Based on an analysis of the CCF, the Project Team believes there would be sufficient funding only if spending reductions are achieved related to deferred, ongoing, one time, and new capital across the MCCA portfolio to execute on the Options (1 and 2), assuming that the full expansion or the Ballroom addition would be Bond financed (e.g., sufficient funding to finance and support debt service associated with a $1.9 billion estimated construction cost). This does not include development costs, concessions, or revenues related to hotel development, nor does it contemplate future capital needs for any addition and/or expanded facilities, all of which would need to be programmed into the future funding strategy.

In further consideration and analysis of all options presented herein, the Project Team proposes A&F retain the appropriate experts to conduct comprehensive market studies on both expansion options (Options 1 and 2) that refine programming and financing planning, and that analysis be conducted to determine funding strategies (e.g., use of CCF, Bonding, private investment, etc.). Additionally, the Project Team recommends that an in-depth hotel analysis and strategy related to the best approach for addressing hotel room deficit needed for full expansion.

Option 1: Full Expansion | Cost Outline and Program Breakdown

Primary Program Areas
- Existing Building Pre-Function/Pre-Registration Renovation: 80,000 gsf
- Exhibit Hall D Extension & Meeting Rooms: 474,000 gsf
- D-Street Ballroom Addition & Support: 321,000 gsf
- Garage Addition & MCCA Offices: 607,000 gsf
- Mixed Use Wrap Core & Shell: 245,000 gsf

Total: Approx. 1,727,000 gsf

Premium Costs a part of the Expansion
- Soil remediation: approx. $5.9 million
- Piled Foundations: approx. $36.4 million
- Geothermal System: approx. $71.5 million
- Digital Signage: approx. $13.0 million
- Mass Timber/CLT System: approx. $26.0 million
- Exhibit Hall D – Barrel & Green Roof: approx. $27.3 million
- Perimeter Ring Road Structure: approx. $23.4 million

Total: Approx. $203.5 million or approx. $234/sf surplus

Ref	Location	GSF	$/GSF	Total Project Cost
P00	Existing Building Pre-Function/ Pre-Registration Renovation	80,000	$747.69	$59,815,395
P01	Exhibit Hall D Extension & Meeting Rooms	474,000	$1,649.49	$843,478,454
P02	D-Street Ballroom Addition & Support	321,000	$1,790.38	$574,713,501
P03	Garage Addition & MCCA Offices	607,000	$332.87	$202,057,780
P04	Mixed Use Wrap Core & Shell	245,000	$691.91	$169,517,658
P05	Sitework & Landscape Improvements	N/A	N/A	$69,217,736
	Total:	**1,727,000**	**$1,111.05**	**$1,918,800,527**

Note 1: Estimated construction costs were provided by two separate professional estimating firms: PM&C Consulting and Rider Levett Bucknall (RLB).

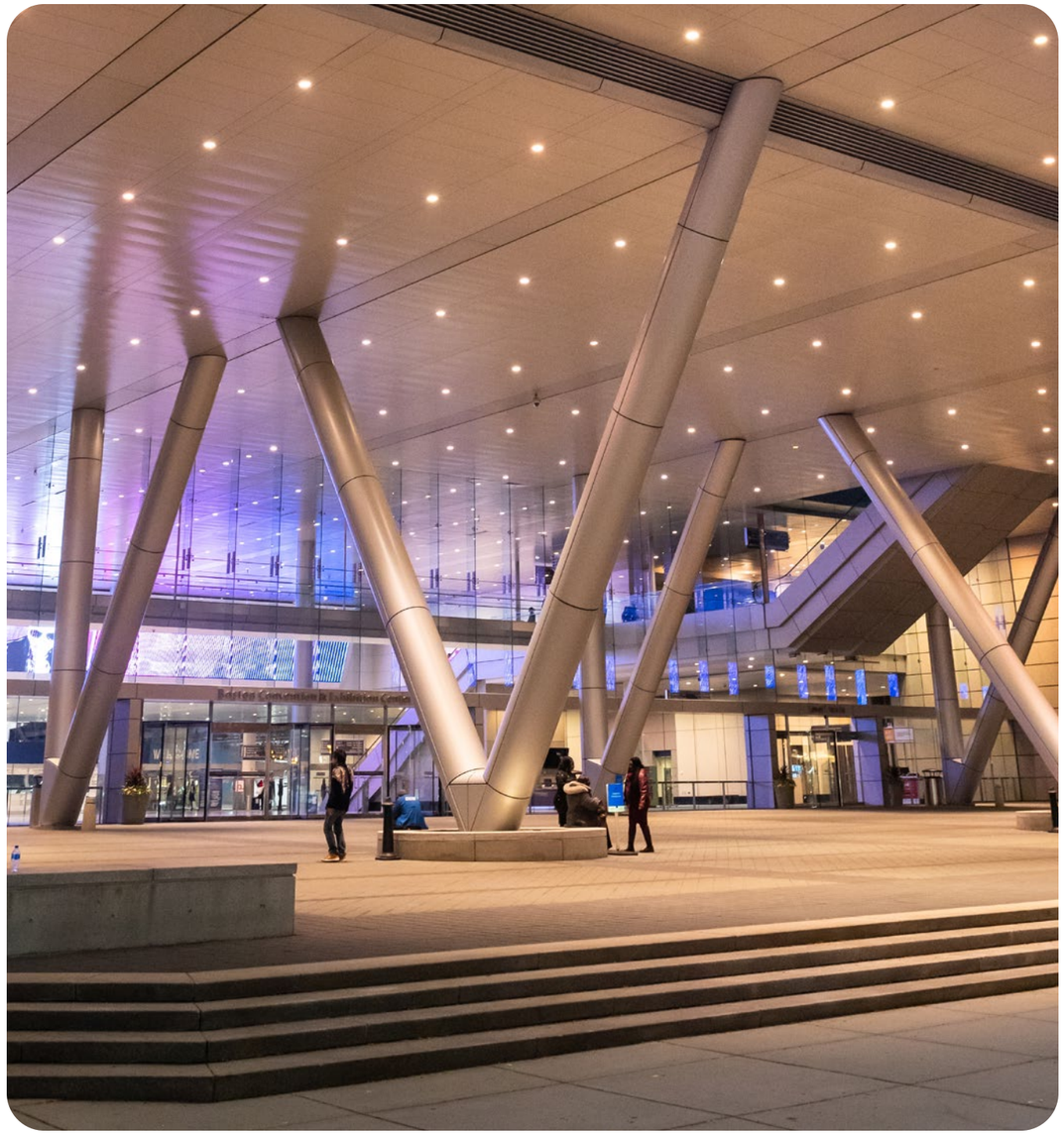
Note 2: Estimated construction costs are hard costs of construction escalated to FY 2026 (July 2025). Total Project costs are to be determined and are an approximately additional 30% for Professional and Legal Fees, OPM, MCCA Project Administration, as well as Permits, Approvals, Testing and Utility Fees, and Artwork, FF&E and 10% Owner's Contingency.

Note 3: Project could be phased as follows:
- Phase 1: Existing Building Pre-Function/Pre-Registration Renovation, Exhibit Hall D Extension & Meeting Rooms, and D-Street Ballroom Addition & Support.
- Phase 2: Garage Addition & MCCA Offices, and Mixed Use Wrap Core & Shell.
- Additional truck marshalling site locations are to be determined prior to construction.

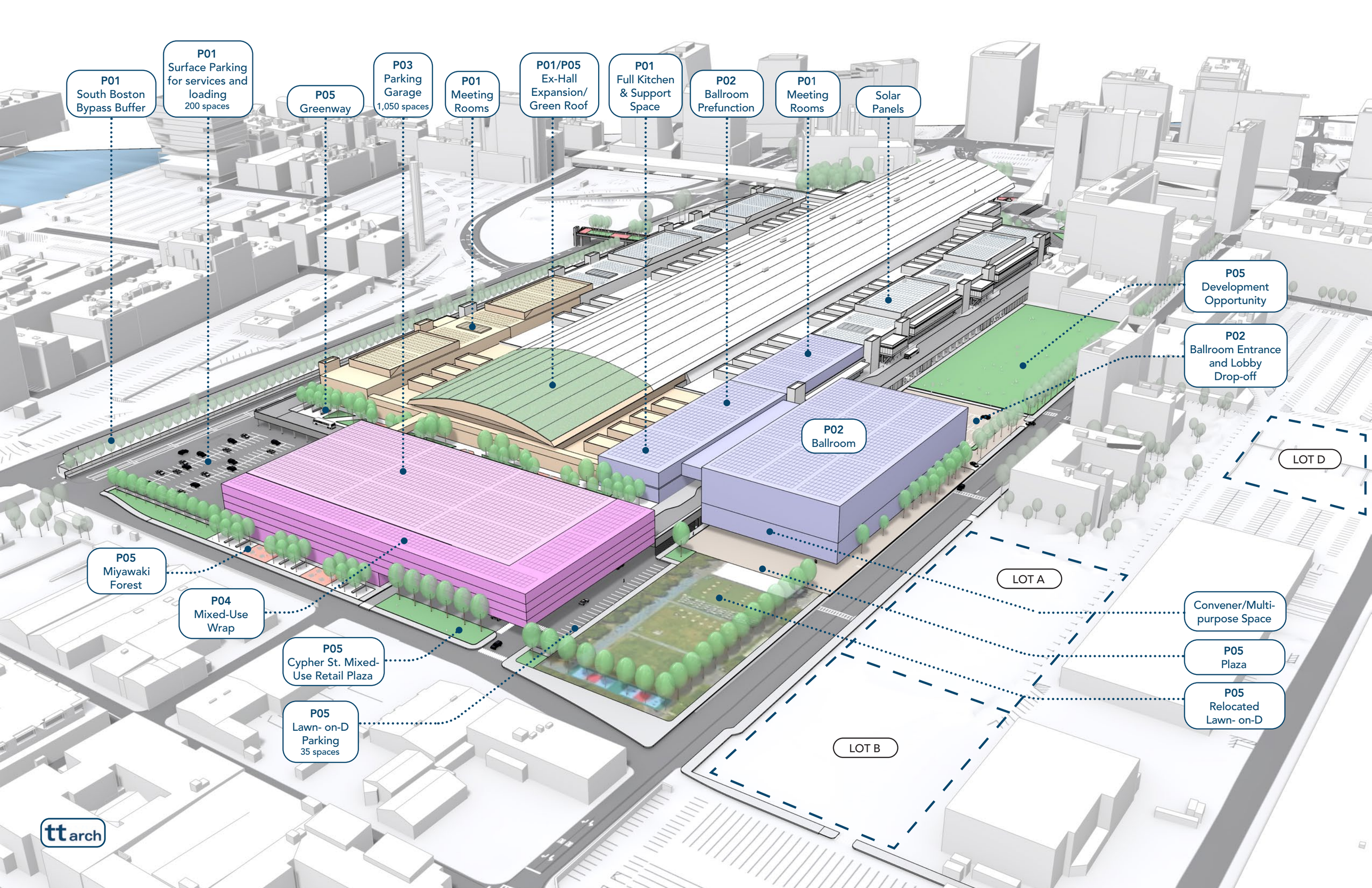
Option 1: Full Expansion | GSF Calculations

Program	Level 0 SF	Level 1 SF	Level 2 SF	Level 3 SF	Total [R]	Total [N]	Total SF
P00 Existing Building Renovation	**80,000**	-	-	-	**80,000**	-	**80,000**
Exhibit Hall A/B Prefunction	40,000	-	-	-	40,000	-	
Exhibit Hall C/D Registration	40,000	-	-	-	40,000	-	
P01 Exhibit Hall D Extension - Total	**280,000**	**82,000**	**112,000**	-	-	**474,000**	**474,000**
Exhibit Hall D	170,000	-	-	-	-	170,000	
Service Corridor	-	10,000	10,000	-	-	20,000	
Skybridge	-	10,000	-	-	-	10,000	
Exhibit Hall C/D Prefunction	40,000	-	-	-	-	40,000	
Exhibit Hall C/D Prefunction	-	12,000	-	-	-	12,000	
West Side Meeting Room Prefunction	-	-	7,000	-	-	7,000	
Meeting Rooms	-	30,000	60,000	-	-	90,000	
Meeting Room Circulation Space + Storage	-	20,000	35,000	-	-	55,000	
Loading	70,000	-	-	-	-	70,000	
P02 D-Street Ballroom Addition - Total	**80,000**	**44,000**	**162,000**	**35,000**	-	**321,000**	**321,000**
Lobby	60,000	17,000	-	-	-	77,000	
Multi-Purpose	20,000	-	-	-	-	20,000	
Mechanical	-	27,000	-	35,000	-	62,000	
Ballroom	-	-	70,000	-	-	70,000	
Kitchen & Service	-	-	55,000	-	-	55,000	
Skybridge Connector	-	-	7,000	-	-	7,000	
D-Street Ballroom Prefunction	-	-	30,000	-	-	30,000	
P03 Garage Addition - Total	**123,000**	**260,000**	**120,000**	**104,000**	-	**607,000**	**607,000**
Mechanical/Storage	110,000	-	-	-	-	110,000	
Security + Offices	13,000	-	-	-	-	13,000	
Parking Garage	-	260,000	115,000	76,000	-	451,000	
Enclosed Connector	-	-	5,000	-	-	5,000	
MCCA Offices	-	-	-	28,000	-	28,000	
P04 Mixed Use Wrap - Total	**45,000**	**100,000**	**50,000**	**50,000**	-	**245,000**	**245,000**
Mixed Use/Amenity	45,000	100,000	50,000	50,000	-	245,000	
P05 Site-work & Infrastructure - Total	**286,000**	-	-	-	-	**286,000**	**286,000**
Landscaped Corridor Between Garage & Ex-Hall	42,000	-	-	-	-	42,000	
Cypher Street Modifications	20,000	-	-	-	-	20,000	
Relocate Lawn on D	172,000	-	-	-	-	172,000	
D-Street Improvements	20,000	-	-	-	-	20,000	
Mixed Use Plaza at Existing Lawn on D	32,000	-	-	-	-	32,000	
					Totals: **80,000**	**1,933,000**	**2,013,000**

Note #1: Level 1 garage and wrap calculations include an additional level (1A).



Summer Street Entrance | Photo Credit: Signature Boston


P01
South Boston Bypass Buffer
P01
Surface Parking for services and loading
200 spaces
P05
Greenway
P03
Parking Garage
1,050 spaces
P01
Meeting Rooms
P01/P05
Ex-Hall Expansion/ Green Roof
P01
Full Kitchen & Support Space
P02
Ballroom Prefunction
P01
Meeting Rooms
Solar Panels
P05
Development Opportunity
P02
Ballroom Entrance and Lobby Drop-off
P02
Ballroom
LOT D
LOT A
Convener/Multi-purpose Space
P05
Plaza
P05
Relocated Lawn- on-D
LOT B
P05
Miyawaki Forest
P04
Mixed-Use Wrap
P05
Cypher St. Mixed-Use Retail Plaza
P05
Lawn- on-D Parking
35 spaces
tt arch

Full Expansion | Program Overview (Architectural)

Ex-hall Expansion

Expanding the BCEC exhibit hall involves adding an additional 170,000sf of ex-hall floor space off of the rear of the building. The additional will match the existing design, layout, and structure of the current exhibit hall. This will allow the MCCA to run shows back-to-back by alternating events between Ex-Hall A/B and Ex-Hall C and the new D.

The roof of the extension will be a green roof to help improve the overall sustainability of the building. Meeting room and corridor wings will also be extended in kind to match existing and provide the required rooftop space for the additional mechanical equipment required.

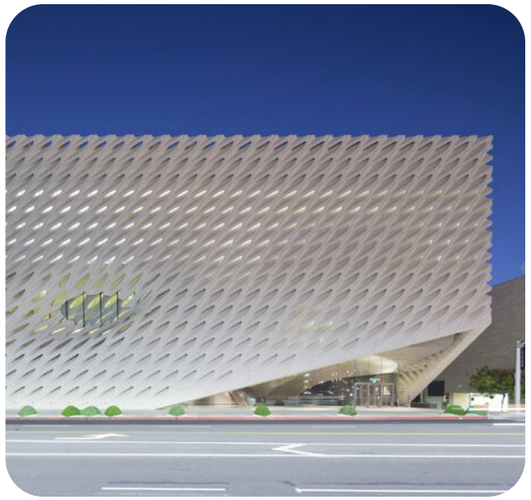
Maintaining site circulation is also key. The bi-level roadway running around the existing building will also be maintained and extended off of the rear.

Existing BCEC Exhibit Hall | Photo Credit: MCCA

Expressive Architecture

This team views the new Ballroom building as a "gem" building. Expressing key architectural features like mass timber design, sustainable facade systems, and relationships to the ground should be considered for a buildig of this caliber.

Design direction should be responsible to the surrounding community and also provide a level of excitement to the D-Street corridor by activating the flanking parks and plazas with activity.



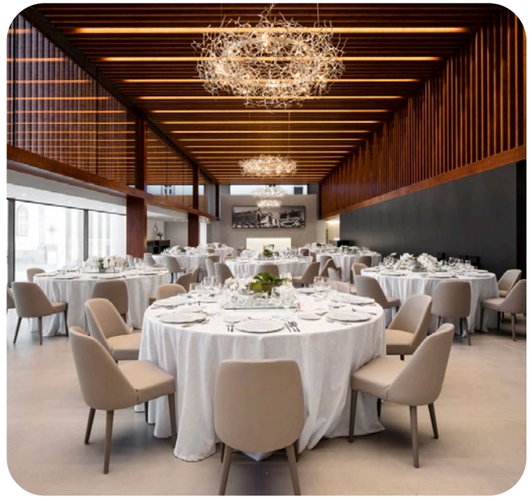
The Broad Museum, Los Angeles | Photo Credit: Diller, Scofidio, Renfro

New D Street Ballroom

The Ballroom building will include 70,000sf of new ballroom space. The Ballroom addition is positioned relative to Exhibit Hall C and the expanded Exhibit Hall D. The intent is for the existing ballroom to serve halls A/B and the new ballroom to serve C/D.

The new ballroom building will also include a new lobby and entrance sized to match the existing main lobby on Summer Street. A convener/multi-purpose space will be created on the ground level of the ballroom to be used for community events. A new full kitchen is also included to serve the ballroom space.

A skybridge above the bi-level vehicular loop provides a direct connection back to the main building and a new prefunction space. The ballroom will open out directly to park space, creating a dynamic relationship with the exterior spaces around the building.



Igreja Velha Palace | Photo Credit: Visioarq Arquitectos

New Mixed Use Wrap

Maintaining on-site vehicular circulation and parking is a key aspect to the expansion of the BCEC. This scheme proposes a new 3-level parking garage off the rear of the expansion which will maintain the existing parking count for the facility.

In order to respect and provide for the South Boston community, a new mixed use wrap will be constructed around the garage with the goal of providing a better street-facing facade. The wrap will could become a space for local shops, amenities that are lacking in the area, or office and retail space.

The wrap should be considered as mass timber construction to help meet the sustainability goals of the BCEC set fourth in this report.

Anatole Garden, Mexico City | Photo Credit: Dellekamp + Schleich

P05
Fargo St. Park

P05
Summer St. Plazas and Entrances

P05
Development Opportunity

P05
Mixed-Use Plaza

P02
Ballroom Entrance and Lobby/Drop-off

P01
Meeting Rooms

P02
Ballroom

P02
Kitchen Prep Space

P04
New Mixed-Use Wrap - 4 stories

P01/P05
Ex-Hall Expansion/ Green Roof

P03
Parking Garage

P01
Meeting Rooms

P05
Cypher St. Mixed-Use Retail Plaza

P05
Miyawaki Forest

P01
Surface parking for services and loading

LOT B

LOT A

LOT D

P05
Greenway

Solar Panels

P05
South Boston Bypass Buffer

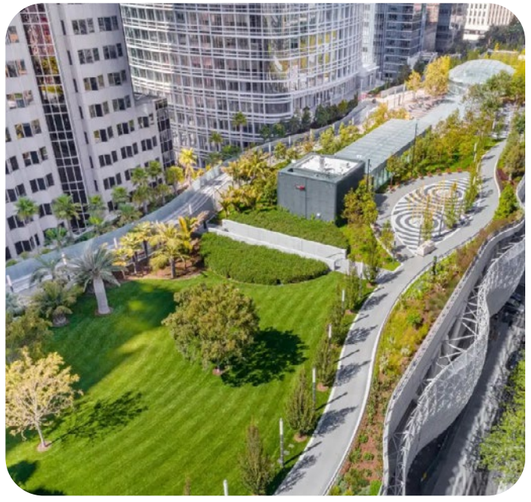
P05
Bridge Park

tt arch

Full Expansion | Program Overview (Landscape)

Bridge Park

The sculptural bridge will provide an elevated public pedestrian-only spine that will connect the BCEC and Summer Street to the (proposed) Fort Point District (*Fort Point District 100 Acres Master Plan*, 2006, and *Fort Point 100 Acres Open Space Concept Plan*, 2020, City of Boston Boston Planning Department, www.boston.gov). The bridge will bypass Haul Road and connect pedestrians from the west side of the convention center to the eastern edge of the Fort Point district. The structure will be within the extents of the air rights over which the MCCA currently has authority. The generous pedestrian bridge will frame the Boston skyline and views of the city for convention guests and connect the BCEC to the community west of the property. This will activate the BCEC as a place for the local community to gather.



Salesforce Transit Center, SF | Photo Credit: Pelli Clarke & Partners

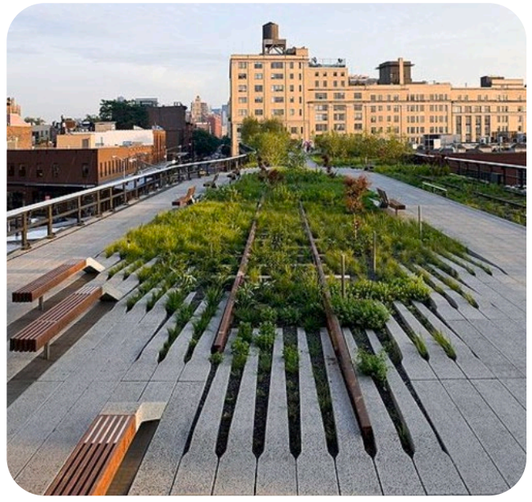
Relocated Lawn on D

Lawn on D will be re-located to the corner of Cypher and D St. This new location will provide an anchor for the southern perimeter of the BCEC site and allow improved community access and engagement by activating and supporting pedestrian access along Cypher St and along south D St to South Boston. The re-located Lawn on D will provide the same amenities as the original, but the new location will be more welcoming by providing increased access for and engagement of the nearby South Boston community. The corner boundary of Cypher and D St encompasses a Chapter 21E Tier 1D Classified site as defined by the Massachusetts Oil and Hazardous Material Release Prevention Act. Due to this constraint, the site soils will be capped prior to the addition of new horticultural soils.

Lawn-on-D at the BCEC | Photo Credit: MCCA

Greenway Roof

The Greenway Roof will be a bridge between the BCEC Expansion and the proposed parking garage. The verdant pedestrian bridge will provide spaces for site visitors to gather, to meet in large and small groups, and to pause between convention center sessions. The Greenway Roof will feature a variety of seating options and programmed green spaces where guests can linger or just quickly make a connection between buildings. The planting palette will be comprised of appropriate native plants and this new vegetation will help to mitigate the urban heat island effect, provide carbon capture, improve overall site biodiversity, and delay stormwater run-off from the roof. The Greenway Roof will help to support overall climate adaptation measures for the BCEC.

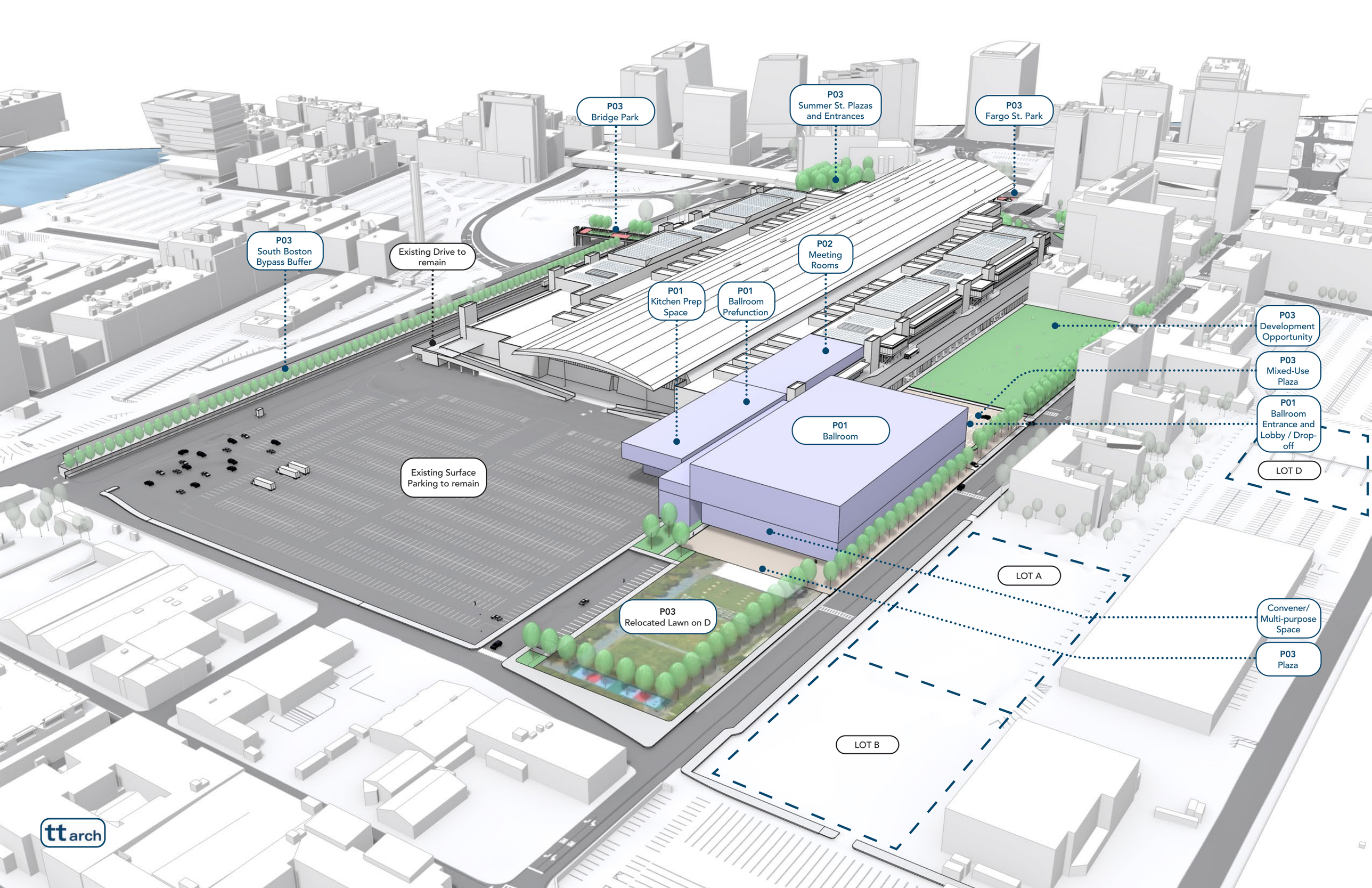


The New York City Highline | Photo Credit: Diller, Scofidio, Renfro

South Boston Bypass Buffer

In this area, parallel to the South Boston Bypass Road and existing rail track, native trees and shrubs will be planted in the 10'-0" buffer zone across from the BCEC loading dock access and truck marshalling area. This new green zone will provide a buffer for the rail easement and for Haul Road but will not disturb, limit, or impede loading dock access or rail operations within the rail easement. Instead, the new green buffer zone will increase overall site biodiversity, mitigate the urban heat island, and provide a consistent visual and acoustic buffer. These improvements will also support and encourage any future enhancements to Haul Road. Lastly, the South Boston Bypass buffer will help to ameliorate the effects of future coastal 100-year floods, (based on projections for 2030, 2050 and 2070) by reducing stormwater flow rates and run-off.

Rose Kennedy Greenway, Boston | Photo Credit: Tourism Media


P03
Bridge Park
P03
Summer St. Plazas and Entrances
P03
Fargo St. Park
P03
South Boston Bypass Buffer
Existing Drive to remain
P02
Meeting Rooms
P01
Kitchen Prep Space
P01
Ballroom Prefunction
P03
Development Opportunity
P03
Mixed-Use Plaza
P01
Ballroom
P01
Ballroom Entrance and Lobby / Drop-off
LOT D
Existing Surface Parking to remain
LOT A
P03
Relocated Lawn on D
Convener/ Multi-purpose Space
P03
Plaza
LOT B
tt arch

Option 2: Ballroom Addition | Cost Outline, Program Breakdown and GSF Calculations

Primary Program Areas

- D-Street Ballroom Addition & Support: 345,000 gsf
- Meeting Rooms Addition: 30,000 gsf

Total: Approx. 375,000 gsf

Other premiums not included in the scope:

- Loading area size is reduced.
- Storage area size is reduced.
- Meeting rooms are to be white box, not fully fitout.
- Solar PV and geothermal system is not included.
- Ballroom building is not to be expressive architecture, rather rectangular.

Ref	Location	GSF	$/GSF	Total Project Cost
P01	D-Street Ballroom Addition & Support + Meeting Room Additions	375,000	$1,649.63	$618,612,664
P02	Site-work & Infrastructure			$46,184,432
			Total:	$664,797,096

Program	Level 0 SF	Level 1 SF	Level 2 SF	Level 3 SF	Total [R]	Total [N]	Total SF
P01 D-St. Ballroom Addition & Support - Total	**90,000**	**57,000**	**163,000**	**35,000**	**-**	**345,000**	**345,000**
Lobby	60,000	17,000	-	-	-	77,000	
Multi-Purpose	20,000	-	-	-	-	20,000	
Mechanical	-	27,000	-	35,000	-	62,000	
Ballroom	-	-	70,000	-	-	70,000	
Kitchen & Service	-	-	53,000	-	-	53,000	
Skybridge Connector	-	-	10,000	-	-	10,000	
D-Street Ballroom Prefunction	-	-	30,000	-	-	30,000	
Loading	10,000	-	-	-	-	10,000	
Storage	-	13,000	-	-	-	13,000	
P02 Meeting Rooms	-	-	**30,000**	-	-	**30,000**	**30,000**
Public Circulation Space	-	-	7,000	-	-	7,000	
White Box - Future Meeting Rooms	-	-	23,000	-	-	23,000	
P03 Site-work & Infrastructure - Total	**244,000**	-	-	-	-	**244,000**	**244,000**
Cypher Street Modifications	20,000	-	-	-	-	20,000	
Relocate Lawn on D	172,000	-	-	-	-	172,000	
D-Street Improvements	20,000	-	-	-	-	20,000	
Mixed Use Plaza at Existing Lawn on D	32,000	-	-	-	-	32,000	
Total					-	**619,000**	**619,000**

Note #1: Level 1 garage calculations include an additional garage level (1A).

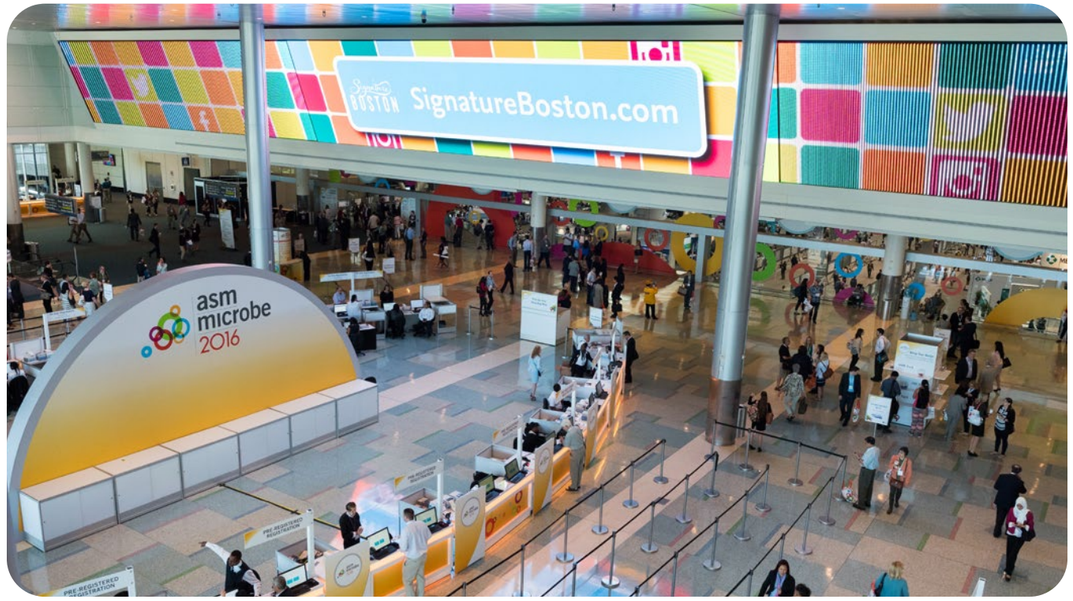


Photo Credit: Signature Boston

Decisions & Strategic Considerations

After reviewing the data and rationale provided by the MCCA regarding expansion without the need for additional hotel rooms, the Project Team concluded that this strategy was not supportable. As a result, a 'Ballroom Only' expansion option was developed. This Option would allow the BCEC to improve its national competitiveness, provide a unique venue to existing and new group opportunities and further optimize the use of the facility. Showing commitment to longer term development of the BCEC may also trigger developers to work with the MCCA on hotel development that would then support the full expansion of the facility. Below are the Pros and Cons initially developed.

Based on a thorough review of facility metrics, hotel room night generation, attendee data, and the overall hotel market, the Project Team supports full expansion of the BCEC's exhibition and meeting space, however, additional Hotel Rooms must be built to alleviate the pressure on existing hotel inventory and ensure group attendees will be accommodated. Solving for this additional Seaport hotel inventory, including ensuring room block control by the MCCA , will allow the MCCA can consider the full expansion of the Exhibition Hall (+180K square feet), Meeting Space (+45K - 50K square feet), and Ballroom (+75K square feet).

Since the Westin, Aloft, and Element hotels are located on land owned by the MCCA, room block agreements are established for them. In contrast, the Omni hotel sits on land owned by MassPort, which is why it does not have the same room block commitments. To unlock additional hotel inventory, the MCCA can renegotiate these existing agreements with hotels under their purview. Hotel development with room block agreements generally requires some type of partial funding through public sources. This could be by way of tax credits, tax deferrals, ground lease concessions and other considerations.

The addition a new Ballroom along with community space, without the construction of new hotels, is supportable. The Ballroom should be between 70K square feet and 80K square feet, similar to Denver's new Ballroom, and divisible with high ceilings. As the largest Ballroom in Boston, the new addition would free up additional exhibit hall space currently used for general sessions and meal functions, allowing the BCEC to utilize the exhibit halls more efficiently and optimize the square footage available for exhibitors. Additionally, for groups too large for hotels, the new Ballroom could accommodate these events, generating incremental roomnights for hotels without surpassing the market's capacity to handle the increase in demand. While the BCEC may have to alter their business review thresholds and sales tactics to optimize the selling of this space, overall, the additional Ballroom would provide greater flexibility, attract a wider variety of events and sizes, and enhance client satisfaction. Further, once additional hotel inventory is available in Seaport, the Ballroom expansion can tie into a future phase of expanded exhibit hall and meeting space.

Pro	Con
BCEC Expansion - Option 1	
• Proposed program generates significant new demand into the market. Expansive program can support community initiatives. • Improves profitability of the BCEC. Drives meaningful economic impact for the Commonwealth. • Improves competitiveness against key markets across the USA. • Solidifies the MCCA as a critical economic driver in the hospitality sector. • Creates flexibility to house and host key industries to support Commonwealth development. • Activates D Street as a public corridor with vibrant mixed uses. • Retains all vehicle and loading on site. Off street parking is accommodated on site. • Sustainable design meets operational and embodied carbon neutral goals. • Expansion supports geothermal heat pumps with capacity to support fuel switching of the existing facility. • Building entrances and finish floor lobbies can be built above flood projections. Dry flood proof construction. • Solar PV with micro grid supports emergency back-up, reduces dependence on diesel generators. Increase longevity. • Design for maximum flexibility that can serve additional emergency response capabilities. • Although dependent on the procurement process, the project could be delivered within 6-7 years.	• Hotel rooms must be built in order to accommodate expanded group base (800-1,000 "committable rooms"). • Hotel rooms must have Room Block Agreements. • Challenges associated with securing hotel development agreements, if private or public/private. • High Cost of Development. • Increased traffic/activity in the area around the BCEC. • Disruption from construction. • Future draw on CCF to fund improvements is at a high cost.
CEC Ballroom Only - Option 2	
• No additional hotel rooms required to support space. • Existing hotel inventory will benefit with additional demand. • Improves competitiveness nationally against key cities. • Offers alternative space option for events and at a lower cost than exhibit space. • Events will easily upgrade into this space with increased spend. • New convener space is being provided that supports community. • Allows for Hall C utilization to be optimized (increased occupancy). • Enables the BCEC to host local events that cannot currently be accommodated. • Demonstrates that the MCCA is committed to expand the facility, awaiting hotel development. • Improves profitability of the operation. • Separate arrival and departure location from main entrance on Summer Street. • Similar sustainability, climate resilience, and emergency preparedness goals, but on a smaller scale.	• Location on D Street and distance from main entrance on Summer Street. • High cost to build with lower ROI result. • Sales plan will need to be developed outside current blue print. • Disruption from construction. • If this development does not proceed, community space will need to be incorporated into the facility's design. • Solar PV, geothermal system, and expressive architecture is not in the budget. • Loading is exposed to the public parking areas. • A second phase that realizes a full expansion, if executed sequentially, could be completed in 12-15 years. Accelerated phasing can reduce this timetable.

Occupancy & Utilization

The BCEC is a highly utilized facility as evidenced by their occupancy statistics. An analysis of seasonality patterns as they relate to occupancy is useful to analyze the facility's productiveness and review areas of opportunity for increased production. Typically, a facility's theoretical maximum occupancy is 70% to 75%; a facility operating at or above this threshold is operating at its practical limit.

As shown, in FY24, monthly average occupancy for the BCEC was over 70% for 8 out of the 12 months, with November coming just shy at 69%.

Total Occupancy							
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2023	FY 2024	Average
July	62%	19%	88%	69%	63%	87%	**65%**
August	47%	78%	73%	63%	47%	29%	**56%**
September	61%	80%	69%	71%	87%	74%	**74%**
October	57%	89%	75%	60%	51%	84%	**69%**
November	74%	57%	66%	61%	57%	69%	**64%**
December	51%	31%	23%	23%	22%	30%	**30%**
January	88%	66%	67%	71%	32%	84%	**68%**
February	70%	69%	68%	87%	61%	80%	**73%**
March	82%	89%	85%	90%	95%	97%	**90%**
April	93%	65%	61%	61%	54%	87%	**70%**
May	65%	78%	79%	69%	85%	76%	**75%**
June	73%	72%	88%	86%	77%	40%	**73%**

Source: BCMC, Compiled by CHMWarnick

Overall, there appears to be very limited windows where the BCEC could accommodate additional events given the high utilization of the facilities. An increase in utilization, in the context of its existing facility, could only take place in six months where the BCEC is operating at sub-70% occupancy. However, there are some headwinds when layering additional events over these periods:

- Occupancy in four of these six months are already operating at close to its theoretical capacity
- Whereas August occupancy is sub 60%, the hotel market occupancy in this month is in the mid 80s, with Seaport hotel occupancy reaching 88% occupancy / $272 ADR in 2023 and 89% occupancy / $296 ADR in 2024. August is peak transient season for Boston, limiting hotel availability and willingness to participate in room blocks. It will be difficult to attract additional groups during this month as a result.
- This leaves only one month (December) of availability to layer on additional events within the average calendar of the BCEC. December's calendar is highly impacted by Christmas/New Years.
- Even during high occupancy periods, it is important to understand the pattern of attendance and roomnights. The peak of an event may be only one night of a four-day event. If the other days of the event fall on busy Tuesday/ Wednesday, then hotels are less incentivized to offer room blocks.

On average, in a typical year, the BCEC has 66 dark days, representing 18% of the total calendar year. December is the month with the highest number of dark days, averaging 17 over the period analyzed. August is the second-highest month, averaging 10 dark days per year. December's calendar is impacted by Christmas and New Year's, with the last two weeks of the year typically dark. August's slow period is a result of lower convention demand during summer vacations. Therefore, given the seasonal patterns of the market, there is limited opportunity to reduce the number of dark days at the facility.

Total BCEC Dark Days							
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2023	FY 2024	Average
July	5	17	3	8	2	2	**6**
August	12	3	4	7	12	20	**10**
September	3	0	4	0	0	2	**2**
October	4	0	2	5	3	0	**2**
November	3	3	4	5	5	7	**5**
December	13	16	17	20	17	18	**17**
January	3	4	4	6	12	4	**6**
February	7	5	4	1	9	4	**5**
March	0	3	4	2	1	1	**2**
April	0	9	2	7	12	0	**5**
May	8	5	0	6	0	2	**4**
June	3	4	2	0	3	13	**4**
Total	**61**	**69**	**50**	**67**	**76**	**73**	**66**

Source: BCMC, Compiled by CHMWarnick

Space Usage Patterns

When reviewing the space usage patterns, the working group focused on general exhibit hall usage and overall facility usage in coordination with the Hynes.

Exhibit Hall – Square Footage Usage Patterns

As previously noted, the Exhibit Hall is highly utilized. The occupancy analysis previously described herein considers any day that exhibit hall is in use, even if not fully occupied. To help determine the need for expansion, the working group also analyzed the dynamics of the exhibit hall during its use to see how groups utilize the available square footage.

# of Days Based on Exhibit Hall Usage							
	FY 2016	FY 2017	FY 2018	FY 2019	FY 2023	FY 2024	Average
Below 37% < 190,920 SF	26 156,983	33 155,738	33 164,964	34 167,700	50 166,874	10 137,256	**31** **161,735**
Between 37% and 50% Between 190,920SF and 258,000 SF	2 252,840	1 252,840	0 0	5 252,840	5 252,840	3 252,840	**3** **252,840**
Between 50% and 60% Between 258,000SF and 309,600 SF	32 263,160	19 263,160	19 263,160	15 263,160	22 263,160	16 263,160	**21** **263,160**
Between 60% and 80% Between 309,600SF and 412,800 SF	53 355,066	57 353,324	82 349,118	55 348,347	61 351,557	58 350,257	**61** **351,106**
Between 80% and 95% Between 412,800SF and 490,200 SF	16 423,120	1 423,120	3 423,120	4 423,120	4 423,120	15 423,120	**7** **423,120**
Over 95%% > 490,200 SF	176 516,000	185 516,000	178 516,000	185 516,000	147 516,000	191 516,000	**177** **516,000**
Total Average SF Used *% of Exhibit Hall Used*	**305** **424,304** ***82%***	**296** **427,077** ***83%***	**315** **419,647** ***81%***	**298** **426,929** ***83%***	**289** **395,802** ***77%***	**293** **449,008** ***87%***	**299** **423,824** ***82%***

In FY24, the BCEC hosted the highest number of days with full Exhibit Hall usage and had the highest average percentage of the Exhibit Hall in use at 87%. This correlates to the data gleaned from customer interviews which noted that most groups are increasing in size year-over-year and therefore require more space. In addition, nationally, the large events segment is growing faster than small and medium event segments.

Space Usage Pattern (continued)

When the Exhibit Hall is in use, on average, approximately 60% of the time it is being fully utilized. Groups in February and March tend to utilize the Exhibit Hall's full square footage more so than groups in other months. March, on average, had the highest average percent of Exhibit Hall space used, at 95%, followed by February at 89%. However, it should be noted that February produced the second-least number of RNs per occupied day at 386, far below the 1,541 RNs/Occupied Day annual average. This suggests that while highly utilized in a slower hotel occupancy month, groups utilizing the BCEC have less of an impact on the hotel market in February.

On average, less than 37% of the Exhibit Hall is occupied for 31 days per year. The average SF used was approximately 162,000 SF. The Exhibit Hall's smallest space is B1 / B2, which each totals 92,000 SF. The total number of occupied days for this space ranged from 0 in FY 2019 to 5 in FY 2017, averaging 2 days over the analysis period. In FY 2024, this space was occupied for 4 days (for 1 day each in October and June, 2 days in November). Due to the smaller size of the Ballroom, some groups opt to use a portion of Exhibit Hall. Rental rates range for the clients from $40k to $80k depending on the extent of the set-up.

Exhibit Hall C Usage Patterns

Exhibit Hall C presents an opportunity to help increase the general availability of the BCEC. Exhibit Hall C, which offers 162K SF, is less utilized than Exhibit Halls A and B. In Calendar Year 2024, only 51% of usage days utilized Exhibit Hall C, translating to 209 days of availability. Exhibit C plays an integral part of Signature Boston's favored expansion plan as it provides availability of additional Exhibit Hall space groups can use while another is in the tear down/set up phase.

Move In / Move Out Patterns

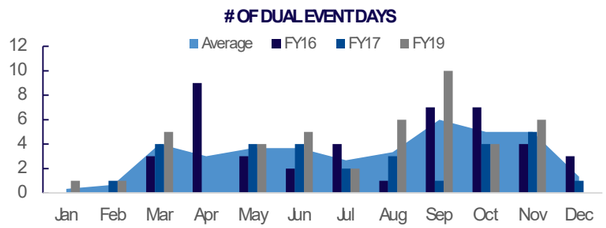
According to Signature Boston, a typical convention requires three to five days for setup, followed by three to four days for the actual event, and one to two days for teardown. This could result in a non-event day period ranging from four to seven days. Expanding the convention center while overlaying the peak days and move-in/breakdown of a different group will create an opportunity to host two consecutive events.

Hynes and BCEC Citywide Dual Occupancy Days

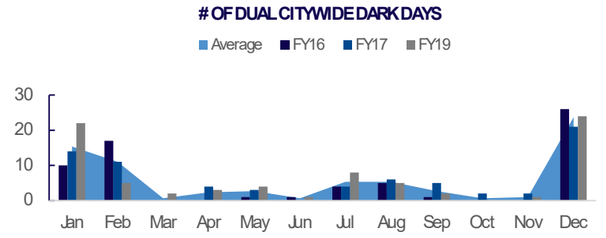
Due to the limited hotel inventory in the Seaport, events at the BCEC often require hotel rooms throughout the City of Boston. While events at the Hynes typically impact Back Bay hotels only, it was estimated by the Hotel Relations team that the BCEC generated over 140,000 RNs outside the Seaport. Therefore, when thinking of BCEC expansion and the availability of hotel inventory, it is necessary to consider the events at the Hynes. The analysis below looks at the Citywide event calendar at both the BCEC and the Hynes. As a result of the discussion regarding the sale/closure of the Hynes impacting production, we analyzed the Citywide event calendar of FY 2016, FY 2017, and FY 2019.

Citywide events at the BCEC have a longer lead time than events at the Hynes. This means that in general, events at the BCEC have first pick of hotels within the City. If the event room block spills into Back Bay and other Boston hotels, this could potentially limit the groups at the Hynes. Already it is difficult to service events when both the Hynes and BCEC are in full use, and expanding the BCEC would further exacerbate the issue of hotel availability. During the analysis period, on average there were 58 days where only the BCEC hosted a citywide event and another 39 days where the Hynes hosted an event the same day.

Dual citywide event days tend to occur during the fall months, with September through November experiencing the highest number of dual-event days over the analysis period. Following the general demand patterns, the months with the least number of dual event days was December through February, which averaged of 1 dual event day per month. This is when transient demand is also the lowest and when hotels have the most availability.



Source: BCMC, Compiled by CHMWarnick



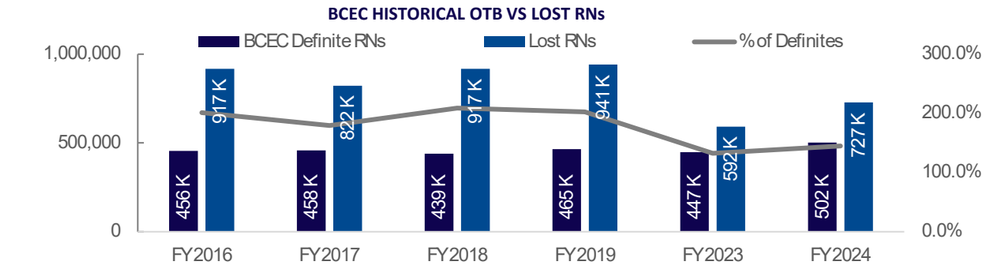
Source: BCMC, Compiled by CHMWarnick

Days where no Citywide events were hosted in either facility averaged 71 days a year, 50 of which occurred during December, January, and February, representing 70% of all dual dark-days. July and August averaged a comparatively high 5 dual-dark days per month, but as previously noted, these months have high occupancies and ADRs driven by transient demand, often leading to difficulty to assemble room blocks.

Lost Business

The MCCA tracks reasons for lost business, one of which includes "Hotels". These hotel-related factors include lack of availability/hotels, high rates, too many hotels in room block, or an event converting to an in-house group versus convention center.

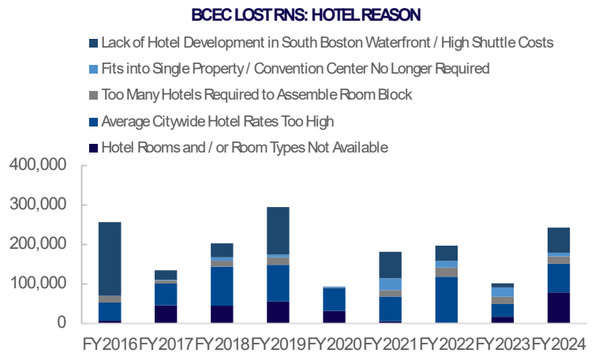
Between FY16-FY19, FY23, and FY24 (excluding COVID), historically, the BCEC turned away an average of 819K RNs per year. Historically, the BCEC loses more business than they accommodate. Pre-COVID, the annual share of lost to definite business was between 180% and 209%, averaging 198%. Hotels, on average, is the second most common factor for BCEC lost business, averaging of 190K RNs per year between FY16 and FY24, or 23% of all lost business. In FY24, the BCEC recorded 243K lost RNs related to Hotels, which ranked third in total RNs over the analysis period but ranked the highest in terms of share of all lost business at 33%, versus 23%. In this year, Hotels was named the number reason for lost business at the BCEC, ahead of "Convention Center" which totaled 179K lost RNs.



Source: BCMC, Compiled by CHMWarnick

Lost Business (continued)

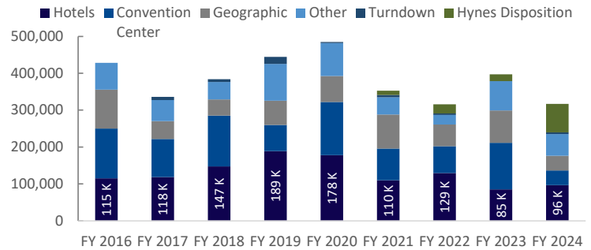
Between FY16 and FY24, annual available RNs increased by 858K, or on average over 2,300 per day. In this time, Hotel lost RNs in FY24 (243K) was greater than the average Hotel lost RNs between FY16 and FY19 (years not impacted by COVID) of 222K RNs. Looking forward, lost business ranges from 7% to 34% of business on the books.



Source: BCMC, Compiled by CHMWarnick

There are several supply factors which affect the dynamics of hotel-related lost business. The limited number of committable rooms in Seaport increases logistics, planning, and transportation costs, which are unfavorable for meeting planners. Event organizers must source room blocks from numerous hotels across the city, complicating and negatively impacting the experience by dispersing attendees throughout the City. Hotel inventory also relates to the type of accommodations available for attendees. Affordable accommodations, limited-service in particular, are scarce in Boston and Seaport. Limited-service hotels tend to be expensive due to high demand, making the citywide rate too costly for groups. These supply and pricing challenges hinder BCEC expansion.

Despite Back Bay's larger inventory and the Hynes' smaller event sizes, Hotels are still a large factor of Hynes lost business. On average, "Hotel" related reasons is the top reason for lost citywide business, making up 22% to 45% of all lost RNs between FY16 and FY24 (excluding reasons for Hynes disposition). In FY 2024, hotel-related lost business represented 40% of all lost RNs, totaling almost 100K RNs.

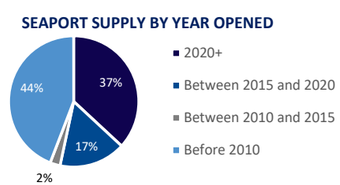


Source: BCMC, Compiled by CHMWarnick

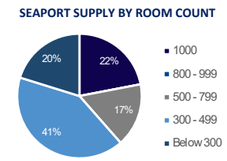
While most BCEC hotel-related reasons relate to supply factors, the majority of hotel-related reasons at the Hynes relate to price, averaging 47% of all hotel-related reasons. Additional citywide events at the BCEC, without additional hotel room inventory, would only intensify the existing challenges faced by the Hotel Relations team. Since room blocks would already be committed for the BCEC, hotels no longer need to make available room block commitments for the Hynes in the future. This can potentially lead to an increase in hotel-related lost business.

Hotel Market

Inventory: Seaport is a relatively new submarket. Approximately 37% of all supply was built within the last four years, and over half within the last nine years. Given the new construction and high positioning of hotels in Seaport, Seaport is a very expensive and high-demand hotel market, impacting Group Room Block availability.

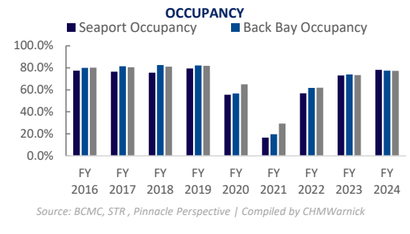


The average hotel in Seaport is 400 Rooms. Excluding the two largest hotels, the average hotel room count drops to 295 rooms. Only one (1) Hotel has more than 1,000 Rooms - The Omni Boston Seaport Hotel which opened in September 2021, across the street from the BCEC. The Westin Boston Waterfront has 793 rooms and is adjacent the BCEC. These two hotels comprise 39% of Seaport Inventory. Events at the BCEC typically require room blocks at multiple hotels across different neighborhoods within Boston, and even at times in the suburbs. While the Hotel Relations team can mitigate the planning time associated with coordinating amongst a wider group of properties, it is still not ideal from a meeting planner perspective. In FY24, citywide events at the BCEC averaged attendance of over 10,700 per event, more than double the current Seaport hotel supply. Meeting planners are forced to look outside Seaport for additional hotels, adding transportation and logistic costs for the event.



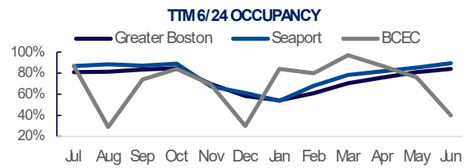
Source: STR, Compiled by CHMWarnick

Occupancy: As of FY 2024, Boston achieved an occupancy of 77%. While below pre-pandemic average occupancy, demand, as measured in room nights, fully rebounded. Historically, Back Bay has had higher occupancy compared to Seaport, averaging four points higher. However, in FY24, Back Bay occupancy was below Seaport for the first time in the nine years analyzed. Despite the significant increase in rooms for Seaport, FY24 occupancy at 78% is in line with pre-pandemic averages and only 1.4 points shy of peak occupancy in FY 2019. Total occupied rooms in Seaport equaled almost 1.3M in FY24, over 580K greater than FY19, equivalent to 82% growth. The Seaport's rising demand, largely driven by new corporate, especially biotech, presence, has absorbed the increased hotel inventory.

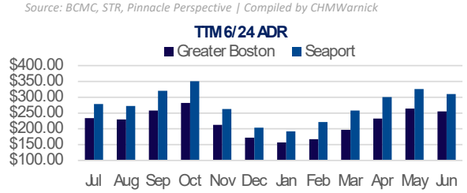


Source: BCMC, STR , Pinnacle Perspective | Compiled by CHMWarnick

Seasonality: Seaport generally follows the same seasonality patterns as greater Boston but experiences slightly higher swings in occupancy. During the peak and shoulder season of TTM, Seaport occupancy averages six points higher than the overall market. November through January, this average occupancy premium is reduced to 0%, with November and January even achieving a discount to overall market occupancy. November through March is considered the low season, for the hotels, but in general, the BCEC is already at high occupancy, with exception of December, which is hard to fill due to the holiday calendar. Therefore, when hotels need support of the BCEC the most, there is little room to accommodate additional groups within the existing footprint. While this may signal the need for expansion, we caution that out of the last 12 months, there are were only two months where Seaport hotel occupancy fell below 67%: December and January at 54% and 61%, respectively. The Seaport hotel market is currently operating at high levels of occupancy the remainder of the year, driving ADRs over $300 for five out of the twelve months. December and January would benefit the most from additional group rooms, but seasonal holidays and Boston winter weather limit the potential to drive additional Citywide events, and historically have been poor booking months for Signature Boston.



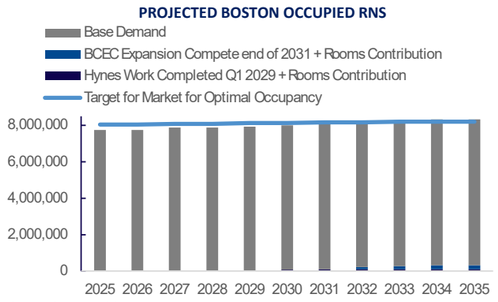
Source: BCMC, STR, Pinnacle Perspective | Compiled by CHMWarnick



Source: STR, Pinnacle Perspective | Compiled by CHMWarnick

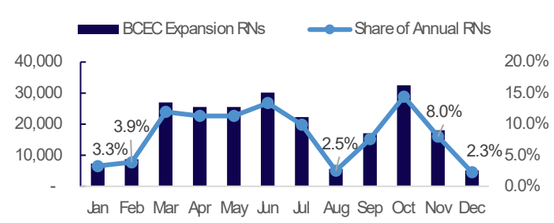
Impact to the Hotel Market

With the completion of the Hynes renovations in FY29 (100K RNs) and the additional demand from the contemplated BCEC expansion (225K RNs), the Boston market is expected to accommodate an additional 325K BCMC RNs. By FY34, including the incremental BCMC demand, accommodated RNs are projected to reach 8.3M. Given the limited growth in new supply, this results in an 82% occupancy rate. Due to seasonal weekday/weekend and monthly patterns, the maximum sustainable occupancy level is 81%, resulting in 8.0M RNs based on FY33 supply. Therefore, with BCEC expansion, the market is accommodating excess RNs of over 122K.



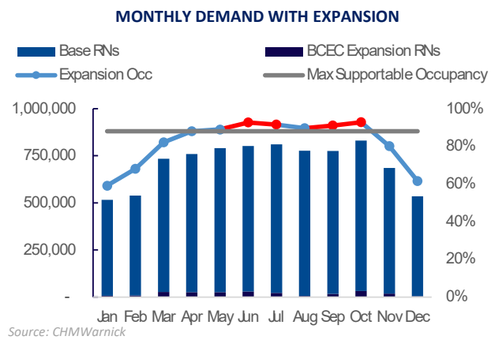
Source: CHMWarnick

While accommodating excess demand 122K RNs over the course of a year may seem reasonable, a further analysis of monthly demand based on historical seasonal patterns shows that this level of demand is unobtainable. Utilizing the average of FY23 and FY24 monthly share of BCEC Roomnights, CHMWarnick allocated the additional BCEC RNs over the course of a year. The periods in which the hotel market needs support in demand generation are the months that have the lowest share of annual rooms, with the exception of August.

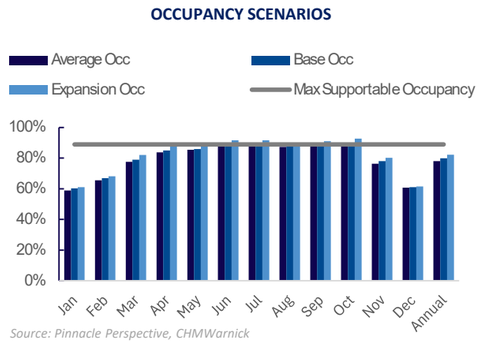


Source: CHMWarnick

In the baseline scenario, with no expansion, annual occupancy totals 80%, with no months exceeding the 89% threshold. After layering additional expansion RNs to the baseline level of demand, during peak months of occupancy, the hotel market achieves unsustainable levels of occupancy. Four of the 12 months have occupancy levels in excess of 89%, with May and August at 89% and April shy by only 1 point at 88%. In the three months where additional support is needed most, December through February, occupancy only increases by 1 pt. The expansion is therefore projected to predominately contribute RNs in the months where hotels don't need additional support.



Source: CHMWarnick



Source: Pinnacle Perspective, CHMWarnick

Photo Credit: Signature Boston

Economic & Fiscal Impact Projections

Expanded Boston Convention and Exhibition Center
Incremental Economic and Fiscal Impact over Unexpanded BCEC

Events and Visitation	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2039
# of Events	19	15	13	13	13	15
Event Attendance	230,950	191,127	157,885	157,885	157,885	191,127
Total Visitor-Days*	864,261	709,274	598,053	598,053	598,053	709,274
Total Room Nights*	146,161	146,152	167,449	148,635	153,931	162,965
Direct Spending ($Million)	**FYE 2030**	**FYE 2031**	**FYE 2032**	**FYE 2033**	**FYE 2034**	**FYE 2039**
Hotel	$26	$28	$35	$31	$32	$43
Food and Beverage	59	50	44	45	47	63
Transportation	28	23	21	21	22	30
Attraction	22	19	16	16	17	24
Shopping	31	26	23	23	24	34
Other Industries	50	43	41	42	43	54
Subtotal	**$216**	**$188**	**$179**	**$179**	**$185**	**$247**
Operational Spending	$0	$0	$0	$0	$0	$0
Total Direct Spending	**$216**	**$188**	**$179**	**$179**	**$185**	**$247**
Indirect and Induced Spending	$129	$112	$107	$107	$110	$148
TOTAL SPENDING	**$345**	**$301**	**$286**	**$285**	**$295**	**$395**
Direct Earnings and Employment	**FYE 2030**	**FYE 2031**	**FYE 2032**	**FYE 2033**	**FYE 2034**	**FYE 2039**
Earnings ($Million)	$104	$90	$86	$86	$89	$119
Employment (FTE Jobs)	1,786	1,511	1,394	1,349	1,355	1,559
Earnings and Employment based on TOTAL Spending	**FYE 2030**	**FYE 2031**	**FYE 2032**	**FYE 2033**	**FYE 2034**	**FYE 2039**
Earnings ($Million)	$166	$144	$137	$137	$142	$190
Employment (FTE Jobs)	2,852	2,413	2,225	2,153	2,164	2,490
Fiscal Impact ($Million) *Tax Rate*	**FYE 2030**	**FYE 2031**	**FYE 2032**	**FYE 2033**	**FYE 2034**	**FYE 2039**
By Types of Taxes						
Hotel Tax *16.45%*	$4.3	$4.6	$5.8	$5.0	$5.3	$7.1
Meals Tax *7.00%*	4.1	3.5	3.1	3.2	3.3	4.4
Sales and Use Tax *6.25%*	6.5	5.5	4.9	5.1	5.3	7.0
Total	**$14.9**	**$13.5**	**$13.8**	**$13.3**	**$13.8**	**$18.5**
By Jurisdiction						
State Taxes	$11.6	$10.2	$9.7	$9.7	$10.0	$13.4
Local Taxes	2.1	2.2	2.6	2.3	2.5	3.3
Special Authority Taxes	1.1	1.2	1.5	1.3	1.4	1.8
Total	**$14.9**	**$13.5**	**$13.8**	**$13.3**	**$13.8**	**$18.5**

**Including visitor-days and room nights from attendees, exhibitors, event organizers, etc.*
Source: Massachusetts Convention Center Authority; Johnson Consulting

Full Expansion (Option 1): The table on the left shows the projected incremental impacts – based on analysis performed by Signature Boston and the Project Team – associated with the proposed full expansion scenario. The Project Team assumed a 3-year construction period between FYE 2027 and FYE 2029, with an opening in FYE 2030. Over a 10-year time horizon (FYE 2030-2039), the estimated $1.9B capital investment associated with full expansion is projected to generate an incremental total of $3.26B of economic impact to the Massachusetts economy, including direct, indirect, and induced spending.

The total incremental fiscal impact over that period is estimated to total to $150M of tax revenues to state and local bodies, with $110.3M flowing directly to the state of Massachusetts. The associated construction spending is estimated to contribute an additional $1.67B of economic impact and $65.3M of fiscal impact. While the incremental impact relative to cost is positive, full expansion can only be considered if the availability of hotel inventory in Seaport is addressed. The additional RNs associated with full expansion can only be accommodated with additional inventory.

Photo Credit: Signature Boston

Economic & Fiscal Impact Projections (continued)

Boston Convention and Exhibition Center with a New Ballroom Incremental Economic and Fiscal Impact over Unexpanded BCEC						
Events and Visitation	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2039
# of Events	2	2	2	2	2	2
Event Attendance	14,481	14,481	14,481	14,481	14,481	14,481
Total Visitor-Days*	45,510	45,510	45,510	45,510	45,510	45,510
Total Room Nights*	25,400	25,400	25,400	25,400	25,400	25,400
Direct Spending ($Million)	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2039
Hotel	$9	$9	$9	$10	$10	$12
Food and Beverage	3	3	3	3	3	3
Transportation	1	1	1	1	1	1
Attraction	1	1	1	1	1	2
Shopping	2	2	2	2	2	2
Other Industries	0	0	0	0	0	0
Subtotal	**$16**	**$16**	**$17**	**$17**	**$18**	**$21**
Operational Spending	$0	$0	$0	$0	$0	$0
Total Direct Spending	**$16**	**$16**	**$17**	**$17**	**$18**	**$21**
Indirect and Induced Spending	$9	$10	$10	$10	$11	$12
TOTAL SPENDING	**$25**	**$26**	**$27**	**$28**	**$28**	**$33**
Direct Earnings and Employment	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2039
Earnings ($Million)	$8	$8	$8	$8	$9	$10
Employment (FTE Jobs)	130	130	130	130	130	130
Earnings and Employment based on TOTAL Spending	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2039
Earnings ($Million)	$12	$12	$13	$13	$14	$16
Employment (FTE Jobs)	208	208	208	208	208	208
Fiscal Impact ($Million) *Tax Rate*	FYE 2030	FYE 2031	FYE 2032	FYE 2033	FYE 2034	FYE 2039
By Types of Taxes						
Hotel Tax *16.45%*	$1.4	$1.5	$1.5	$1.6	$1.6	$1.9
Meals Tax *7.00%*	0.2	0.2	0.2	0.2	0.2	0.2
Sales and Use Tax *6.25%*	0.2	0.2	0.2	0.2	0.2	0.3
Total	**$1.8**	**$1.9**	**$1.9**	**$2.0**	**$2.1**	**$2.4**
By Jurisdiction						
State Taxes	$0.9	$0.9	$0.9	$0.9	$1.0	$1.1
Local Taxes	0.6	0.6	0.6	0.6	0.7	0.8
Special Authority Taxes	0.4	0.4	0.4	0.4	0.4	0.5
Total	**$1.8**	**$1.9**	**$1.9**	**$2.0**	**$2.1**	**$2.4**

**Including visitor-days and room nights from attendees, exhibitors, event organizers, etc.*
Source: Massachusetts Convention Center Authority, Johnson Consulting

Ballroom-Only Expansion (Option 2): The table on the right shows the projected incremental impacts associated with a Ballroom-only expansion scenario. We assumed a 2-year construction period between FYE 2028 and FYE 2029, with an opening in FYE 2030. At stabilization, an additional 25,400 RNs are projected to be generated by a Ballroom-only expansion. Unlike the full expansion scenario, the Ballroom-only scenario projects less total economic impact over a 10-year time horizon ($289M) than its estimated construction cost ($500M). Its total fiscal impact is also significantly smaller, with an estimated $21M of incremental tax revenues flowing to state and local bodies over that period, and $10M flowing directly to the state of Massachusetts.

Even after folding in the projected $439.1M of economic impact and $17.2M of fiscal impact associated with its construction, this scenario represents less of a return on investment than the full expansion scenario. Despite less favorable return economics, the Project Team supports this scenario as it could potentially tie into a full expansion in the future once additional committable hotel inventory opens in the Seaport.

Photo Credit: Signature Boston

Convention Center Expansions Across the United States

To accommodate growing demand and maintain competitiveness, several convention centers across the United States have recently expanded or are in the planning/development stages of expansion.

Denver: The Colorado Convention Center recently added a new 80K SF Ballroom to accommodate a wide variety of events, including conventions, trade shows, banquets, and corporate meetings. The Ballroom highlights state-of-the-art technology to adapt to post-pandemic hybrid trends and features access to a rooftop offering scenic views. The new Ballroom is expected to attract new and larger events capitalizing on Denver's growing demand for conventions driven by its booming tech sector, central location, and appeal as a tourist destination.

Austin: Austin is the No. 10 largest city in the U.S. but has the No. 59 largest convention center. As a result of a lack of total space compared to its peers, Austin is in the process of expanding its convention center. The building will close in 2025, and the new, larger facility will reopen in late 2028. The additional facilities will enhance the center's capacity to host a wider range of events. The $1.6B expansion will be built using Hotel Occupancy Tax, which increased a further 2% in 2019 to 11% total, and Convention Center Revenues, with no reliance on property tax.

Fort Worth: After a 20-year planning process, the Fort Worth Convention Center is undergoing redevelopment, creating a new entertainment district. The project focuses on enhanced pedestrian access, walkability and overall connectedness to downtown. The $95M Phase I is expected to be completed in early 2026, and the facility will remain operational throughout construction. Dates for $606M, Phase 2, have yet to be determined. In conjunction with the expansion, the 618-room Omni Fort Worth Hotel will undergo a $200M expansion that will provide an additional 400 rooms; 50,000 SF of meeting space; a redesigned rooftop pool area with resort-style amenities; and new dining options.

Funding for the first phase included $52M in federal pandemic-era stimulus money and $43M in debt, to be repaid through the City's culture and tourism fund. To fund the expansion, City voters approved a 2% increase to the occupancy tax, which would provide $9.5M annually toward paying off the debt and fund future tourism-related projects, such as improving the Will Rogers Memorial Center and providing $53M in incentives for the new hotel.

Broward County: After a public engagement process, the County Commissioners approved an expansion of the Broward County Convention Center and the development of a new headquarters hotel. At completion, the Convention Center will offer 1.2M SF, including a 350K Exhibit Hall, an open-air amphitheater, a waterfront plaza, and a 65K waterfront Ballroom. The $1.3B project will add an additional 525,000+ square feet of meeting space and an upscale 801-room headquarters hotel. Construction is slated for completion in 2025.

The Convention Center and hotel are being funded through bond-financing. In addition, Broward County Commissioners decided in 2022 to use $140 million ($146 million in 2023) funds from the American Rescue Plan Act of 2021 for the hotel portion of the convention center.

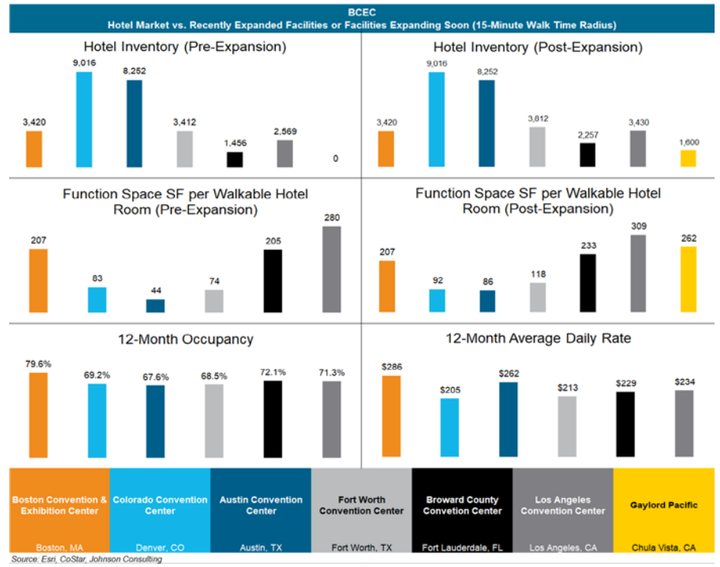
Los Angeles: City Council, in advance of the 2028 Summer Olympics, is moving forward with a $1.4B expansion to include a 190,000 SF exhibit hall, 55,000 SF of meeting space, and 95,000 SF of multipurpose space. Construction of the project is expected to kick off in Spring 2025. Anschutz Entertainment Group (AEG) is planning to add a 37-story, 861-room hotel tower to the neighboring J.W. Marriott complex. However, work on that hotel is delayed until economic conditions improve.

The City of Los Angeles will pay for the construction, but the work will be done through a private-public partnership with Anschutz Entertainment Group (AEG) and Plenary Group. AEG operates the convention center, and Plenary Group is a development firm.

San Diego (Gaylord): With the lack of improvements at the Convention Center, the new $1.35B Gaylord is expecting to take advantage of older product in anticipation to shift share and attract additional groups to the area. At completion, the Gaylord Pacific Resort Hotel and Convention Center will offer 1,600 guest rooms, 2M SF of enclosed space along the bayfront in Chula Vista, and 477,259 SF of flexible indoor and outdoor event spaces to accommodate more than 3,000 attendees. The hotel is expected to open to the public in summer of 2025, and conventions are already being booked with guest reservations open closer to the end of the year. The hotel is being funded partially through $275M in public bond financing which will be used to construct the new convention center, a new park, site preparation, utility connections, and improvements to streets surrounding the site.

Key Takeaways

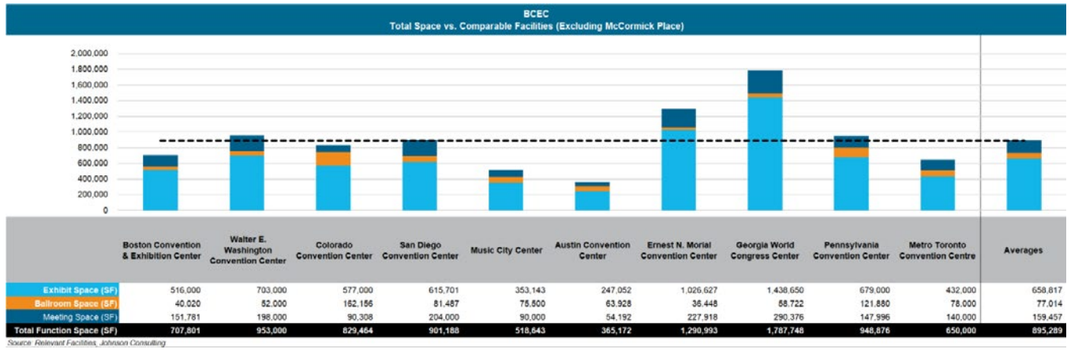
These expansion case studies allow us to gain insight as to how Boston's hotel inventory compares with these cities pre- and post-expansion. As shown, Boston's inventory pre-expansion is in line with Fort Worth but significantly below Denver and Austin. Fort Worth, Broward County, Los Angeles, and San Diego are all expected to add hotel rooms in conjunction with their expansion plans. Post expansion, Fort Worth and Los Angeles will have more walkable rooms than Boston. Further, with these new hotels partially funded through public money, there will likely be room block agreements, ameliorating pressure on the other hotels to support their respective convention centers.



Currently, Boston's Function Space SF to Walkable Hotel Room Ratio was 207:1, far above Denver, Austin, and Fort Worth, but in line with Broward County and below Los Angeles. Post expansion, despite Broward County and Los Angeles adding hotel rooms, their Function Space SF to Walkable Hotel Room Ratio increased. While it is possible to support a convention center with Boston's ratio, the other cities have different occupancy and rate dynamics. Boston's occupancy of close to 80% is over seven points higher than the second-ranking city, Broward County. Pre-expansion, after multiplying pre-expansion Hotel Inventory by occupancy, Boston ranks highest in Function Space SF to Available Walkable Hotel Room Ratio at over 1,000 : 1, with LA ranking second at 976 : 1 and Broward County third at 735 : 1. The remaining three cities ranged from 136: 1 to 269: 1, and all six cities, including Boston, had a weighted average of only 369 : 1.

It is important to consider that these major cities are capitalizing on the increased demand and addressing their lost business by investing in their convention center operations. This demonstrates to customers that the convention centers are committed to enhancing their facilities to meet the evolving needs of their clientele. With expansions happening at these competitive convention centers, BCEC's size deficiency will become starker in the coming years. Thus, without expansion, the BCEC is at risk of losing market share by failing to keep up from a facility size perspective.

Competitive City Benchmarks

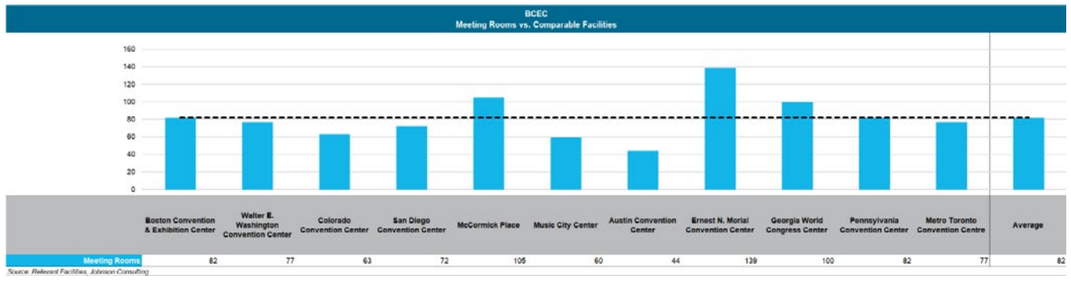


	Boston Convention & Exhibition Center	Walter E. Washington Convention Center	Colorado Convention Center	San Diego Convention Center	Music City Center	Austin Convention Center	Ernest N. Morial Convention Center	Georgia World Congress Center	Pennsylvania Convention Center	Metro Toronto Convention Centre	Averages
Exhibit Space (SF)	516,000	703,000	577,000	615,701	353,143	247,052	1,026,627	1,438,650	679,000	432,000	658,817
Ballroom Space (SF)	40,020	92,000	162,156	81,487	75,500	63,928	36,448	88,722	121,880	78,000	77,014
Meeting Space (SF)	151,781	198,000	90,308	204,000	90,000	54,192	227,918	290,376	147,996	140,000	159,457
Total Function Space (SF)	707,801	953,000	829,464	901,188	518,643	365,172	1,290,993	1,787,748	948,876	650,000	895,289

Source: Relevant Facilities, Johnson Consulting

Exhibit Hall Space: A convention center's largest space dictates the size of events it can accommodate and, as such, its serviceable market. The BCEC is essentially in line with benchmark facilities in terms of its largest space, sitting slightly below that group's average.

Ballroom Space: The BCEC's Ballroom is below average in terms of both its total Ballroom space and the size of its largest Ballroom. Furthermore, the facility is disadvantaged relative to its benchmarks by only having one Ballroom (one which can be subdivided into smaller spaces). Eight out of ten benchmark facilities have at least two Ballrooms, and three out of ten have at least three. The BCEC's one Ballroom hinders its flexibility and increases costs for customers by forcing larger catered events into the exhibit hall, which requires more expensive set-up and break-down.



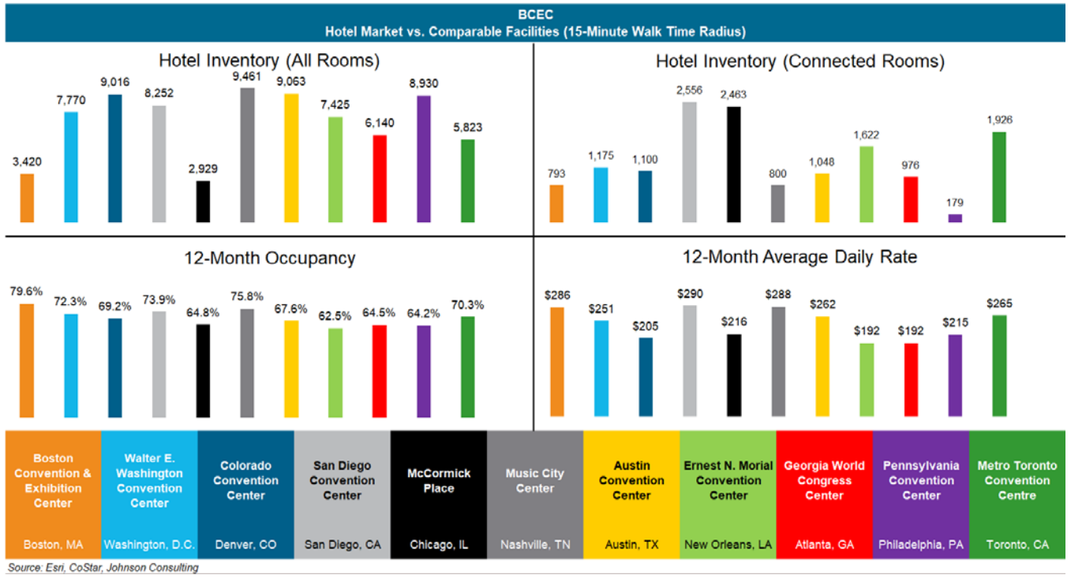
	Boston Convention & Exhibition Center	Walter E. Washington Convention Center	Colorado Convention Center	San Diego Convention Center	McCormick Place	Music City Center	Austin Convention Center	Ernest N. Morial Convention Center	Georgia World Congress Center	Pennsylvania Convention Center	Metro Toronto Convention Centre	Average
Meeting Rooms	82	77	63	72	105	60	44	139	100	82	77	82

Source: Relevant Facilities, Johnson Consulting

Number of Meeting Rooms: The BCEC is also in line with benchmark facilities in its number of individual meeting rooms. This quantity of meeting rooms helps support events which require 15-minute breakout spaces, such as healthcare industry conventions.

Hotel Supply: Though there has been significant hotel inventory growth in the area within a 15-minute walk of the BCEC, the facility is still challenged in terms of hotel inventory relative to benchmarks. The BCEC's walkable hotel rooms of 3,420 rooms is just 48% of benchmark average. In addition, its walkable hotel inventory is projected to grow much more slowly over the next five years.

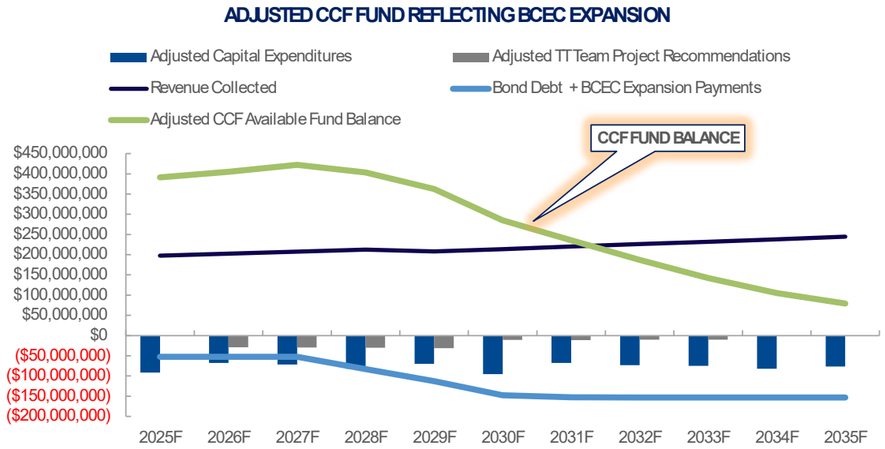
Hotel Market: Against its competitive destination set, 12-Month Occupancy (79.6% - of hotels within 15-minute walk) ranked first, 3.8 pts above the second-ranked destination of Nashville (85.8%). ADR ($286) ranked third, only $2 below Nashville and $4 below San Diego. However, Boston's ADR was $21 above the fourth-ranked city of Toronto. Boston's overall hotel metrics well exceed performance compared to other group destinations.



Source: Esri, CoStar, Johnson Consulting

Exhibit Hall | Photo Credit: Signature Boston

CCF Fund Analysis



An analysis was completed to assess the projected funding and its impact on the CCF related to the BCEC expansion estimated at $1.9 Billion to $2.0 Billion. The chart above reflects key changes to the CCF fund balance reflecting the obligations and timing to meet MCCA ongoing capital and bond requirements. This analysis assumes that the expansion will be funded through the issuance of revenue type bonds assuming 5% annual interest payments.

It is important to share some key assumptions in the modeling of this initiative:

- CCF revenue flow adjusted to reflect the average of the baseline, upside, and downside modeled scenerios.
- New bond debt required for the expansion was assumed at a 5% annual interest.
- Bond reserves are factored at $150M per year.
- MCCA operations funding at the full adjusted value modeled until the year following the expansion opening that produces favorable profit contribution.

However, to provide adequate funds to meet the timing and bond obligations anticipating a 2030 – 2031 opening of this expansion, the following adjustments were required:

- Deferred, ongoing, and one-time capital was reduced in the range of 30%.
- Newly identified capital identified by this project team was reduced in the range of 69%, preserving sustainability projects.

The chart reflects the assumptions highlighted in the list above. Assuming the MCCA can accomplish these results, the CCF fund is positioned to support the BCEC expansion at the $2.0 Billion level of investment. Building the reserves through managing expenses and optimizing revenue will be a priority.

It is important to reiterate that we do not suggest proceeding with the expansion without developing an 800-1,000 room hotel, as explained in detail earlier in this report. The CCF fund analysis presented here excludes any revenues from the proposed hotel and does not account for costs or expenses associated with its development. Further study will be necessary.

Photo Credit: Signature Boston