



300 Longwood Avenue, Boston, MA 02115
617-355-6000 | bostonchildrens.org



April 11, 2016

BY ELECTRONIC MAIL AND HAND DELIVERY

Darrell Villaruz
Manager of Health Policy, Bureau of Health Care Safety and Quality
Interim Manager, Determination of Need Program
Massachusetts Department of Public Health
99 Chauncy Street, 11th Floor
Boston, MA 02111

Lynn Conover, MBA
Determination of Need Analyst
Bureau of Health Care Safety and Quality
Department of Public Health
99 Chauncy St, 2nd Floor
Boston, MA 02111

Re: The Children's Hospital Corporation (Determination of Need Project 4-3C47)

Dear Mr. Villaruz and Ms. Conover:

This letter responds to the Department of Public Health's ("the Department") March 4, 2016 request for additional information pertaining to the site alternatives considered by The Children's Hospital Corporation ("the Applicant") for its Determination of Need ("DON") for Project 4-3C47 (the "Project").¹ Specifically, with regard to Factor 7 of the DON application for the Project (the "Application"), the Department has requested that the Applicant "elaborate on the narrative provided in the application and include a discussion of each option and the reason each was eliminated, including the costs and scope of each".

By way of reference, Factor 7— Relative Merit states that the project, on balance, is superior to alternative and substitute methods for meeting the foreseen health requirements under 105 C.M.R. 100.533(B)(2). 105 C.M.R. 100.533(B)(7). Evaluation of this factor shall take into account, at a minimum, the quality, efficiency, and capital and operating costs of the project relative to potential

¹ The Applicant intends to respond to the Department's additional question regarding the impact of this project on the Applicant's Medicaid population under separate cover.

alternatives or substitutes, including theoretical as well as existing models. *Id.* See page 757 of the Applicant's application, attached hereto as **Attachment A** for the Applicant's initial description of the alternatives as set forth in the Application. The enclosed materials provide additional detail on the site selection process, the alternatives considered, and explain why the BCCB site was chosen over the other alternatives considered.

In reviewing this material, it is important to note that the Applicant considered a range of siting options for its proposed additional clinical space over the course of a multi-year, multi-stage planning process. *Id.* We have provided an additional graphic timeline summarizing this process as **Attachment B**.

As outlined in **Attachment B**, the Applicant has been exploring and studying potential sites for expansion of its facilities since at least 2006 in the context of the pre-planning and development of the Applicant's Institutional Master Plan ("IMP"). Early on, the Applicant considered a vertical expansion of the Main Building, but that option was deemed infeasible in 2010. After ruling out a vertical expansion of the Main Building, the Applicant considered expanding the Mandell building, which it included in the IMP. In 2012, the IMP was amended further to reflect the need for additional capacity and provide the groundwork for the Project, which is essential to the continued delivery of state-of-the-art quality care to meet the increasing needs of patients and families.

The process and the strategic initiatives evolved throughout the timeline as projections for future volume were adjusted and refined, requiring changes to both the scale and the combination of clinical capacities to be incorporated into the new building. Throughout the process, the Applicant also learned more about the program needs and studied multiple options for incorporating them into the new facility. A review of the specific site alternatives considered is detailed below.

Site Alternatives and Selection Criteria

Over the last 10 years, the Applicant reviewed fifteen (15) potential site options for its clinical expansion. For some of these sites options, the Applicant commissioned and considered multiple design studies. **Attachment C** includes a summary map indicating the locations of the alternatives considered. As the selection criteria became more fully developed, the field of options that could satisfy those criteria narrowed.

Of the 15 options originally considered, eleven (11) were rejected early in the planning and selection process because they did not have a sufficient footprint to accommodate the Applicant's projected increases in patient volume or were unable to meet the Applicant's program, schedule and cost needs. The remaining four (4) options that were the focus of serious consideration in 2013-2014 were:

- BCCB (preliminary studies as well as how ultimately submitted in the DON application)
- New Enders
- 340 Brookline (LRI/BI Garage)

- Shattuck Patient Building

A summary review of each of these 4 options as measured against the established selection criteria is attached hereto in **Attachment D**. In addition to these 4 sites, **Attachment D** also includes the option to expand vertically on the Main Building, even though, as mentioned above, a vertical expansion of the Main Building was considered and eliminated as infeasible earlier in the Applicant's planning process. However, because vertical expansion of the Main Building was raised multiple times at the February 25, 2016 public hearing it is included in **Attachment D**.

For the 15 site options, the Applicant considered the following seven (7) selection criteria, encompassing metrics for quality, efficiency and cost:

- Meets forecasted bed need
- Meets program benchmark
- Within projected cost parameter
- Meets schedule requirements
- Meets operational objectives
- Uninterrupted Operations
- Displacement/ relocation, including greenspace impacts where relevant

In reviewing each site and measuring them against the above criteria, it was also essential to consider the unique requirements of a pediatric setting. For example, children as patients require parents to sleep overnight and therefore space for families is a unique need for pediatric hospitals compared to adult facilities. This extends not only to bedside but also waiting areas, diagnostic spaces in general – the average number of visitors & companions attending the patient is much higher in pediatrics than in adult settings this drives the size of children's hospitals up compared to an adult care setting. In addition, it is important to note that studies by the former National Association of Children's Hospitals and Related Institutions (now the Children's Hospital Association) have recognized single rooms as the more cost effective standard for the delivery of pediatric health given the increased need to transfer double patient rooms, infection controls, restrictions on no-cohorting of opposite sex patients or putting younger patients with a teenager.

Also underlying the evaluation of each site alternative is that in designing and constructing a new facility, consistent with its mission the Applicant's priority is to provide the highest quality of care in a state of the art environment that minimizes costs and at that the same time maximizes patient safety and enhances the patient experience of our patients, families and clinicians.

A detailed explanation of each of these factors and how sites were measured on the basis of quality, efficiency and cost is provided in **Attachment E** hereto.

Quality is covered under the program and operational benchmarks described herein and efficiency is covered by the selection criteria that relate to meeting schedule requirements, displacement/relocation, and uninterrupted operations. As indicated, the Applicant examined the initial siting options in the context of evolving program needs.

Cost was also a critical factor in evaluating the alternative siting options. The cost of a building project includes two components: (1) the **Capital costs** of constructing and equipping the building upfront and (2) the **Operating costs** of using the building on an ongoing basis.

As a result of the Applicant's planning process evolving over the last decade, the evaluation of site options and costs do not necessarily align neatly into comparisons that can be made from one site alternative to another as "apples to apples" without some updating of relevant calculations. As an initial matter, as the Applicant studied and developed the program needs for the clinical expansion over time, the costs associated with the various site alternatives reflect the then current understanding of specific program and operational needs. In particular, over time, we gained improved understanding of the number and type of inpatient beds needed, the extent of the need for renovation of the existing facility, and our ability to reconfigure our outpatient areas through the proposed Brookline Place component of this project. To the extent that some of the earlier designs did not include either the renovation or Brookline Place costs, these costs have been added to the earlier estimates for comparison purposes.

In addition, capital costs and operating costs are affected by multiple variables, which can pose challenges in developing meaningful comparisons. For example, as cost estimates for each of the site options were generated, the estimates were not adjusted for inflation. Another factor impacting comparisons is that cost estimates were developed and considered in terms of "total project costs" (TPC) versus the "maximum capital expenditure" (MCE) required for purposes of the DON application. In providing this response, the Applicant has attempted to convert the TPC estimates developed over time into MCE dollars for comparison, but that comparison does not align completely and is not easily adjusted for inflation as indicated above. Therefore, the Department may find it difficult to make a straightforward comparison of costs for each alternative.

Upon review of all of these factors and current project estimates, the Applicant believes that the site selected is the most cost efficient option for both the capital and operating costs of the Project.

Conclusion

In conclusion, in weighing all of the alternatives considered for Factor 7, the Project site for BCCB is superior to alternative and substitute methods for meeting the foreseen health requirements under 105 C.M.R. 100.533(B)(2). The Applicant's evaluation of the BCCB site took into account the quality, efficiency, and capital and operating costs of the project relative to potential alternatives or substitutes, including theoretical as well as existing models. While some aspects of other sites had

Darrell Villaruz
Lynn Conover, MBA
April 11, 2016

DON Project 4-3C47
Page 5 of 5

merit, the Project before the Department was superior in quality, efficiency and costs as compared to all other alternatives considered.

Should you have any questions regarding the information provided in this response, we would welcome the opportunity to meet with you to review these materials and the associated site selection process.

Thank you for your consideration.

Sincerely,



Joshua Greenberg
Vice President of Government Relations



Melissa Aureli
Manager Facilities Planning & Design

cc: Michele Garvin, Senior Vice President and General Counsel

Enclosures

- Attachment A - Applicant's Narrative Response to Factor 7
- Attachment B - Boston Children's Hospital's Planning Process Timeline
- Attachment C - Map of Expansion Site options
- Attachment D - Chart of Site Comparison and Selection Criteria
- Attachment E - Selection Criteria and Metrics Definitions

ATTACHMENT A

Factor 7 – Relative Merit

Boston Children's considered many alternatives to this project and concluded that this project is the best alternative to meet the needs of the Boston campus and the children it serves. Boston Children's is one of the nation's leading pediatric providers. Yet, we have been experiencing for some time significant access problems resulting in scheduling delays for patients and referring physicians across a range of our subspecialties. Our existing physical plant, which is on average one of the oldest among our peer organizations nationally, has not enabled us to expand services without the creation of additional space.

Given these challenges as well as expected increases in volume and patient acuity, doing nothing to expand capacity was determined not to be a reasonable course of action. As such, options were considered that would enable Boston Children's to more effectively meet the complex needs of its growing patient population. The project is the culmination of a six-year effort to analyze alternatives for the expansion of the clinical facilities. During this process, more than nine significant options on the Longwood campus, as well as Brookline Place, were reviewed as expansion and renewal options to meet the growth need demonstrated throughout this document.

In determining where the new facility would be located, we considered four primary criteria:

- whether the new facility meets the hospital's programmatic needs
- adjacency of the new building to existing facilities to eliminate duplication of clinical facilities and support services and maximize patient safety and efficiency
- the timeline for development and the ability of the hospital to continue operations during the construction period (limiting disruption to patient care)
- overall cost of the project

Multiple alternatives were considered for the BCCB involving both the proposed site and locations throughout our campus. After careful consideration, we rejected locations that were physically disconnected from the current inpatient facility (for example, "freestanding sites" located on the north side of Longwood Avenue) due to clinical integration, safety, and staffing concerns. These sites additionally created the need for redundant and inefficient support services, such as pharmacy services.

We similarly rejected sites that involved the need to relocate large groups of clinical and research staff and the demolition and reconstruction of major existing clinical and research facilities during the construction phase due to the very significant additional project costs and time delays involved (for example, demolition of our current 11-floor Enders Research Building or our existing Fegan outpatient building).

The proposed site was determined to be the most clinically-integrated, least disruptive, most timely and most cost-effective available for our proposed inpatient services.

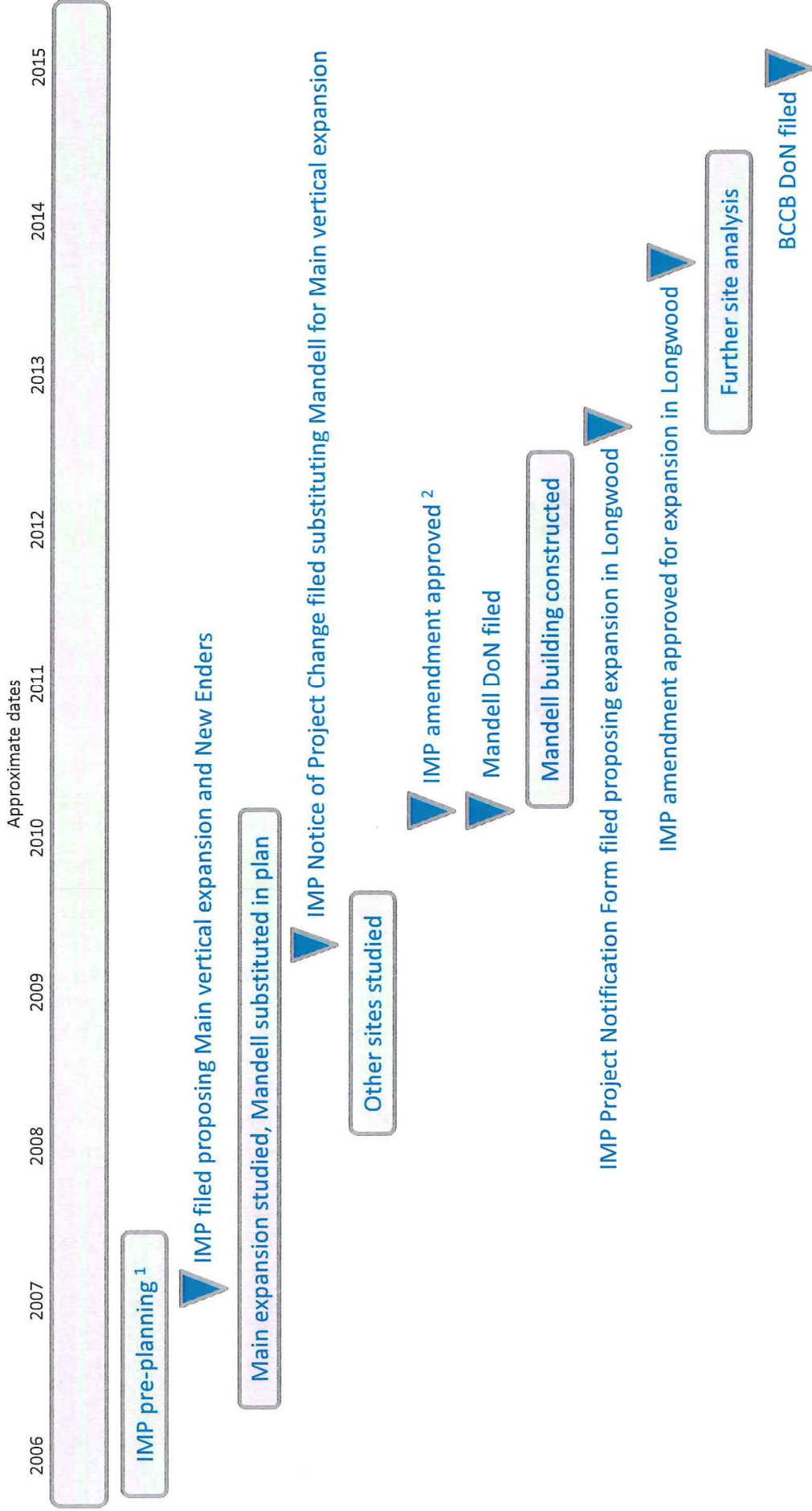
Merits of the proposed project

The BCCB was chosen as the final and most viable option as it fit the programmatic requirements needed to serve the patient population, bringing inpatient beds online sooner than any other option and fitting within the financial capacity of Boston Children's. It allows us to create a colocated, comprehensive cardiovascular program; modernize the NICU to meet the needs of patients and families;

create an interdisciplinary space for the care of our most complex medical and surgical patients, including transplant patients; and renew existing undersized and outdated spaces, including double-bedded patient rooms. The compatible Brookline Place project provides the ideal setting for ambulatory care decompression from the Longwood campus due to its proximity to public transportation and parking, its pedestrian-friendly location, lower traffic congestion, and the ability to group specialist programs for efficient family-friendly patient care.

ATTACHMENT B

Boston Children's Hospital planning process timeline



- 1 The Institutional Master Plan (IMP) and Large Project Review processes, applicable in Boston under zoning, apply to new or expanded Institutional Facilities. An IMP is typically of 10-year duration and may be amended during its term to reflect additional proposed developments or changes to approved developments.
- 2 The IMP was amended based on the determination that vertical expansion of the Main was infeasible and substitute the construction of Mandell.
- 3 At this stage, the IMP was amended to reflect the need for additional capacity and gain zoning approval for the expansion now being proposed.



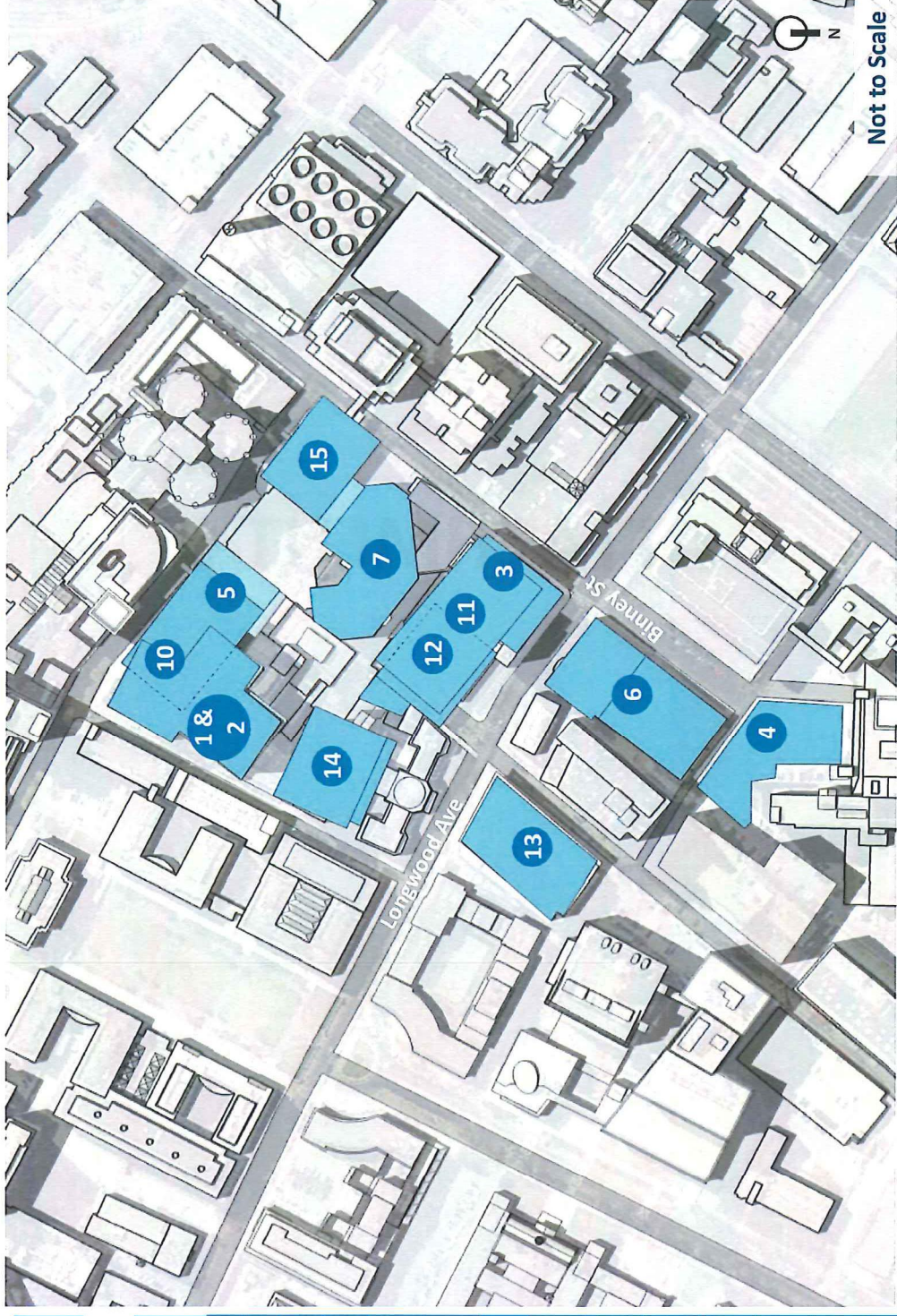
Boston Children's Hospital
Until every child is well™



ATTACHMENT C

Boston Children's Hospital expansion site options map

	Year studied
1	BCCB (current DON submission) 2015
	Alternate sites detailed in Attachment C
2	BCCB (preliminary study) 2008/2014
3	New Enders 2009/2014
4	340 Brookline 2009/2014
5	Shattuck Patient Building 2008/2014
6	333 Longwood 2009/2013
7	Main Building 2 story vertical expansion 2006
	Additional studies not considered feasible
8	Brookline Place (inpatient) 2014
9	Relocate out of LMA 2014
10	Wolbach site 4 alternatives (partial BCCB) 2009
11	Patient Clinical Center in Motor Court 2009
12	Longwood Avenue Tower 2009
13	Patient and Family Garage 2009
14	Expansion south of existing Hunnewell Building 2008
15	Jimmy Fund Building 2008



8 Brookline Place

9 Out of LMA

ATTACHMENT D

Boston Children's Hospital expansion site options selection criteria summary

Selection criteria									
	Year studied	Meets forecasted bed need	Meets program benchmark	Within project cost parameter	Meets schedule requirements	Meets operational objectives	Displacement / relocation	Uninterrupted operations	Comment
1	BCCB (current DoN submission)	2015	✓	✓	✓	✓	✗	✓	<ul style="list-style-type: none"> Primarily administrative displacement, limited clinical personnel displacement. NICU and Heart Center beds in Phase 1—online in five years of DoN approval. Eliminates Prouty Garden green space requiring relocation. 1.8M gross square feet (GSF). Maximum capital expenditure (MCE) = \$1,068,263,000 (\$848M: new construction, including BP, \$219M: renovation)
Alternate sites detailed in Attachment C									
2	BCCB (preliminary study)	2008/2014	✓	✓	✓	✓	✗	✓	<ul style="list-style-type: none"> Primarily administrative displacement, limited clinical personnel displacement. NICU and Heart Center beds in Phase 1—online in five years of DoN approval. Eliminates Prouty Garden green space requiring relocation. 1.01M GSF. MCE = \$893M (\$732M: new construction, including BP, \$101M: renovation)
3	New Enders	2009/2014	✗	✗	✗	✗	✗	✗	<ul style="list-style-type: none"> Relocated research needs a new building; sequential two-building solution increases construction costs and delays availability. Mandell Building precludes coherent connection to existing facilities on Main Campus (through ED, MRI suite and OR/PACU). Would not result in sufficiently large floor plate; inconsistent with maintaining patient access at Main Entrance during construction. NICU and Heart Center not in Phase 1. 1.4M GSF. MCE = \$1.27B (\$1.17 B: new construction, including BP, \$101M: renovation)
4	340 Brookline	2009/2014	✗	✓	✗	✗	✓	✗	<ul style="list-style-type: none"> Separated/isolated bed units and inpatient facility. Two-hospital solution doubled operational costs by requiring duplication of facilities, staff/services. NICU not in Phase 1. No inpatient psych expansion. 860K GSF. MCE = \$782M (\$682M: new construction, including BP, \$101M: renovation)
5	Shattuck Patient Building	2008/2014	✓	✗	✗	✓	✗	✗	<ul style="list-style-type: none"> Required +150,000 GSF relocation of critical care clinical staff, programs, and research; proximity and adjacency needs impossible to accommodate. No solution to displacement of inpatient psych. Serious problem with timing of NICU and Heart Center beds—not open fast enough to meet clinical need. Reduction of footprint of Prouty Garden. 1.36 GSF. MCE = \$939M (\$838M: new construction, including BP, \$101M: renovation)
6	333 Longwood	2009/2013	✗	N/A	✗	✗	✗	✗	<ul style="list-style-type: none"> Separated/isolated bed units and inpatient facility. Two-hospital solution doubled operational costs by requiring duplication of facilities, staff/services. NICU not in Phase 1. No inpatient psych expansion. Required major relocations of clinical programs, clinical staff and clinician parking, with no solution. Because of the operational challenges noted above, a cost estimate was not completed for this site.
7	Main Building 2 story vertical expansion	2006	✗	N/A	✗	N/A	✗	✗	<ul style="list-style-type: none"> Insurmountable bed capacity downtime (Main 10 bed unit), interruption to OR and radiology, due to structural requirements and building-wide construction. No net bed expansion due to height limitation. Floor plate not sufficiently large. No 30-bed NICU, no net new Heart Center beds. Undoubling only. Because of the operational challenges noted above, a cost estimate was not completed for this site.



Boston Children's Hospital
Unit every child is well



HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

ATTACHMENT E

Definitions of selection criteria

Meets forecasted bed need— net new beds added incrementally to allow for NICU and Heart Center expansion (strong preference for within five years of approval); ultimately allows the hospital to undouble existing patient rooms and add approximately 70 net new beds to the Longwood campus (including intensive care and inpatient psychiatry beds), as needed to handle projected changes in our inpatient population (more patients requiring complex care and longer inpatient stays).

Meets program benchmark—all existing patient care operations can be maintained with no programmatic loss; allows for creation of an expanded NICU (30 beds and all private rooms) and the colocation of the expanded Heart Center; expands programs including inpatient psychiatric unit (20 beds and all private rooms), one additional OR, two additional MR units, inpatient units with all private rooms; includes renewal of main campus (resizing of existing ORs to meet current Facility Guidelines Institution (FGI) standards, conversion to private rooms for inpatient beds, renewal of outpatient program spaces).

Within projected cost parameter—capital expenditure for the Longwood Medical Area (LMA)—excluding Brookline—does not exceed \$1.3 billion, inclusive of inpatient expansion and retrofitting of existing clinical space; project does not increase operating costs excessively or unnecessarily (e.g., due to duplication or inefficiencies).

Meets schedule requirements—phase 1 (state of the art, 30-bed NICU with private rooms; net new beds for Heart Center) can be completed in five years from the point of approval; phase 2 (all other identified program benchmarks) can be accomplished in no more than eight years.

Meets operational objectives—design supports optimal patient care on an ongoing basis through critical floor alignments and contiguous floor plates (for radiology on level 2 and periop on level 3); floor plate is large enough (approximately 40,000 square feet) to support a minimum of 30 beds per floor (including non-clinical space required to support those beds); spaces are adjacent to existing emergency department and clinical supports (clinical lab, blood bank, central pharmacy, materials management); clinical programs are configured to facilitate coordinated and multidisciplinary care and preserve critical care clinicians' immediate proximity to critical care units (and other physicians' location within a three-minute walk of patient beds).

Displacement/relocation—extent to which existing operations must be relocated (temporarily or permanently) to accommodate construction is minimized, thereby avoiding disruptions to patients, families, clinicians, and staff. For those sites impacting the Prouty Garden, we include extent to which site causes significant displacement/relocation of existing green space, regardless of inclusion of new/supplemental green space in plans. Note: green space displacement/relocation only applies to a subset of sites south of Longwood Avenue, and became a consideration only after other sites that would not have affected existing green space were excluded due to factors related to operations or ability to meet programmatic/bed needs.

Uninterrupted operations—hospital operations can continue throughout project at current capacity level; does not require closure of beds or other reductions in services required to meet patient needs.