

Introduction

The 9th School Alternative Site Study was presented to the Select Board, School Committee and Advisory Committee Ad Hoc Subcommittee on May 17, 2018. In the discussion that followed several board members asked that some multi-project “bundles” or complete scenarios be presented so that both expansion and renovation needs can be considered together, and so that longer range planning can be integrated with current decision making. I have put together several scenarios on the attached spreadsheets. The purpose of this written memo is to clarify some of the assumptions in the scenarios and to provide more background information on our elementary school buildings. This information is drawn from the May 17 presentation and several other documents including:

- The February 10, 2018 Mid-study Report by Joe Connelly and HMFH,
- The PSB 2017 Enrollment Report prepared by Deputy Superintendent Mary Ellen Dunn and staff,
- The PSB 2017 K-8 Schools Building Analysis Report prepared by Dr. Connelly and Director of Operations Matt Gillis,
- An older PSB School Building History.

Evaluation Criteria

Individual projects and multi-project scenarios must be carefully evaluated based on thoughtful criteria that capture the real needs of the Brookline schools and the community at large. On May 17 I suggested a concise set of six criteria as follows:

1. **The quality of the school itself** – inside and outside, building and site – to fully realize our Education Plan. Size, configuration, visual and physical access to natural light and the outdoors. Secondly, community benefits, recreation benefits, and other secondary programming.
2. **The location** relative to safety, accessibility, convenience, walkability, traffic/congestion, adjacencies.
3. **Deliverability** – risk analysis (can we deliver), time to complete (when can we deliver), cost uncertainty, etc. All options need debt exclusion override and 2/3 vote of Town Meeting. What else might be a “deal breaker”?
4. **Cost** – including project construction cost, land acquisition, swing space/disruption, and escalation.
5. **Capacity** – how much total school capacity is provided, and is it provided when needed? Does it include the full building and site program?
6. **Renewal** – how does it address the system’s renovation needs – at Pierce and Driscoll, and eventually at other buildings (Lincoln opened almost 25 years ago!)?

Narrative overview

1. **Enrollment growth/overcrowding is the primary issue.** Our elementary schools are severely overcrowded due to the dramatic and continuing enrollment growth.
2. **Building renewal is secondary.** Periodic building renewal is an important but currently secondary priority.
3. **Entire school program.** Additional school capacity (all facilities including playground and parking – not just classrooms) is needed.

4. **Three factors contribute.** We need additional capacity to address **current overcrowding and sub-optimal conditions**, and we need additional capacity to address **future enrollment growth**. Thirdly, average class size has grown approximately 10% since 2006, and **reducing class size to previous levels** is a further goal.
5. **Quantifying the need.** The total need for additional capacity to address all three challenges is enormous and beyond our near-term ability to pay. The reasonable objective is to add the equivalent of between one and two complete three-section-per-grade K-8 schools, depending on our ability to secure sites and funding.
6. **Start with a go-it-alone project.** Because of both timing and scope uncertainty associated with MSBA partnership projects, a first go-it-alone project to address overcrowding as soon as possible remains the best course of action.
7. **Follow with MSBA projects.** For fiscal reasons, we should assume and pursue MSBA partnership for additional/future expansion and/or major renovation projects.
8. **One project every 4-5 years.** Estimated delivery time for a first (go-it-alone) project is 4-5 years, for a second (MSBA-assisted) project is 7-10 years, and for a third (MSBA-assisted) project is 10-16 years.
9. **More overrides.** No CIP funds have been allocated for any elementary school expansion or major renovation projects (beyond the current Driscoll HVAC replacement). Given the projected persistent structural operating deficit, even with new commercial development and marijuana tax revenue and other non-tax revenue enhancements, it is unlikely that significant funds will be available for these projects. Every project will be substantially if not wholly dependent on debt exclusion overrides.
10. **Succeeding projects may get harder to fund.** While the high percentage of voters who supported this year's operating and debt exclusion overrides is encouraging, all overrides are uncertain and multiple future overrides may be increasingly difficult to pass – particularly if they are closely spaced in time.
11. **Maximize capacity with the first project.** The urgent need to relieve current overcrowding in all of our K-8 buildings, the projected new enrollment of 374 students (the equivalent of a two-section-per-grade school) over the next five years, and the inherent risk of being dependent on overrides all point toward the need to maximize added capacity with the first project.
12. **A new 9th elementary school does this most efficiently** because the amount of capacity that we can add at any one of our existing elementary schools is small, and because every dollar spent on a 9th school will go into capacity building. Even money spent on site acquisition adds capacity because it adds land for playground and parking.
13. **Expand-in-place lags future growth.** Expand-in-place projects can relieve overcrowding at one single school building at a time, but taken both individually and as a whole program they add capacity more slowly than projected future enrollment growth so all other schools will become even more overcrowded for many years.
14. **Needed renovations will follow.** Statements of interest have been filed with MSBA for both Pierce and Driscoll for renovation and possible expansion. Pierce will be named the “priority project” in August after a Certificate of Occupancy is issued for the Devo/Coolidge Corner School project.
15. **One decision at a time.** Long-range multi-project planning is a vital part of the current process, but the only decision that needs to be made now is site selection leading to feasibility study for the initial (go-it-alone) project.

Overcrowding versus renewal: What problem are we trying to solve?

Given the current 40% growth in K-8 enrollment, the projection of adding another 374 students in the next five years, and uncertain projections beyond that time frame, severe system-wide overcrowding is the overwhelming capital challenge facing the Public Schools of Brookline. While nearly 60 classroom sections and teachers have been added, much of this has been accomplished by subdividing existing classrooms and making classrooms out of spaces that had other valuable uses. Meanwhile, the demand for non-classroom space ranging from nurses offices to cafeterias has grown by 40% while those same non-classroom spaces have been cannibalized to make classrooms. This is the primary problem we are trying to solve.

Importantly but secondarily, we also need to maintain and periodically modernize our school buildings. We do a good job of maintaining them, but the regular cycle of modernizations which looks to comprehensively renew each building on a 40-50 year cycle has been slowed somewhat by the competing need to meet the enrollment growth. Many capital projects both large and small have been completed over the past decade. At the top of that list are the Runkle and Devotion/Coolidge Corner School projects, each of which combined modernization with expansion to add capacity.

Next up for modernization are the Pierce and Driscoll Schools. Neither building has been neglected: Driscoll saw a new elevator, electrical, network wiring, windows, bathrooms and cafeteria renovation 12 years ago, and is about to get a \$4.5 million heating and air conditioning upgrade. We have invested \$20 million over the past 20 years at Pierce, including new HVAC and electrical, network wiring, new windows, the multi-purpose room and the outdoor amphitheater. But neither school has had a comprehensive modernization in 45 years and both are due.

How much additional capacity do we need?

Three separate considerations contribute to the need for additional K-8 building capacity:

- 1. Overcrowding and sub-optimal conditions currently in place;**
- 2. Projected future enrollment growth;**
- 3. Reducing class size with the goal of returning to the norms in place prior to the recent enrollment growth.**

A fourth capacity consideration relates to our pre-school program:

- 4. Potential for growth in the Brookline Early Education Program (BEEP)**

Fully addressing these four considerations is beyond Brookline's current means, and is not being contemplated or proposed. **The *minimum* additional capacity that is needed over the three-project study period (10-15 years) is the equivalent of one new four-section-per-grade (36 classroom) school.**

1. School-by-school overcrowding and sub-optimal conditions

When the Devotion/Coolidge Corner School reopens in September it will be the only one of our eight elementary school that won't be overcrowded. Since 2006 we have added the equivalent of more than three complete schools into our eight buildings without adding any land, dramatically reducing outdoor play space on a per-student basis. Some buildings have been expanded with additions or temporary rentals. Some classrooms have been freed up by moving 11 BEEP classrooms into synagogues and taking dedicated space away from the Extended Day programs. However, across the system classrooms have also been created by subdividing existing classrooms into smaller rooms, by eliminating computer and music rooms, and by taking over offices and other non-classroom spaces and converting them to classrooms. This has created a growing deficit in common area and support spaces large and small. Pierce is renting gym space from the Teen Center, and several schools have lunches that start before 10:30 AM and finish after 1:00 PM. Office, nursing, guidance, special education, and other specialists are working with growing numbers of staff and students using the same or even reduced work areas.

Additionally, there is no room in our buildings for the exciting new teaching-and learning spaces like project areas that are positioned throughout our new Devotion/Coolidge Corner School.

Baker

The Baker school was expanded and reopened in 2000 with a new library, cafeteria, multipurpose room, and several classrooms. That project was planned as a three-section-per-grade school – about 27 K-8 classrooms. Today, with 39 K-8 classrooms, the building is severely overcrowded with widespread sub-optimal conditions. The principal and vice-principals are crammed into a small area and can't conduct private conferences as needed. Music is taught in the auditorium without appropriate storage or support facilities. Art is taught under the basketball gym with accompanying noise from balls and footfalls.

HMFH's cost estimate for enlarging/right-sizing Baker as a four-section-per-grade school is \$98 million.

Restoring Baker to a three-section-per-grade building with space for BEEP (in combination with a new 9th school in south Brookline) is perhaps the most cost-effective approach to correcting conditions at Baker, and would require building replacement capacity of 12 classrooms at other locations.

Devotion/Coolidge Corner School

When Devotion/Coolidge Corner School opens this fall it will be optimally configured to support a five-section-per-grade program of 45 K-8 classrooms and two BEEP classrooms.

Driscoll

The Driscoll School received significant selective improvements in 2006 including a new elevator, electrical, network wiring, windows, bathrooms and cafeteria/kitchen improvements. Enrollment has grown 67% since 2006 – the most of any of the eight schools – and many program areas are lacking or undersized including, in particular, the cafeteria, gym and auditorium. Some of the alterations that were done to create additional classrooms included subdividing two 6th grade classrooms into three, cutting the art room in half, and then last year relocating the art room to lower level converted utility space. **Driscoll School has an adequate number of classrooms to function as a full three-section-per-grade school but needs significant additional building to right-size non-classroom space.**

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Heath

The Heath School was renovated in 1995 including added space for administrative offices, library, science, art, and music classrooms, That project was planned as a two-section-per-grade school – about 18 K-8 classrooms. In response to system-wide enrollment growth six classrooms were added in 2012, and small additions were built onto the cafeteria and library. Heath currently operates as a full three-section-per-grade school under tight conditions, including an undersized gymnasium that is too small to conduct two simultaneous PE classes, an undersized cafeteria requiring four lunches starting at 10:45 AM, limited small group instruction and support service spaces, and no room to accommodate project areas or other program spaces that are being included in our newer buildings. **Heath School has an adequate number of classrooms to function as a full three-section-per-grade school but needs some additional building to right-size non-classroom space.**

Lawrence

The Lawrence School was most recently renovated in 2004. That project was planned as a three-section-per-grade school – about 27 K-8 classrooms. In response to system-wide enrollment growth a four-classroom addition was built in the adjacent parking area in 2015. Lawrence currently operates as a full four-section-per-grade school under tight conditions, including an undersized cafeteria that conducts seven rolling lunch periods, limited small group instruction and support service spaces, and no room to accommodate project areas or other program spaces that are being included in our newer buildings. **Lawrence School has an adequate number of classrooms to function as a full four-section-per-grade school but needs some additional building to right-size non-classroom space.** Lawrence has access to ample play space at the adjacent park but sits on a very tight 1.48 acre parcel with no room for building expansion.

Lincoln

The (new) Lincoln School was opened in 1994 and for many years operated with a mix of two- and three-classrooms-per-grade and a total K-8 enrollment ranging from a low of 399 to a high of 490 students. Lincoln currently operates as a full three-section-per-grade school under tight conditions, and current enrollment as of October 1, 2017 was 578 students. The gymnasium and cafeteria are undersized for the current enrollment. Several classrooms and open hallway spaces have been modified to create additional classrooms and small group instructional areas and are being shared by support staff and specialists. There is no room to accommodate project areas or other program spaces that are being included in our newer buildings. **Lincoln School has an adequate number of classrooms to function as a full three-section-per-grade school but needs some additional building to right-size non-classroom space.**

Pierce

The Pierce School includes both Pierce Primary, built in 1885, and Pierce Grammar (or Pierce School), built in 1974. Since 1974 Pierce has been maintained but not comprehensively modernized or expanded. \$20 million has been invested in the building over the past 20 years, including new HVAC and electrical, network wiring, new windows, the comprehensive modernization of the multi-purpose room and the outdoor amphitheater.

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Between 1981 and 2006 Pierce enrollment ranged from a low of 504 to a high of 636 as a three-section-per-grade school with occasional “bubble” classes that had a fourth section. However, current enrollment as of October 1, 2017 was 859 and Pierce is currently operating as a 4 1/2 –section-per-grade school with 41 classrooms (four grades of four classrooms each, five grades of five classrooms each).

The top floor of the adjacent 62 Harvard Street building is currently rented and used for four middle school classrooms. This additional classroom space helps support the high enrollment but further challenges the inadequately sized non-classroom facilities which are undersized to support the current enrollment. Gym space for middle school PE is currently being rented at the Teen Center a block away.

Pierce School is due for comprehensive renovation, and needs significant additional building to right-size as a four-section-per-grade school. The space need is higher for the current enrollment or to serve a full five-sections-per-grade (the Devotion/Coolidge Corner School program).

HMFH’s cost estimate is \$118 million to renovate/enlarge/right-size Pierce as a four-section-per-grade school, and about \$145 million to renovate/enlarge/right size it as a five-section-per-grade school. HMFH’s cost details suggest that “full” renovation would cost between \$70 and \$83 million. **Assuming a cost range of between \$25 and \$80 million for moderate to full renovation, this should also be considered, but would require building replacement capacity of approximately 10-14 classrooms at other locations.**

Runkle

The Runkle School was substantially reconstructed and enlarged in 2012 to operate as a full three-section-per-grade school. Since reopening that year with 519 students, enrollment has grown to 612 as of October 1, 2017. Additionally, the system-wide RISE program for students with disabilities has seen substantial enrollment growth and is expected to grow further based on current enrollment in BEEP. This program provides services in range of settings from substantially separate to full inclusion in a general education classroom, and is space intensive. Because of the increasing program size it is preferable for educational reasons to divide the program between two buildings. **The education plan for the 9th elementary school includes that second RISE program center. If a second RISE center can be created this will free up one-to-two classrooms spaces at Runkle that are needed for other programming.**

Summary of space needs at eight existing K-8 schools based on current enrollment

As of fall 2018 only the Devotion/Coolidge Corner School will be optimally configured for its current enrollment.

Two schools, Baker and Pierce, are significantly over-enrolled, with a combined need of additional total school program space to serve between 22 and 26 classrooms. This need may be met by renovating and enlarging these existing schools or by building the needed capacity elsewhere and gradually right-sizing enrollment in these existing buildings.

2. Projected Future Enrollment Growth

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The Public Schools of Brookline prepares its annual enrollment report and projections based on October 1 enrollment. The most recent (2017) report was finalized on April 1, 2018 and projects K-8 enrollment growth of 374 students over the next five years. This translates to a school building capacity need of approximately 18 classrooms or one complete two-section-per-grade school.

The 2017 enrollment projection includes new growth based on major planned multi-family projects that were filed with the town as of October 2017. **Several factors that aren't included in the projection and that could cause additional future enrollment growth beyond the five year horizon include:**

- Brookline's population has not grown significantly for decades, and the enrollment projection does not anticipate any dramatic general population growth. However, the Metropolitan Area Planning Council has projected population growth in Brookline of 12%-17% by 2030 – the same time frame as the current three-project building program.
- The model does not include several multi-family (40B) projects that have been recently filed with the town.
- The model does not include dwelling unit and population growth from small single- to multi-family conversions that are as-of-right in "T" zoning districts and certain other districts.
- The model assumes constant birth rate in future years based on the current three year trailing average of 615 children each year. Combined with an average of 38 non-resident students per year (300 METCO and 200 Materials Fee total across 13 grades), this provides an average system-wide enrollment of 650 students in each grade level.
- METCO enrollment has been constant at 300 despite 40% growth in K-8 enrollment.
- Materials Fee applications are up in parallel with our growing faculty, many of whom are in the early years of their careers and whom we would like to retain for the long term.

3. Reducing class size with the goal of returning to the norms in place prior to the recent enrollment growth.

Average class size in Brookline's elementary schools was about 10% smaller than it is today prior to the 40% overall enrollment growth that has occurred over the past 12 years. Our instructional model maximizes both inclusion in the regular education classroom and differentiated instruction to best support all learners at all levels. These best practices make small class size more important than ever before, and it is a goal of the Brookline School Committee to return average class size from the current level of above 21 students to the previous level of under 20. **Doing so would require approximately 18 additional classrooms and teachers. However, because this would not increase total enrollment it would not require other additional building resources (gyms, cafeterias, bathrooms, etc.).**

4. Potential for growth in the Brookline Early Education Program (BEEP)

The Brookline Early Education Program (BEEP) is an inclusive pre-school that addresses the legal requirement that the district provide public education to children with special education needs (IEPs) from the age of three years. Special needs students make up about one third of the enrollment and there is a long waiting list for tuition paying spots in the remaining classrooms.

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The total enrollment and number of BEEP classrooms has remained unchanged at 21 classrooms since the start of the current enrollment increase in 2006. Principal Vicki Milstein and her staff recently presented their findings and recommended that the long-term goal of the BEEP program should be to add six more classrooms for a total program size of 27 classrooms. This proposed growth has not been modeled or presented in any of the overall projections or plans for future capital projects.

The 9th Elementary School Building Program

The 9th Elementary School building program, developed in 2016, includes a three-section-per-grade school plus three additional program elements that are intended to relieve overcrowding at two other K-8 buildings and advancing the program of getting BEEP out of rentals and back into K-8 buildings wherever possible. The 9th Elementary School program includes:

- K-8 classrooms: 27
- Pre-K Classrooms: 3
- ELL Classrooms: 3
- RISE Programs: 3

Each of these four components is addressing a slightly different part of the overall need:

The core program is the provision for new total added school capacity to serve 27 classrooms. 18 classrooms are taken up by the projected five year future enrollment growth of 374 students at the current average class size of 21 students per class. The remaining nine classrooms begin to address overcrowding, rentals and suboptimal conditions until and unless they are needed to address further enrollment growth not shown in the 2017 enrollment projection. One way of thinking about the other nine classroom is that they replace the two portable classrooms at Baker and the four rental classrooms at Pierce (with three to spare). Another way to think about them is that they bring enrollment at Baker and Pierce down to an even four-sections-per-grade, replacing the three classrooms at Baker and the five classrooms at Pierce at the grade levels with five classes. However, bringing enrollment down to four classes per grade at those two buildings – 33% above the approximate design capacity for those schools – still leaves Baker and Pierce with significant overcrowding. **So the 27 classroom program only addresses future growth plus bringing Pierce and Baker down to a condition that still represents significant overcrowding,** and there is additional need to relieve overcrowding at other K-8 schools.

Three Pre-K classrooms address three separate capacity needs:

1. It would reduce (but not eliminate, even after the new Harvard Street BEEP facility opens in 2020) the need for rental space to house our Pre-K program;
2. It would continue the practice of including Pre-K in each of our newly renovated buildings including Heath (2), Runkle (1) and Devotion (2);
3. And it would bring us closer to the eventual (but not current) goal of increasing the total number of BEEP classrooms (unchanged since the beginning of the 40% enrollment growth). There are currently 21 BEEP classrooms and the identified need is to increase that number to 27.

Three ELL Classrooms are included in the program in order to provide relief from overcrowding at one additional elementary school building. PSB currently supports ELL students throughout the system in all of

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the schools and, in addition, runs six specific language programs in seven different elementary school buildings (Japanese support is housed in two schools, the other languages are at one school each). For some of these language programs a majority of the students are already being driven to school because they don't reside in that specific school district. Therefore relocating one of these programs achieves two independent objectives: it reduces population and overcrowding in an existing school, and it increases enrollment at a new school without increasing geographic school assignment boundaries because these students are enrolled in that language program based on their residential geography.

Three RISE Classrooms would create a second center for Brookline's educational program for students with autism spectrum disabilities. Enrollment in this program which is housed at the Runkle School has grown dramatically in recent years and is expected to continue growing based on children currently enrolled in BEEP. Splitting this program between two separate schools will accomplish three important objectives:

1. It will provide the necessary room that the program needs (no more room at Runkle),
2. It will right-size each of the two RISE centers to optimize teaching and learning,
3. It will free up a modest amount of needed space at Runkle to alleviate overcrowding in that building.

Time and Money

Time and money are essential considerations in comparative evaluation of different scenarios or approaches, and they are interdependent. Because of the overcrowding and sub-optimal conditions, and because even the quickest delivery will see several hundred additional students in place when it is opened, we want to deliver the needed capacity as soon as possible. However, given the daunting costs that are being contemplated – we need to carefully consider not just the total anticipated cost, but also when those costs are to be incurred. Practically speaking it may be necessary to space out capital projects and the accompanying override requests that are brought to the voters and the community, in order to fully fund a multi-project approach.

The Report provides Preliminary Project Estimates for each building scenario that has been studied. These estimates are escalated from current building costs using a target date of fall 2020 for start of construction. While many would like to see groundbreaking sooner than that, and it is certainly possible, this is a reasonable assumption that takes into consideration the many complexities associated with most of the different project proposals. Assuming that all scenarios that include both adding the minimum capacity required and also the renovation of both Pierce and Driscoll Schools will also space projects out over time, the projects that break ground in later years would need additional escalation adjustments depending on when they are built. **However, for several reasons it makes sense to conduct the current analysis and decision making based on the 2020 start date for all projects.** While construction costs are escalating rapidly in the current market, it is impossible to predict how they will escalate several years out. The current real estate cycle has been in growth for far longer than typical cycles, and a slowdown is very likely at some point. Similarly, inflation is a significant unknown. Finally, the entire town C.I.P. which projects out for the upcoming year plus five years beyond does not escalate project costs for later years differently than projects included in the current budget. **Each scenario models a first, second and third**

building project spaced about four or five years apart, and it should be noted that actual building costs for the later projects will ultimately need to be adjusted upward for additional years of escalation.

MSBA Partnership

A significant variable in planning any multi-project scenario is the assumption about which projects will be undertaken “go-it-alone” and which will apply for, and wait for partnership with the Massachusetts School Building Authority (MSBA). The Select Board, School Committee and Advisory Committee voted in 2016 to go-it-alone on the 9th Elementary School project. That decision remains sound because of the uncertainty that would accompany waiting on the MSBA and when any additional capacity would actually be delivered. Our most recent experience with an MSBA partnership project, while highly successful, suggests that waiting for MSBA to provide any additional capacity would put a significant burden on our students, staff, and school families. Therefore, each of the scenarios modeled here assume one initial go-it-alone project.

Fiscal prudence demands that MSBA partnership be carefully considered for all projects, and that it be engaged whenever possible and advantageous. As has been often discussed, there may be projects where MSBA requirements would be less aligned with Brookline’s specific needs, and where it could conceivably be more advantageous to go-it-alone. However, for the projects that are focused on the renovation of schools that have not been comprehensively updated in 40 or 50 years and where Brookline intends to undertake a comprehensive modernization, there may not be any reason to think that MSBA and the town won’t have a strong alignment of vision and interest. This analysis assumes one go-it-along project only, for two reasons. The first is fiscal prudence. The second is time. Having already submitted Statements of Interest (SOIs) for both Pierce and Driscoll, it is reasonable to hope that whichever of these projects becomes our “Priority Project” once Devotion is completed this August will eventually be invited into eligibility by MSBA (that project will be Pierce unless Pierce becomes our go-it-alone focus). So if we undertake one go-it-along project right away and get it built as soon as possible, the second project which is waiting on MSBA partnership will more-or-less fall into line and be delivered a few years after the first one is complete.

Another assumption that hasn’t been defined is the level of reimbursement that should be carried for any project that is modeled as an MSBA Partnership Project. The best model for this would be Devotion, though the final reimbursement numbers won’t be known until sometime after the project is complete. Based on information from the Building Department, we are currently anticipating something around \$25-27 million dollars from MSBA on a \$120 million project, or about 21-22% of total project cost. Note that MSBA does not reimburse on land acquisition, so any purchase of property would be outside of the MSBA reimbursement calculations.

Estimating the time required to complete an MSBA Partnership Project is very difficult. Our most recent experience (Devotion) took 12 years from first application to completion, and it took seven years from “Invitation into Eligibility” until completion. So a realistic range might assume a fast pace where a project was invited into Eligibility on the second try (year) and then took five years to complete for a total duration of seven years (from Invitation, not application – a difference of eight months). Likewise, a slow pace might assume Invitation on the third try (or later) and six (or more) years to complete. More difficult to estimate is when we could deliver a second partnership project and whether the “clock” wouldn’t start

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ticking until we had our Certificate of Occupancy for the preceding partnership project. That assumption would mean an additional seven to nine years. That might actually be the reality, but for this exercise I have inserted hypothetical completion dates in a range, with the initial project opening in 4-5 years (2022 or 2023), project #2 opening in 7-10 years (2025-2028) and project #3 opening in 10-15 years (2028-2033). The sooner end of the project #3 range assumes some overlap in the two MSBA partnership projects.

Calculating the cost of “Renovation Only” at Pierce and Driscoll

It is important to consider a “Renovation Only” approach for both the Pierce and Driscoll schools, in addition to considering the various expansion projects that have been presented by HMFH. However, “Renovation Only” was, understandably, not investigated or presented by HMFH because it doesn’t address the capacity problem that they were hired to help solve. None-the-less, there is useful information in the detailed Cost Matrix included in the Report.

For Driscoll, the Cost Matrix provides a minimum renovation cost of \$5 million, and a full renovation cost of \$28 million. However, that assumes that the gym is being replaced as part of the “new” work, and so no work on the gym is included. Also, the cafeteria expansion is presumably carried in the “new” work as well, and that new element is probably needed as part of a renovation so that the school can move from five lunch periods to the desired three lunch periods. Without more information, I have assumed a range of possible costs of between \$20 and \$40 million. It is important to remember that if this were an MSBA partnership project they would have a say in the scope and cost, and that they would also be providing reimbursement.

For Pierce, there are two options that propose new buildings on purchased land along with renovation of the existing buildings – “Pierce K5/678”, and also “Pierce 5 Option 2”. The Matrix provides a minimum renovation cost of \$5 million (limited by not triggering full accessibility compliance) and full renovation estimates of \$70 million and \$83 million. The differences aren’t explained in the presentation from May 17. An approximate midpoint is \$77 million. Without more information, I have assumed a range of possible costs of between \$25 and \$80 million for a Pierce “Renovation Only”. The high end of this range is taken from the Cost Matrix in the May 17 Report. The lower end assumes a more moderate renovation with limited reconstruction and greatly reduced enrollment at Pierce. Such a project would only be able to accommodate something like a “3+” program of perhaps 27-30 classrooms. It is important to remember that if this were an MSBA partnership project they would have a say in the size, scope and cost, and that they would also be providing reimbursement. Another option that I have included in several scenarios is a “Pierce 4” that was included by HMFH at the Mid-Point Presentation – an option that was set aside because it didn’t provide any expanded capacity. That option had a total estimated cost (including escalation) of \$118 million. So two options that might be considered “Renovation Only” alternatives are available – a renovated Pierce which could be considered a “Pierce 3+” at a cost of \$25-\$80 million, and a “Pierce 4” at a cost of \$118 million plus acquisition of one property (62 Harvard).

Estimating Property Acquisition Cost and Swing Space Cost

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In order to have some cost number to use in the various scenarios, the following (informed but somewhat arbitrary) assumptions are made:

- Swap land assumes a cost of \$1.5M/acre (based on information on one comparable provided in the report).
- Property acquisition assumes the approximate value in the Town Assessor's Database, rounded up to the nearest \$million.
- Swing space cost for Pierce assumed at \$7 million (vacate completely). Note that this was the cost for the Devotion project and did not include any rent for Old Lincoln (OLS) use. So if OLS were not available the cost would be higher.
- Swing space cost for Driscoll and Baker assumed at \$3 million (much of the building can remain in use during construction).
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Differentiating between 9th School sites – Baldwin, Putterham and Pine Manor

The three 9th School sites have some strong similarities – the same building program, the same general part of Brookline, and all require land acquisition for either swap or, at Pine Manor, to build on. There are also significant differences. Because of the similarities between Putterham and Baldwin in particular, Putterham will be used in the approaches outlined below, with an understanding that the other 9th school sites could be substituted in the model with only minor alterations to the narrative.

END

9th School as Initial Project – Alternative Scenarios

Pollak May 29, 2018

	Project #1 (go-it-alone) Delivery date 4-5 years, approx. Fall 2022 or 2023	Project #2 (MSBA) Delivery date 7-10 years, approx. Fall 2025-2028	Project #3 (MSBA) Delivery date 10-15 years, approx. Fall 2028-2033	Total over three projects and 10-15 years
Scenario 1A	<p>Putterham 3+ (Baldwin Option D 3+ and Pine Manor 3+ are similar, land cost may vary)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> 27 classroom capacity including all associated indoor and outdoor spaces. Relocated ELL program (3 classrooms) Second RISE center (3 classrooms) 3 BEEP classrooms <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$106M Land (assume 10 acres at \$1.5M): \$ 15M Total: \$121M 	<p>Pierce 3+ (renovation only)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Subtract approximately 11 classroom capacity while right-sizing enrollment from 41 classrooms down to 30 classrooms. <p>Cost:</p> <ul style="list-style-type: none"> Moderate to full renovation: \$25-\$80M MSBA reimbursement (\$6-\$18M) Swing space \$7M Total: \$26-\$69M <p>(Renovation only projects were not studied by HMFH. Renovation cost is inferred from HMFH Cost Matrix.)</p>	<p>Driscoll 3 (renovation only)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> No change <p>Cost:</p> <ul style="list-style-type: none"> Moderate to full renovation: \$20-\$40M MSBA reimbursement (\$4-\$9M) Swing space \$3M Total: \$19-\$34M <p>(Renovation only projects were not studied by HMFH. Renovation cost is inferred from HMFH Cost Matrix.)</p>	<p>Net new capacity:</p> <ul style="list-style-type: none"> 16 net added classroom capacity including all associated indoor and outdoor spaces. Relocated ELL program (3 classrooms) Second RISE center (3 classrooms) 3 BEEP classrooms No relief at Baker or other schools. <p>Cost:</p> <p>Total: \$166-\$224M</p>
Scenario 1B	<p>Putterham 3+</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$121M 	<p>Pierce 4 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Subtract approximately 5 classroom capacity while reducing enrollment from 41 classrooms down to 36 classrooms. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$118M MSBA reimbursement (\$26M) Land acquisition \$8M Swing space \$7M Total: \$107M 	<p>Driscoll 4 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> 9 classroom capacity including all associated indoor spaces but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$83M MSBA reimbursement (\$18M) Swing space \$3M Total: \$68M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 25 net added classroom capacity. (Reduced playground-per-student at Driscoll) Relocated ELL program (3 classrooms) Second RISE center (3 classrooms) 3 BEEP classrooms Some relief at Baker and other schools pending un-projected additional future enrollment growth. <p>Cost:</p> <p>Total: \$296M</p>
Scenario 1C	<p>Putterham 3+</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$121M 	<p>Pierce 5 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 4 net classroom capacity <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$145M MSBA reimbursement (\$32M) Land acquisition \$10M Swing space \$7M Total: \$130M 	<p>Driscoll 3 (renovation only)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$19-\$34M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 31 net added classroom capacity (Reduced playground-per-student at Pierce) Relocated ELL program (3 classrooms) Second RISE center (3 classrooms) 3 BEEP classrooms Allows enrollment reduction at Baker to 3+ section school. <p>Cost:</p> <p>Total: \$270-\$285M</p>
Scenario 1D	<p>Putterham 3+</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$121M 	<p>Pierce 5 (renovation/expansion)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$130M 	<p>Driscoll 4 (renovation/expansion)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$68M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 40 net added classroom capacity (Reduced playground-per-child at both Pierce and Driscoll) Relocated ELL program (3 classrooms) Second RISE center (3 classrooms) 3 BEEP classrooms Allows enrollment reduction at Baker to 3+ section school and relief at other buildings. <p>Cost:</p> <p>Total: \$319M</p>

Pierce Expansion as Initial Project – Alternative Scenarios Pollak May 29, 2018

	Project #1 (go-it-alone) Delivery date 4-5 years, approx. Fall 2022 or 2023	Project #2 (MSBA) Delivery date 7-10 years, approx. Fall 2025-2028	Project #3 (MSBA) Delivery date 10-15 years, approx. Fall 2028-2033	Total over three projects and 10-15 years
Scenario 2A	<p>Pierce 5 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 4 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$145M Land acquisition \$10M Swing space \$7M Total: \$162M 	<p>Driscoll 4 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> 9 classroom capacity including all associated indoor spaces but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$83M MSBA reimbursement (\$18M) Swing space \$3M Total: \$68M 	<p>Baker 5 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 6 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$138M MSBA reimbursement (\$30M) Swing space \$3M Total: \$111M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 19 net added classroom capacity (Reduced playground-per-student at Pierce, Driscoll and Baker.) <p>Cost:</p> <p>Total: \$341M</p>
Scenario 2B	<p>Pierce 5 (renovation/expansion)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$162M 	<p>Driscoll 4 (renovation/expansion)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$68M 	<p>Heath 4 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 9 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$75M MSBA reimbursement (\$16M) Swing space \$3M Total: \$62M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 22 net added classroom capacity (Reduced playground-per-student at Pierce, Driscoll and Heath.) No relief at Baker <p>Cost:</p> <p>Total: \$292M</p>
Scenario 2C	<p>Pierce 3/3 (tear-down/replacement with two schools)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 13 net classroom capacity. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$225M Land acquisition \$12M Swing space \$7M Total: \$249M 	<p>Baker 5 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 6 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$138M MSBA reimbursement (\$30M) Swing space \$3M Total: \$111M 	<p>Driscoll 3 (renovation only)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> No change <p>Cost:</p> <ul style="list-style-type: none"> Moderate to full renovation: \$20-\$40M MSBA reimbursement (\$4-\$9M) Swing space \$3M Total: \$19-\$34M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 19 net added classroom capacity (Reduced playground-per-student at Pierce and Baker.) <p>Cost:</p> <p>Total: \$379-\$394M</p>
Scenario 2D	<p>Pierce 3/3 (tear-down/replacement with two schools)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$249M 	<p>Heath 4 (renovation/expansion)</p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 9 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$75M MSBA reimbursement (\$16M) Swing space \$3M Total: \$62M 	<p>Driscoll 3 (renovation only)</p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$19-\$34M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 22 net added classroom capacity (Reduced playground-per-student at Pierce and Heath.) No relief at Baker <p>Cost:</p> <p>Total: \$330-\$345M</p>

Driscoll Expansion as Initial Project – Alternative Scenarios

Pollak May 29, 2018

	Project #1 (go-it-alone) Delivery date 4-5 years, approx.. Fall 2022 or 2023	Project #2 (MSBA) Delivery date 7-10 years, approx. Fall 2025-2028	Project #3 (MSBA) Delivery date 10-15 years, approx. Fall 2028-2033	Total over three projects and 10-15 years
Scenario 3A	<p><u>Driscoll 4 (renovation/expansion)</u></p> <p>Net new capacity:</p> <ul style="list-style-type: none"> 9 classroom capacity including all associated indoor spaces but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$83M Swing space \$3M Total: \$86M 	<p><u>Pierce 5 (renovation/expansion)</u></p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 4 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$145M MSBA reimbursement (\$32M) Land acquisition \$10M Swing space \$7M Total: \$130M 	<p><u>Baker 5 (renovation/expansion)</u></p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 6 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$138M MSBA reimbursement (\$30M) Swing space \$3M Total: \$111M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 19 net added classroom capacity (Reduced playground-per-student at Pierce, Driscoll and Baker. <p>Cost:</p> <p>Total: \$327M</p>
Scenario 3B	<p><u>Driscoll 4 (renovation/expansion)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$86M 	<p><u>Pierce 5 (renovation/expansion)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$130M 	<p><u>Heath 4 (renovation/expansion)</u></p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 9 net classroom capacity but no additional outdoor space. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$75M MSBA reimbursement (\$16M) Swing space \$3M Total: \$62M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 22 net added classroom capacity (Reduced playground-per-student at Pierce, Driscoll and Heath. No relief at Baker <p>Cost:</p> <p>Total: \$278M</p>
Scenario 3C	<p><u>Driscoll 4 (renovation/expansion)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$86M 	<p><u>Pierce 3/3 (tear-down/replacement with two schools)</u></p> <p>Net new capacity:</p> <ul style="list-style-type: none"> Add approximately 13 net classroom capacity. <p>Cost:</p> <ul style="list-style-type: none"> Preliminary Project Estimate: \$225M MSBA Reimbursement (\$43M) Land acquisition \$12M Swing space \$7M Total: \$206M 	<p><u>Baker 5 (renovation/expansion)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$111M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 28 net added classroom capacity (Reduced playground-per-student at Driscoll and Heath. <p>Cost:</p> <p>Total: \$403M</p>
Scenario 3D	<p><u>Driscoll 4 (renovation/expansion)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$86M 	<p><u>Pierce 3/3 (tear-down/replacement with two schools)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$206M 	<p><u>Heath 4 (renovation/expansion)</u></p> <p>Cost:</p> <ul style="list-style-type: none"> Total: \$62M 	<p>Net new capacity:</p> <ul style="list-style-type: none"> 30 net added classroom capacity (Reduced playground-per-student at Driscoll and Heath. Allows enrollment reduction at Baker to 3+ section school but half of all students in Baker district must now travel by bus or car to Heath, Lincoln, or North Brookline schools. <p>Cost:</p> <p>Total: \$354M</p>