

City of Somerville

Building Renovation & Department Relocation Master Plan

BROWN SCHOOL - FINAL REPORT VOLUME I

MARCH 25, 2022



**BEYER
BLINDER
BELLE**

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CITY OF SOMERVILLE LEADERSHIP

Katjana Ballantyne, *Mayor*

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OWNER'S PROJECT MANAGER

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Energysmiths, *Net-Zero Energy Strategy Consulting*

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EXECUTIVE SUMMARY - THE BUILDING MASTER PLAN

A VISIONARY CITY, PLANNING FOR THE FUTURE

Locally, regionally, and nationally, the City of Somerville is recognized for its ability to craft a vision and implement it, be it forward-thinking approaches to the delivery of city services, far-reaching sustainability initiatives, or advancing the causes of racial and social justice. Now the City is crafting a new vision: to leverage underutilized and aging City-owned building assets in strategic ways to more effectively serve its administrative and governmental missions and the Somerville community.

Over the city's 150-year history, Somerville's portfolio of buildings has responded to necessary reorganizations and staff growth in both targeted and organic ways. This has left Somerville with a constellation of buildings and spaces that do not best serve the community nor best support the important work of the City's administrative departments and divisions. The solution to these challenges and opportunities requires a road map to guide near-term reorganization and also allow for flexible growth and transformation over time. The Building Renovation & Department Relocation Master Plan (BMP, or "the Plan") establishes that road map.

ADMINISTRATIVE BUILDINGS

Three buildings—City Hall, the 1895 Building ("1895"), and the former Edgerly School ("Edgerly")—form the primary terrain of the BMP: administrative and civic buildings. The BMP contemplates a comprehensive renovation of each of these buildings. Each building poses its own set of unique architectural opportunities and planning challenges in housing city administrative services for the twenty-first century. The preferred master plan scenario evolved from careful programming

and quantitative and qualitative analysis of City and constituent operational considerations. Detailed space-needs programming for all departments and divisions, along with the nature and degree of public interaction and important adjacency considerations between and among departments, drove how groups would ideally be organized within and across buildings. Relative to space capacity, the program of offices, workstations and support spaces (including growth to 2030) is being accommodated. The most recent report for the BMP administrative buildings is the Preferred Schematic Report.

THE BROWN SCHOOL

At the start of the BMP, the Brown School was included in the slate of existing buildings to be assessed and studied for reuse, rehabilitation, and potential alteration or addition. Early on, Brown was deemed less appropriate as a candidate for adaptive reuse into administrative workspace and still performs its needed function as an elementary school today, but the design team, already mobilized for the administrative buildings, could provide a synergistic effort for the site: assessing the existing conditions of this historic school building and helping the City understand the impact, opportunities, and costs of potential upgrades or alterations to the building and site to address program deficits.

STUDYING A RENOVATION AND ADDITION

Brown is the last remaining of Somerville's "old schools," built at the turn of the century, that are still in City ownership and use. With the recent completion of the new High School building on Central Hill, Brown is

now the oldest school building in the Somerville Public Schools portfolio. It suffers from several program deficits, including the lack of a dedicated cafeteria or gymnasium, and no building-wide accessibility. The envelope and MEP systems are antiquated and inefficient. An accessible rear entrance ramp was added more recently, and various interiors and equipment were updated through the years, but the building's physical plant has areas of significant age and deterioration that require a comprehensive building rehabilitation.

The City directed Beyer Blinder Belle to study and test-fit a renovation and addition, remaining within the bounds of the existing parcel, which could provide a fully accessible new main school entrance, elevator accessibility to all floors, new accessible toilet rooms, and a purpose-built cafeteria and gymnasium with all required support spaces. New classrooms could also be included in the addition if there was any space still available, but were considered a secondary priority to the delivery of specialty program spaces and the space impact of bringing the building into modern code compliance relative to life safety, egress, and accessibility. Note that there is an opportunity gain back a limited number of classrooms in the existing building as other uses (mechanical, food service) are decanted to the addition.

A NOTE ON COST ESTIMATES

Master planning-level cost estimates were developed for a comprehensive Brown renovation and addition. The total estimated costs include both building and site work and contingencies at a magnitude and level of detail appropriate to this stage of pre-design. An overview is provided in the Cost Estimate Summary chapter, with greater cost estimating and scope detail in the appendix.



KEY PLAN - CITY-OWNED PROPERTIES

PROCESS, METHODOLOGY AND BACKGROUND

PROGRAMMING

A conceptual site development program was developed by the design team in coordination with the City of Somerville's Building Renovation & Department Relocation Master Plan Internal Technical Team. Because this investigation was to be resolved to a Master Plan level, in-depth programming interviews (e.g., with Somerville Public Schools) were not conducted. The conceptual gym and cafeteria programs were benchmarked against several standards, including those of the MSBA, the New York State DOE, and the bid documents from the 1997 unbuilt proposal to demolish and rebuild the Brown School (drawings in City archives). For outdoor space, the recreation and play areas of Somerville's eight other elementary schools were also benchmarked to ensure adequate outdoor space would remain if an addition was constructed.

EXISTING BUILDING HISTORIC RESEARCH

In-depth archival research on all the buildings was conducted using a broad range of desktop digital sources as well as photographing drawings found in the Massachusetts State Building Inspection Collection (1889-1987), held in the Mass. State Archives; and drawings in Somerville's own Archives Division.

ASSESSMENT OF EXISTING ASSETS

The documentation and assessment of existing conditions falls into two categories of work: (1) documenting built form through three-dimensional scanning and digital BIM modeling, and (2) assessment across all disciplines to evaluate the material condition of envelope, structure, systems, finishes, and equipment

relative to performance, service life, and compatibility with the City's objectives for building assets in its portfolio. This preliminary, non-invasive round of assessment took place during early 2021.

DEVELOPMENT OF THE INITIAL CONCEPT

In the spring of 2021, BBB conducted site development studies for a Brown School addition, using planning modules for the target program elements and other inputs such as zoning and historic preservation analysis. With review and feedback from the Somerville Internal Technical Team, this was distilled into a single proposed addition concept and existing building rehabilitation scope direction. The design team then authored scope documents which were used for an initial round of cost estimating.

EXPLORATORY WORK

During the summer and fall of 2021, exploratory work was conducted in all the BMP buildings to gain a deeper understanding of building conditions and renovation constraints and opportunities. At the Brown School, openings were made in interior ceilings to identify existing structural conditions. Test-pits and borings were executed to confirm foundation and soil conditions, and sampling was conducted at all the buildings to identify and quantify hazardous materials.

PREFERRED SCHEMATIC - FINAL REPORT

Findings from the exploratory work were incorporated into a revised scope. The initial round of cost estimating was updated accordingly and the final cost estimate is found in this document.

Site Development Studies

PROCESS, METHODOLOGY AND BACKGROUND

In order to assist the City in evaluating the relative benefits of potential site development scenarios across the two master plans, the design team reviewed the Somerville Zoning Ordinance in collaboration with the City to confirm appropriate study parameters.

DETERMINING DEVELOPMENT POTENTIAL FOR CITY-OWNED PROPERTIES

It should be noted that all city-owned properties are designated—by definition of their ownership—as within the Civic (CIV) Special Zoning District. According to the ordinance text, the intent of the Special District is to:

- Implement the various objectives of the City's Comprehensive Plan;
- Preserve already established sites as civic space;
- Accommodate facilities of a public nature, governmental uses, and public or private utility services that support the community.

Development on CIV sites is exempt from specific Development Standards, assuming the property remains in city ownership. The design team understands that the Planning Board, in its capacity to approve special permit applications; the City Council, in its role to set city priorities and approve budgetary funding; and the public, engaged through stakeholder review processes, together act as guardrails to ensure appropriate development and use of city property while seeking design of the highest quality.

Despite CIV properties being exempt from development standards, the City's traditional practice is to use as a non-binding launching point the most likely

development district designation were the property in private ownership. This due-diligence benchmarking helps build the case for projects during approvals.

PROCESS FOR THE BROWN SITE

The Brown School is located at 201 Willow Avenue, and the parcel is bounded by Willow, Kidder, and Josephine Avenues. Willow connects Broadway to Highland Avenue.

The process of establishing development potential first began by confirming the most appropriate benchmark district designation with the City. For the Brown School site, this was MR3 (Mid-Rise, 3-story). All the surrounding parcels are NR (Neighborhood Residential). Several aspects of the existing building could be considered existing-nonconforming relative to MR3. Brown's existing front yard setbacks are greater than the MR3 maximums. The MR3 height limit is met at the existing eave line, but the existing hipped roof extends above. Relative to unbuilt areas, the existing school yard is currently 100% impermeable pavement with no play structures. The existing planted areas on the front and sides of the building contribute to the parcel's 22% open space and it would be recommended to retain these in their softscape condition.

The maximum zoning envelope was first defined in plan, section, and three-dimensional massing, then further refined by contextual, historic preservation, and urban design considerations and the recognition of a continued need for exterior play space (which could be pervious open space for stormwater management). Five footprint options were vetted with the Internal Technical Team to arrive at the illustrated master plan scenario in the next chapter.

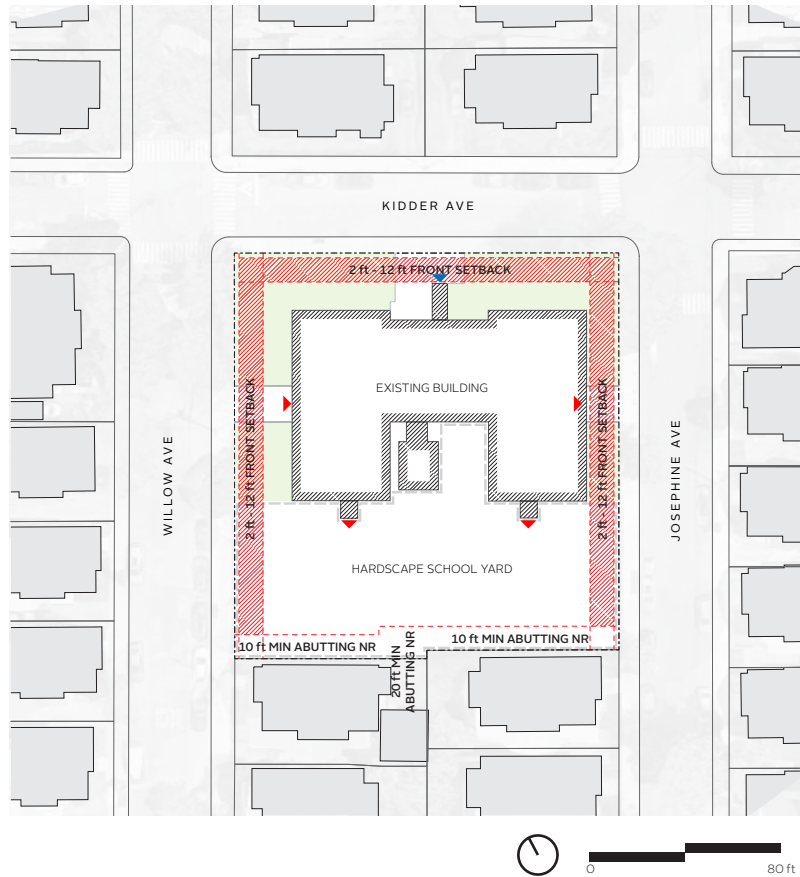


BENCHMARKING AND INTERIOR PROGRAM

The unbuilt 1997 design drawings for a ground-up new Brown School were used as reference benchmarks for high-level space planning, given that this project had gone through construction documents (the set is labeled "GESSS submittal"). That new-build design included a 2,900 NSF (43'x66') Cafetorium with an additional 800 NSF for the stage and stage support, 1,500 NSF for kitchen/servery, and a 3,800 NSF gym (measuring 48'x79').

Other gym benchmarks for elementary schools included the 2006 MSBA Education Program Space Standards, which set forth 6,300 NSF for a gymnasium (including storage and office); the Newton Schools Long-Range Master Plan, which sets forth a 3,450 NSF gym for 252 elementary students; and the New York State Department of Education, which sets forth 1,900 NSF (and 36' x 52' minimum dimensions) for an elementary school gym.

EXISTING CONDITIONS



Lot Development - MR3 General/Commercial	
LOT Coverage (MAX)	90%
GREEN SCORE	-
Minimum	0.25
Ideal	0.30
OPEN SPACE (MIN)	15%

EXISTING	
33% / 78%*	●
22%*	●

Building Setbacks - MR3 General/Commercial		
Primary Front SETBACK (MIN/MAX)	2 ft	12 ft
Secondary Front SETBACK (MIN/MAX)	2 ft	12 ft
Side SETBACK ABUTTING NR or LHD	10 ft (MIN)	
Rear SETBACK ABUTTING NR or LHD	20 ft (MIN)	

EXISTING	
24 ft	n/a
24 ft / 14 ft	n/a
62 ft	●
-	

Main Massing - MR3 General/Commercial	
BUILDING WIDTH (MAX)	200 ft
FACADE BUILD-OUT (MIN)	-
Primary Front	80%
Secondary Front	65%
FLOOR PLATE (MAX)	15,000 sf
GROUND STORY Height (MIN)	14 ft
UPPER STORY Height (MIN)	10 ft
Number of Stories (MIN/MAX)	2 3
BUILDING Height (MAX)**	40 ft
Roof Type	Flat

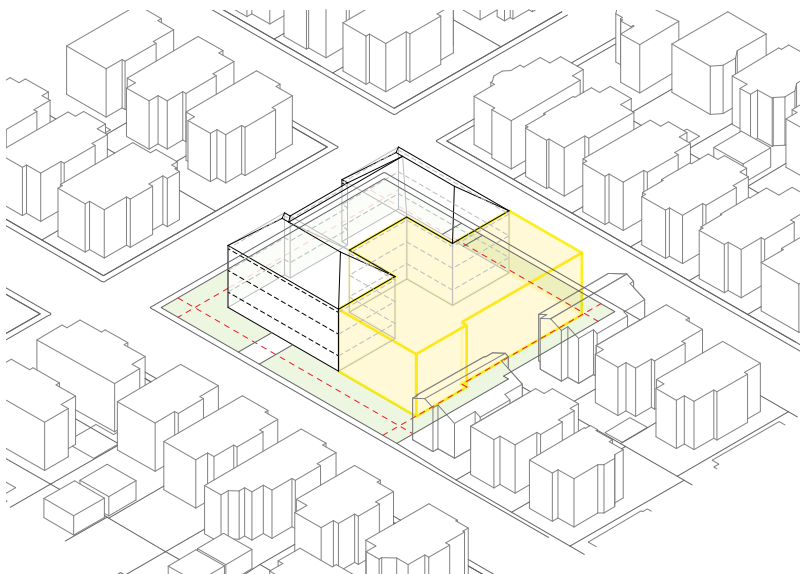
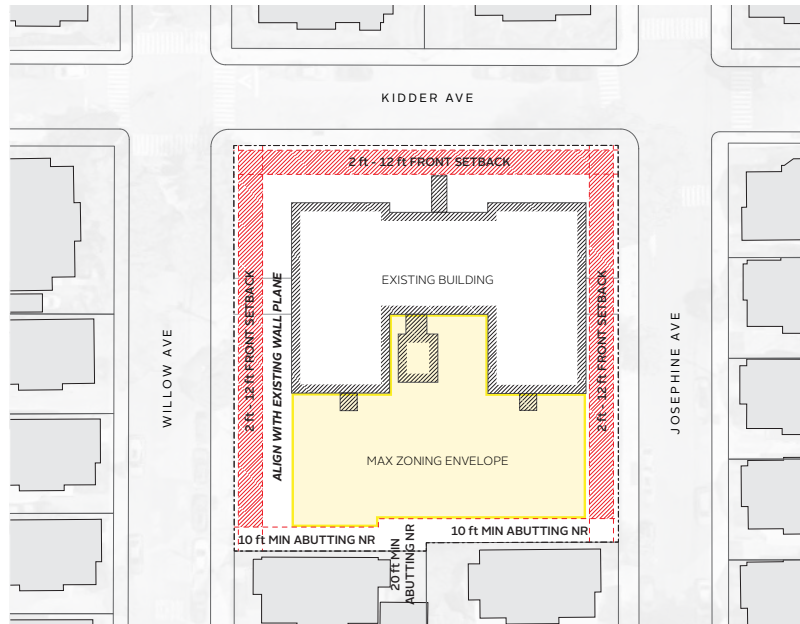
EXISTING	
80 / 122 ft	●
-	
47% (West)	
76% (North)	●
8,600 sf	●
9.5'	●
13.5'	●
3 ½	○
39 ft***	○
Hipped	

* Existing planted areas represent 22% of parcel; current building coverage is 33%

** MR3 Max height for General Building Type is 40 ft; Commercial Building height permitted to 42 ft

*** 39 ft measured to top of eave at hipped roof start point; roof ridge height is ±52 ft

MAXIMUM ZONING ENVELOPE AND SITE DEVELOPMENT OPTIONS



Lot Development - MR3 General/Commercial

LOT Coverage (MAX)	90%
GREEN SCORE	-
Minimum	0.25
Ideal	0.30
OPEN SPACE (MIN)	15%

ENVELOPE

60%+*	●
22%+*	●

Building Setbacks - MR3 General/Commercial

Primary Front SETBACK (MIN/MAX)	2 ft	12 ft
Secondary Front SETBACK (MIN/MAX)	2 ft	12 ft
Side SETBACK ABUTTING NR or LHD	10 ft (MIN)	
Rear SETBACK ABUTTING NR or LHD	20 ft (MIN)	

ENVELOPE

24 ft	●
24 ft / 14 ft	●
10 ft	●
20 ft	●

Main Massing - MR3 General/Commercial

BUILDING WIDTH (MAX)	200 ft
FACADE BUILD-OUT (MIN)	-
Primary Front	80%
Secondary Front	65%
FLOOR PLATE (MAX)	15,000 sf
GROUND STORY Height (MIN)	14 ft
UPPER STORY Height (MIN)	10 ft
Number of Stories (MIN/MAX)	2 3
BUILDING Height (MAX)**	40 ft
Roof Type	Flat

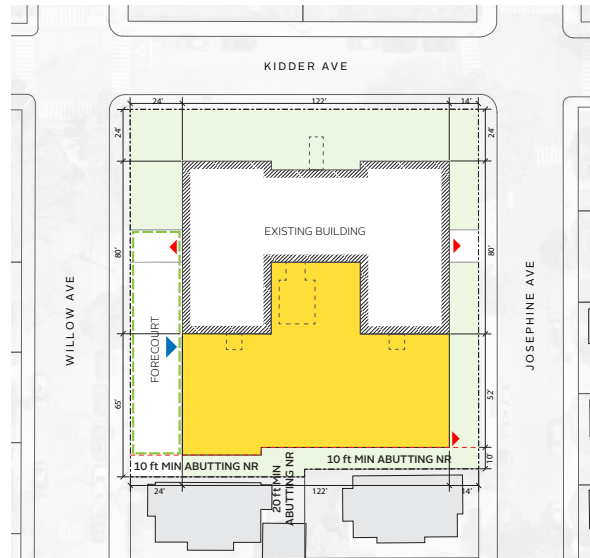
ENVELOPE

135' / 122'	●
-	●
80% (West)	●
76% (North)	●
16,000 sf	○
TBD	○
TBD	○
3 ½	○
39 ft***	○
Hipped	○

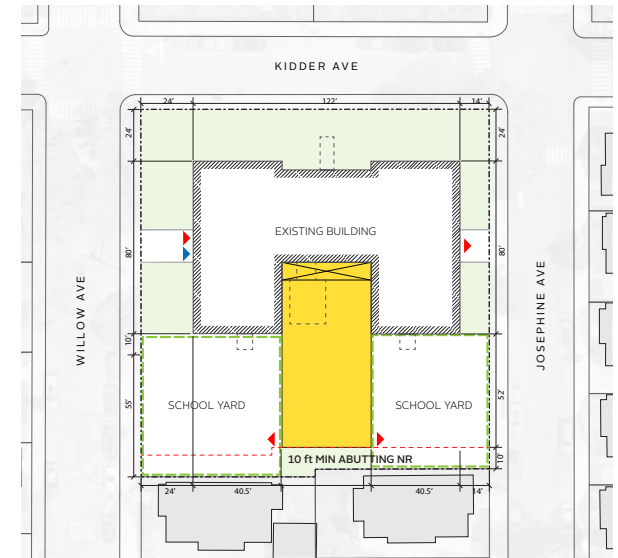
Statistics (Addition ONLY)	Option 1	Option 2	Option 3	Option 4	Option 5
Addition Footprint	7,880	3,520	5,900	4,750	8,000
Stories Above Grade	2	2	2	2	2/3
Zoning Floor Area	19,700	8,800	14,750	11,875	24,000
Sub-Grade Basement Footprint	7,880	3,520	5,900	4,750	8,000
Gross Square Footage	27,580	12,320	20,650	16,625	32,000
Potential Gym Interior Dims	45 x 115	40 x 80	50 x 75	50 x 62	50 x 62
Potential Gym NSF	5,175	3,200	3,750	3,100	3,100

Lot Coverage (Exg Plus Addition)	60%	44%	53%	48%	49%
School Yard	-	West Yard	East Yard	West Yard	West Yard
Potential Dimensions	-	64 x 65	62 x 54	55 x 80	55 x 80
Potential SF	-	4,230	3,370	4,400	4,400

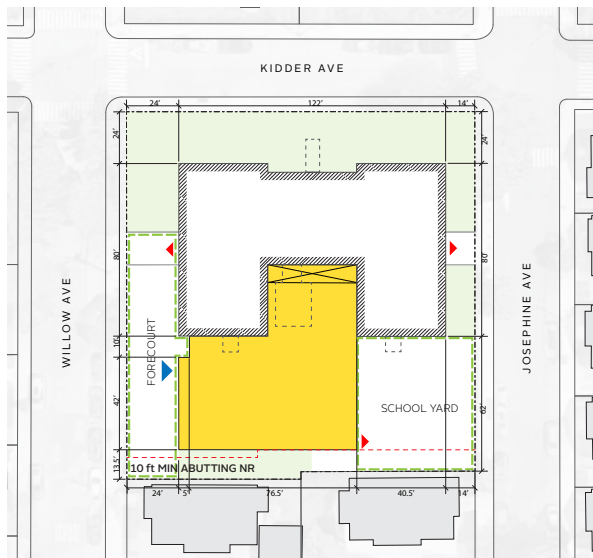
All options proposed the removal of the original, but less historically significant two-story toilet block to the rear of the building. Option 3, the "Willow Address" was determined to be the preferred choice of the five alternatives. Option 1 does not leave enough undeveloped area for reasonable play space, Option 2 was determined too small to accommodate the interior program, and Option 4 (a mirrored sibling of Option 3) has less clarity of circulation and entry in its relationship to the existing building than Option 2. Option 5 tested the idea of demolishing the east (1907) wing, which currently suffers from foundation settlement issues. However, for the purposes of this exercise, the City prioritized retention of the historic building, pending the cost estimate for mitigation of the settlement issue.



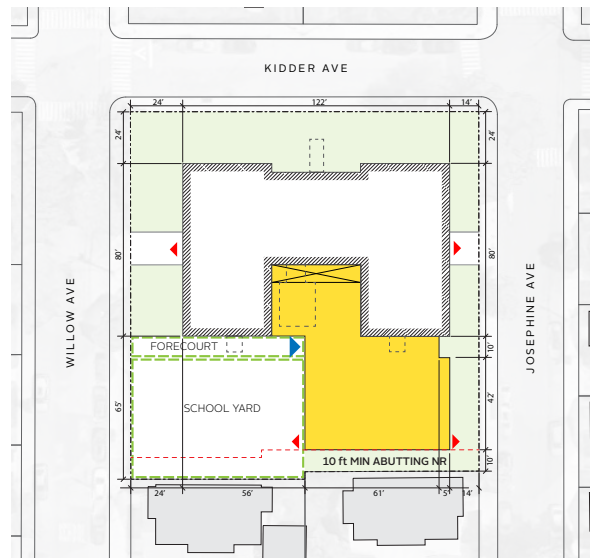
1. Max Build-Out



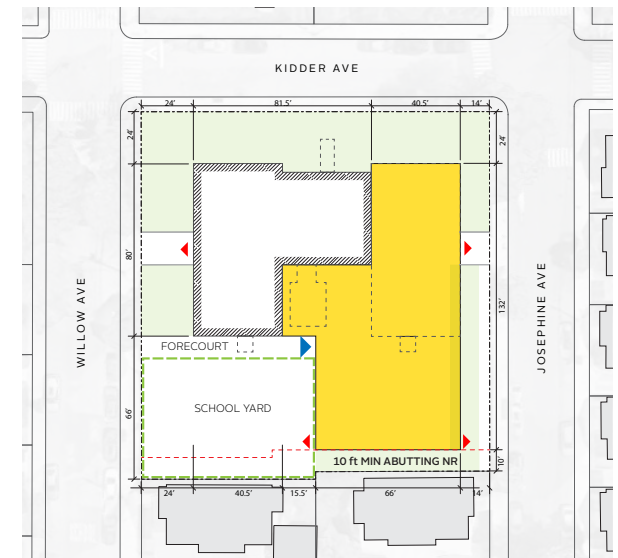
2. North/South Bar



3. Willow Address



4. Willow Front Yard



5. Willow Front Yard + Replacement East Wing



OPEN PLAY SPACE BENCHMARKING



1. West Somerville Neighborhood School



3. Cummings School



5. Healey School



7. East Somerville Community School



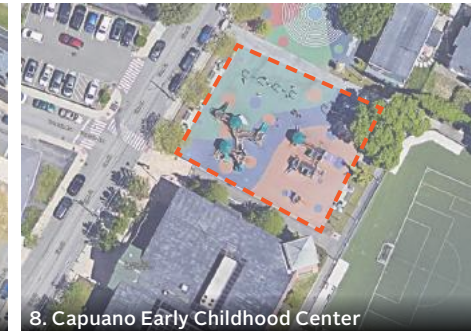
2. Kennedy Elementary School



4. Argenziano School



6. Winter Hill Community Innovation School



8. Capuano Early Childhood Center

Benchmark School Yard Areas and Dimensions			
SCHOOL	YARD DIMENSIONS	AREA (sf)	NOTES
1. West Somerville Neighborhood School	55 x 71	3,900	West hardscape school yard with play structures
2. Kennedy School	40x175	7,000	East (Cedar Street) school yard; 40' average width
3. Cummings School	60 x 68	4,100	Prescott Street school yard
4. Argenziano School	55 x 75	4,125	Open-sided courtyard at building
5. Healey School	45 x 100	4,500	School yard at Meacham Street
6. Winter Hill Community Innovation School	65 x 100	6,500	Yard with play structures west of soccer field
7. East Somerville Community School	120 x 120	14,400	Enclosed area at Pearl and Cross Streets
8. Capuano School	80 x 105	8,400	Play yard with structures at Glen Street

Master Plan Scenario

THE BROWN SCHOOL - PAST TO FUTURE

A successful addition design for the Brown School should complement the existing historic building in several ways: it should deliver well-proportioned, logically laid out program spaces, provide an equitable approach to universal accessibility, and do this all while respecting the siting, form, and character of a treasured neighborhood and city landmark.

The drawings included in this chapter were developed primarily for cost estimating a prospective scope of work at the master planning level. They are not design drawings, and the elevations indicate massing ideas only.

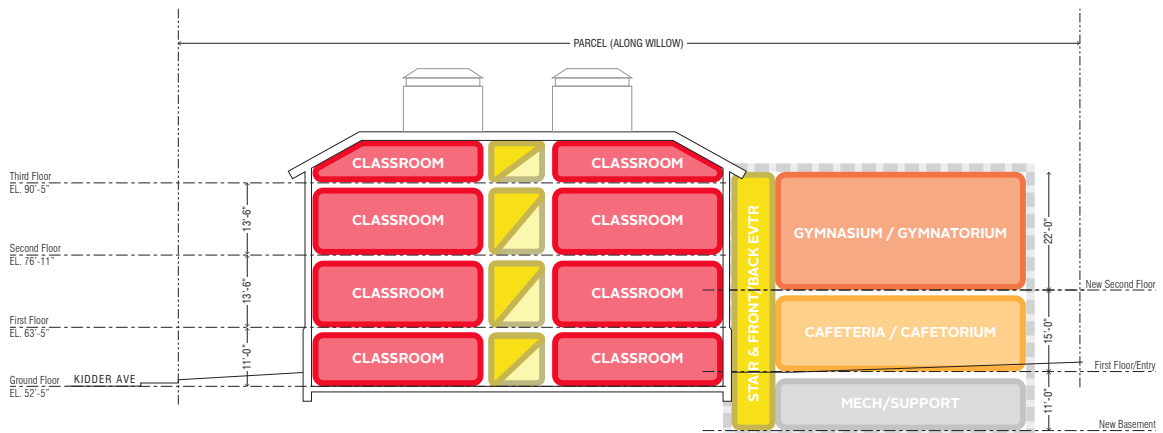
However, several design concepts emerged in the course of developing the scheme. The first is the sectional relationship between the addition and the existing building. First, the cafeteria and the gym will demand greater floor-to-floor heights than are present in the existing building. In addition, the existing building was set on a raised basement while the two existing entries are set at the half-landings of the stairwells. It is not practical to make these entries accessible, so the first floor of the addition should be set at grade to provide an accessible entrance. Today there is only a single, small staff office on the second floor, so the entry zone of the addition should include the school office to maintain "eyes on the street." The historic building entrance could be converted to egress-only.

Second, as illustrated, the resulting offsets in levels can be addressed by a central communicating stairwell and a front-and-back opening elevator. A skylit multi-level volume here could express the historic facade of the existing building. As drawn, the elevator would not serve the existing attic/third floor in order to keep the overrun low, but this could be an alternate option.

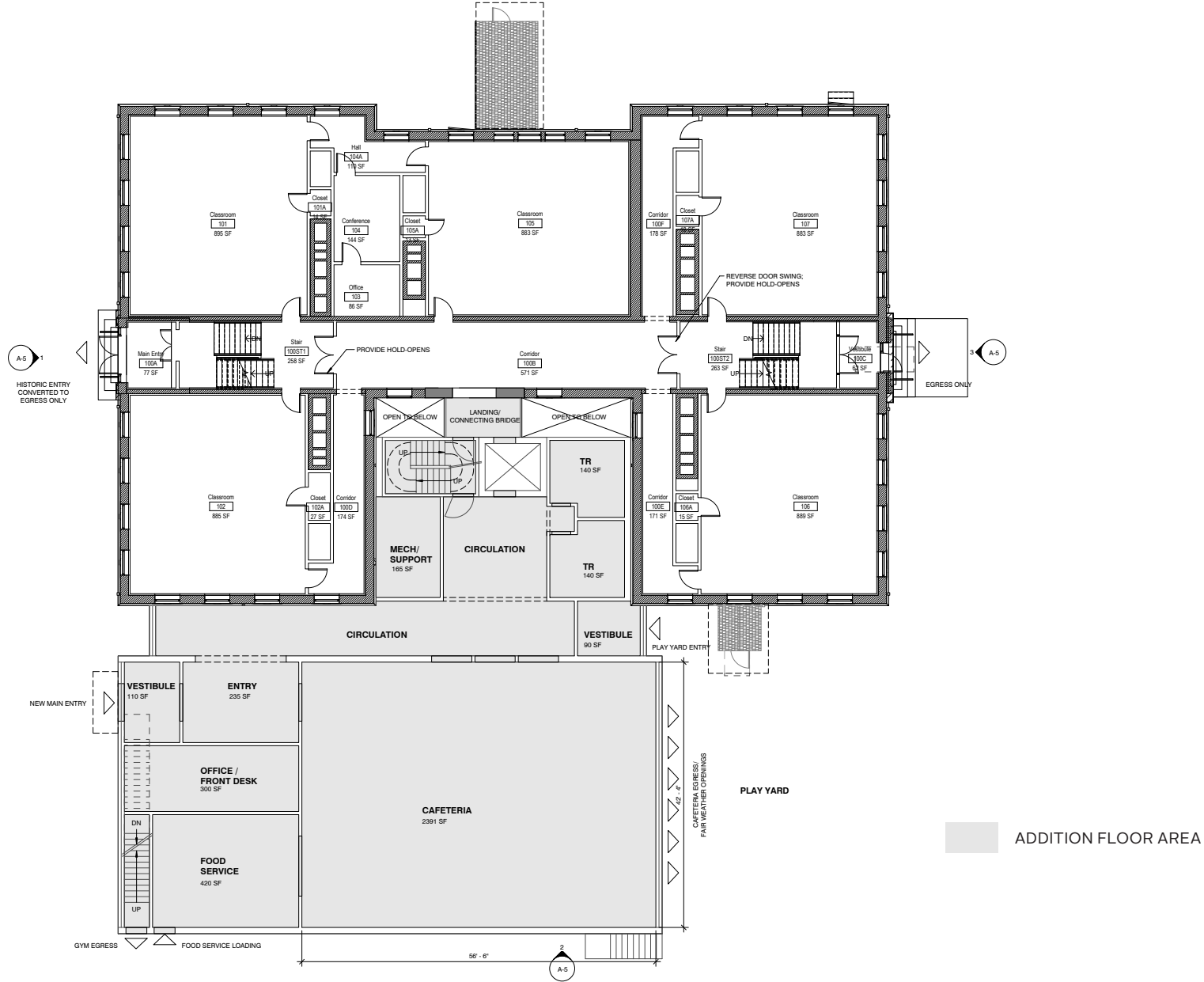
Third, the massing of the addition has been capped at eave level to respect the primacy of the original building and relate to the smaller scale of the residential neighbors. Interplay of solid and void could establish a dialog of compatible contrast while providing more transparency at the entry and cafeteria and more solidity at the gymnasium.



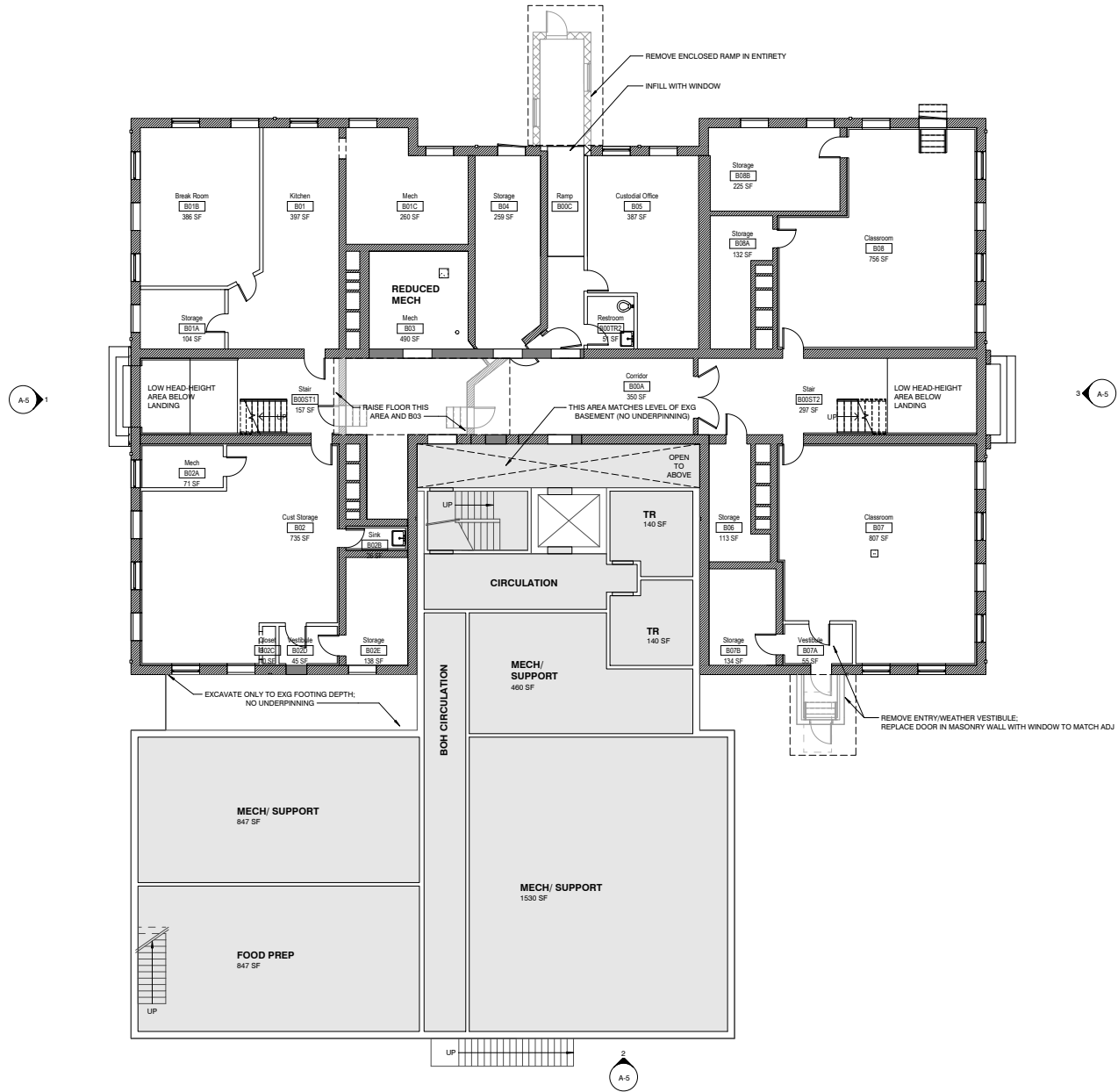
Photograph of the completed Brown School (predates the 1907 east expansion)
Somerville School Committee Annual Report, 1901



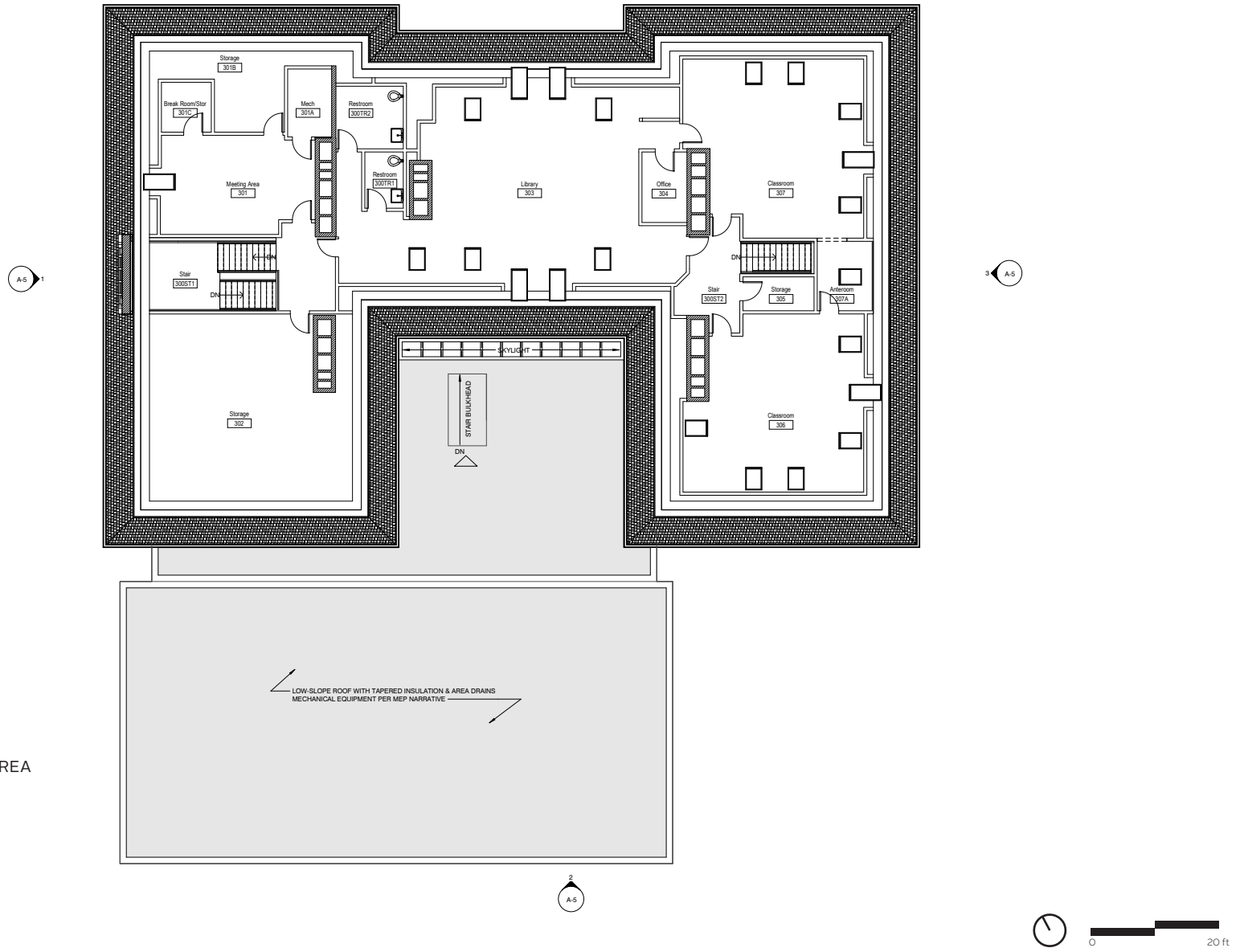
FIRST FLOOR PLAN - PROPOSED



BASEMENT PLAN - PROPOSED



THIRD FLOOR PLAN - PROPOSED



■ ADDITION FLOOR AREA



WEST (ENTRY) ELEVATION - PROPOSED MASSING



SOUTH ELEVATION - PROPOSED MASSING



EAST ELEVATION - PROPOSED MASSING

ADDITION MASSING

- SOLID (FENESTRATION TBD)
- TRANSPARENT/SPANDREL



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Cost Estimate Summary

INTRODUCTION TO COST ESTIMATES

COST OVERVIEW

The summary table below provides a high-level overview of the current cost estimate values. An initial round of cost estimating was conducted in August 2021, using drawings, sketch markups, and narratives provided by the design team. The scope was re-estimated in October 2021 due to further design development and the increased quality of existing conditions information. The design team provided the estimators with revised pricing narratives, conceptual demo and proposed floor layouts, detailed elevation markups, and site/ utility sketches. Hazardous materials reports helped capture the expected level of abatement, while exploratory work over the summer of 2021 helped fill in information gaps and better direct the scope.

The qualifications and full backup for the cost estimate up through the October 2021-dollar GMP value is contained in the appendix, while the build-up to Total Project Cost with percentages is found in the table on page 28. The design team drawings and narratives used by the estimators can be found in the appendix.

METHODOLOGY: DEVELOPING THE COST ESTIMATES

Using materials provided by the design team the estimators calculated trade-level costs based on a range of current installed unit costs, cost-per-square-foot benchmarks, and itemized allowances appropriate to this pre-design stage. All applicable exterior renovation construction, existing building MEP replacement, and core renovation work were estimated in UniFormat detail. The model then predicts allowances for interior space fit-out based on approximate anticipated proportions of program type, subject to greater design resolution in the future.

Corollary to the estimating of trade costs is modeling the build-up to an estimated hard cost, starting with an appropriate level of embedded contingencies for future design. This hard cost number is the projected Guaranteed Maximum Price (GMP) in present-dollars. Because the potential scheduling of the project has not yet been reviewed and vetted by the City, construction start-date scenarios are unknown. **Escalation is therefore currently excluded from the cost model.**

Below the line, soft cost allowances and percentage build-ups were developed in coordination with the City's project manager and Internal Technical Team. The GMP,

owner's soft costs, and owner's internal budgeting contingencies are all summed to determine an estimated Total Project Cost (TPC) in October 2021 dollars.

The bar graphs and table at right are extracted from the Executive Summary of the Cost Estimate, and indicate the cost of key elements in each project at a October 2021 hard cost (GMP) level. The cost per square foot is also provided, a function of the gross square footage of each building or area of work (note that for the site work, the SF denominator used is site area defined by the limit of work, with the building footprint excluded).

On the following spread, additional detail on the build-up from trade-level cost to Total Project Cost is provided.

REVISITING INITIAL ESTIMATES

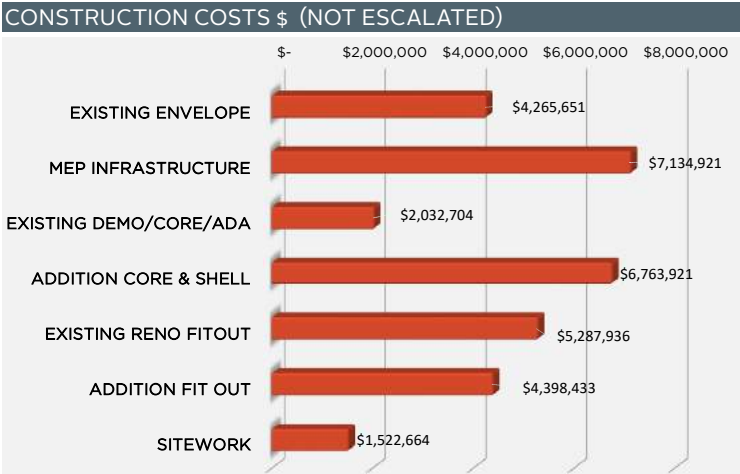
Several key variables impacted the change of estimate values in the re-estimating. Design scope was revised based on client or exploratory feedback, or better clarified by drawings vs. earlier narratives. This increase in the quality of information that could be provided to the estimators also led to a modest decrease in the design contingency, from 12% to 11%. At the same time, an evolving perspective on the highly volatile construction market over the last five months meant increased materials and labor costs. While escalation is not included here, a table of values is included in the Estimate Executive Summary in the appendix.

Lastly, it should be noted that the geotechnical borings and test-pits were completed after the second round of cost estimating. The design team re-reviewed the scope held in the October cost estimate in light of the new geotechnical information, but ultimately determined that given this pre-design stage, the fundamental scope direction should not change.

PDP COST ESTIMATES	Brown School - Rehab + Addition	
<i>Project Gross Sq Ft</i>	<i>48,300 GSF</i>	<i>\$/SF</i>
Construction Cost (2021 \$*)	\$31,410,000	\$650
Total Project Cost (2021 \$*)	\$43,000,000	\$891

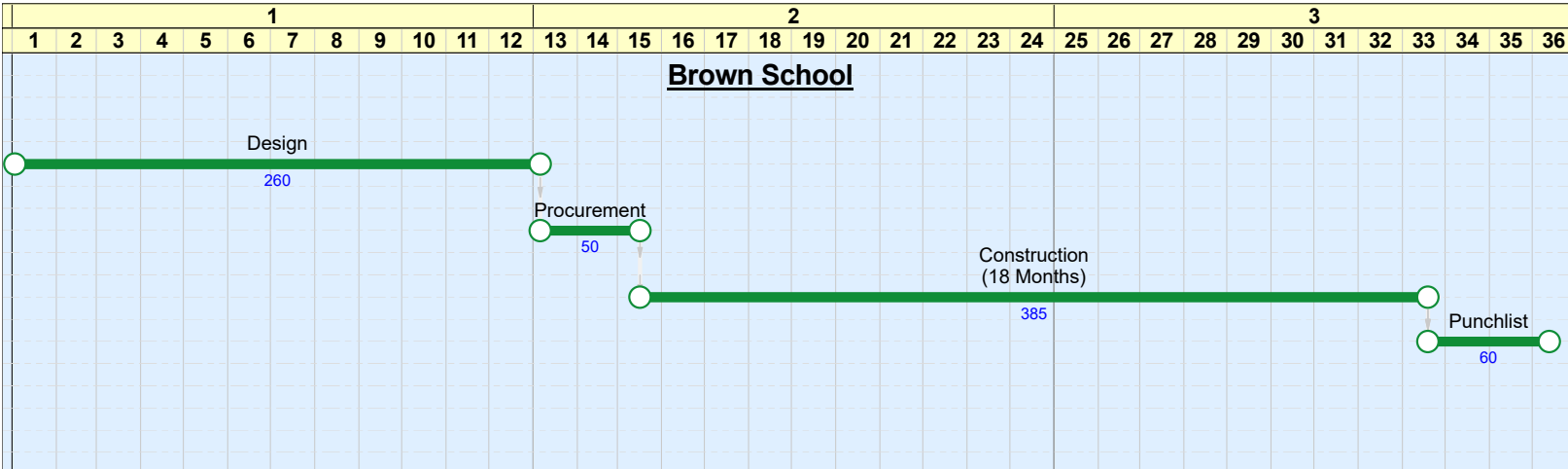
**Escalation is excluded as the potential scheduling of this project has not been reviewed with the City.*

CONSTRUCTION COSTS BY SCOPE AREA



CONSTRUCTION COSTS \$ (NOT ESCALATED)			
COST ELEMENT	GSF	\$/SF	CONST \$ (NOT ESCALATED)
EXISTING ENVELOPE	31,455	\$ 136	\$ 4,265,651
MEP INFRASTRUCTURE	48,130	\$ 148	\$ 7,134,921
EXISTING DEMO/CORE/ADA	31,455	\$ 65	\$ 2,032,704
ADDITION CORE & SHELL	16,675	\$ 406	\$ 6,763,921
EXISTING RENO FITOUT	31,455	\$ 168	\$ 5,287,936
ADDITION FIT OUT	16,675	\$ 264	\$ 4,398,433
SITework	14,496	\$ 105	\$ 1,522,664
TOTAL CONSTRUCTION COSTS	48,130	\$653	\$ 31,406,230

Excerpts from the cost model Executive Summary: non-escalated construction costs by scope area (hard costs only)



Conceptual design and construction schedule (Courtesy PMA)

BUILD-UPS TO TOTAL CONSTRUCTION COST

		A1	
		Brown School Rehab + Addition	
		10/28/2021	
		Rates	
1			
3			
4	TOTAL CONSTRUCTION - GMP, Current Dollars [from line 19]		\$ 31,406,230
5	TOTAL CONSTRUCTION GSF		48,300
6	TOTAL CONSTRUCTION \$/GSF, Current Dollars		\$650
7	Table I.		
8	1. Hard Costs		
9	SUBTOTAL TRADE COST (includes embedded 5% General Reqs.)		\$ 23,721,360
10	Design Contingency [% applied to line 9]	11.0%	\$ 2,609,350
11	Phasing Allowance [% applied to sum of lines 9-10]		-
12	Construction Contingency [% applied to sum of lines 9-11]	4.5%	\$ 1,184,882
13	General Conditions [calculated; resultant % = line 13/lines 9-12]	Varies	\$ 1,774,980 6.5%
14	COST OF THE WORK [sum of lines 9-13]		\$ 29,290,572
15	Permits [Excluded]	0.0%	\$ -
16	Insurances - 1.35% GL, 1.25% Sub Default [% applied to line 14]	2.6%	\$ 761,555
17	Bond [% applied to line 14]	1.5%	\$ 439,359
18	CM Fee [% applied to sum of lines 14 & 15-17]	3.0%	\$ 914,745
19	GMP BEFORE ESCALATION - 5/2021 Dollars [sum of lines 14 & 15-18]		\$ 31,406,230
20	<i>Multiplier: Pre-Escalated GMP / Subtotal Trade Cost</i>		<i>1.32</i>
21	<i>Construction Midpoint</i>		<i>tdb</i>
22	<i>Escalation [calculated to midpoint of construction; % of line 19 for ref.]</i>	<i>Varies</i>	<i>\$ - 0.0%</i>
23	ESCALATED GMP [lines 19 + 22] - ESCALATION CURRENTLY EXCLUDED		\$ 31,406,230
24	2. Soft Costs		
25	Owner's Soft Costs - A/E Team [% applied to line 23]	10.0%	\$ 3,140,623
26	Owner's Soft Costs - OPM [% applied to line 23]	3.5%	\$ 1,099,218
27	Owner's Soft Costs - Other Misc Costs [% applied to line 23]	6.5%	\$ 2,041,405
28	Owner's Soft Costs - FFE & AV/IT [\$15/SF for Program Space + \$6k/Workstation]		\$ 349,500 3ppl
29	Owner's Soft Costs - Police Details [\$500/day/detail x project duration]		\$ 385,000 2qt
30	SOFT COSTS SUBTOTAL, NO ESCALATION [% indicated is a resultant % of line 23]		\$ 7,015,746 22.3%
31	3. Contingencies		
32	Owner's Construction Contingency [% applied to line 23]	12.0%	\$ 3,768,748
33	Owner's Soft Cost Contingency [% applied to line 30]	12.0%	\$ 841,890
34	4. Total Project Costs		
35	TOTAL PROJECT COST, NO ESCALATION [lines 23+30 and 32-33]		\$ 43,032,612

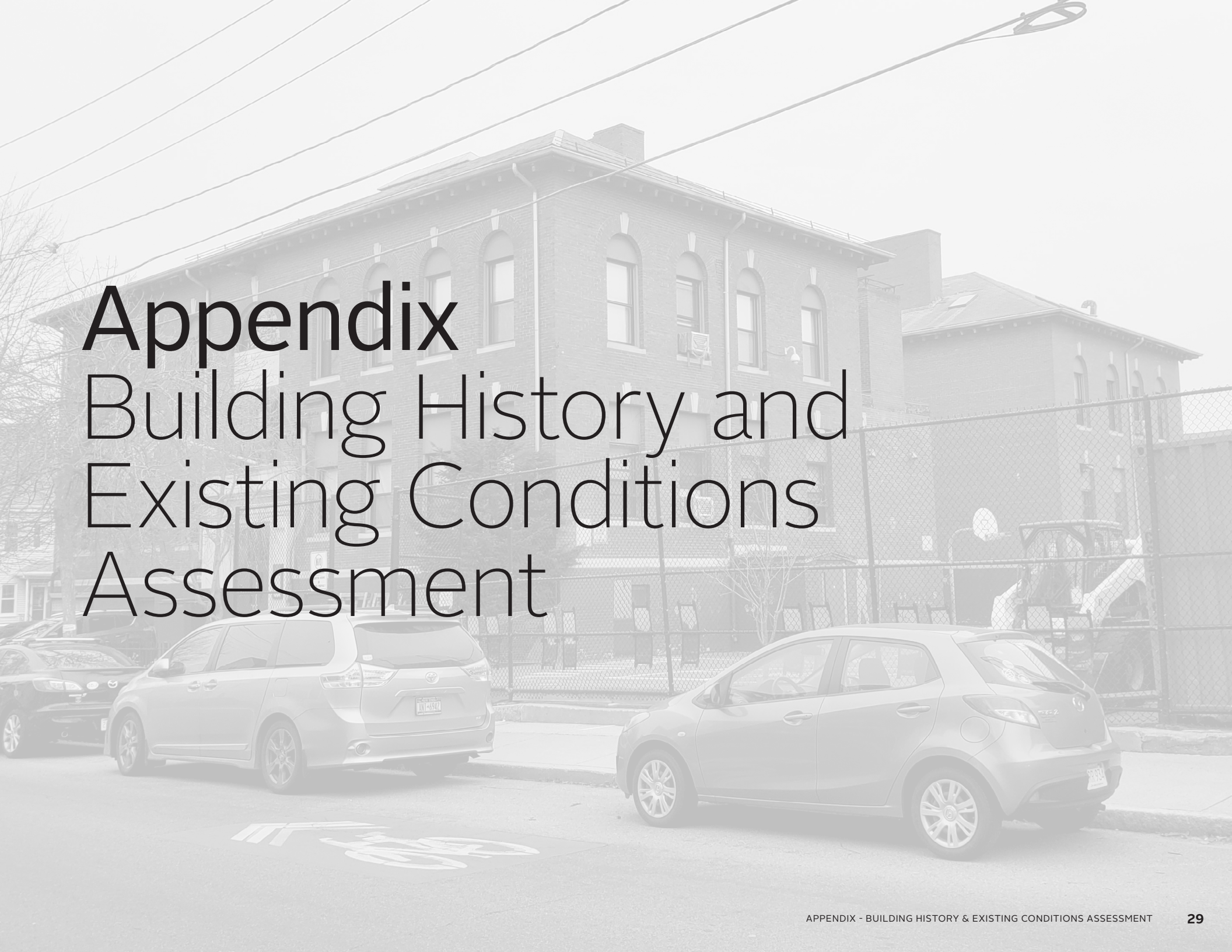
Next Steps

NEXT STEPS

We understand the next step is for the City to conduct an enrollment study to determine the future educational space needs for Somerville Public Schools. BBB recognizes that during the first year or two of the COVID-19 pandemic, these numbers may not have yet stabilized, making a delay in the study prudent.

Because the contemplated addition to Brown does not add a significant number of additional classrooms, it may be that Brown would still remain undersized relative to current or future enrollment demand even after the construction of the addition. The city will also necessarily consider the cost to rehabilitate Brown and construct the addition (to enable building accessibility and provide necessary gym and cafeteria spaces) in the larger context of Somerville Public Schools and City priorities.

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Appendix

Building History and Existing Conditions Assessment

BACKGROUND & RESEARCH

The Benjamin G. Brown School was constructed in 1900-1901, designed by architect Walter Trowbridge Littlefield. Littlefield also designed the Carr School at 25 Atherton Street (a close sibling to the Brown School, converted to condominiums ca. 1980), the Ward 2 Fire Station, the Medford Street Fire Station, and a number of other public and private Somerville buildings.

The original plan oriented the primary facade, massing and main entry toward Willow Avenue, with a rear wing to the east. The 2.5-story building, set on a raised basement and granite foundation, was designed in an understated but handsome Neoclassical vocabulary with the inclusion of more rusticated and simple elements such as the hipped roof and deep, open eaves with exposed rafter ends. The brick exterior of the entire structure is trimmed with limestone, and limestone is also used for the window sills and keystones. The second-story windows are arch-headed. The Willow Avenue facade consists of a carved stone entry surround with entablature and multi-story arched masonry opening above, with four window bays to each side.

The floor plan was comprised of three classrooms per floor on the two principal floors, with each classroom adjacent to a masonry wall of ventilation/heating risers and storage closets. Also adjacent to each classroom is a secondary passageway, intended to function as both a coat room and second means of egress. Two play rooms were located in the raised basement level. The building entry was set on the half-landing of the primary stairwell, with a secondary stairwell and exit to the east. Following the sanitation practices of the era, an ancillary toilet block was erected in the school yard, connected by a vestibule.

Just six years later after the original construction the school was filled to capacity, necessitating expansion. An addition was completed to the east in 1907, mirroring the original primary massing and completing the symmetrical "H" in plan and elevation. The 1901 east

secondary stair was demolished, the corridors were extended, and a new stairwell was included in the addition with an at-grade exit to the east. Littlefield was also the architect for the addition, which is a seamless extension of the original style with some subtle simplifications. The combination reads as a single building today.

The Brown School is in the State's Cultural Resource Inventory but not locally designated.

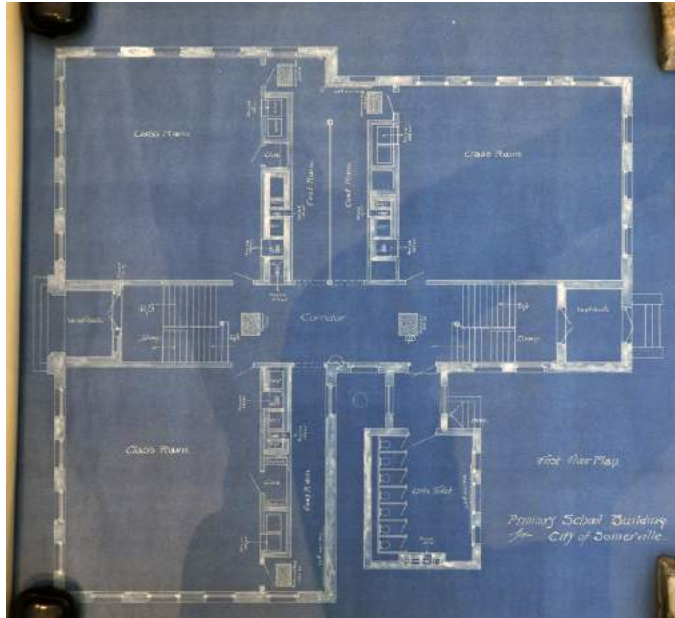


Rendering of the Brown School, Somerville Report, 1900

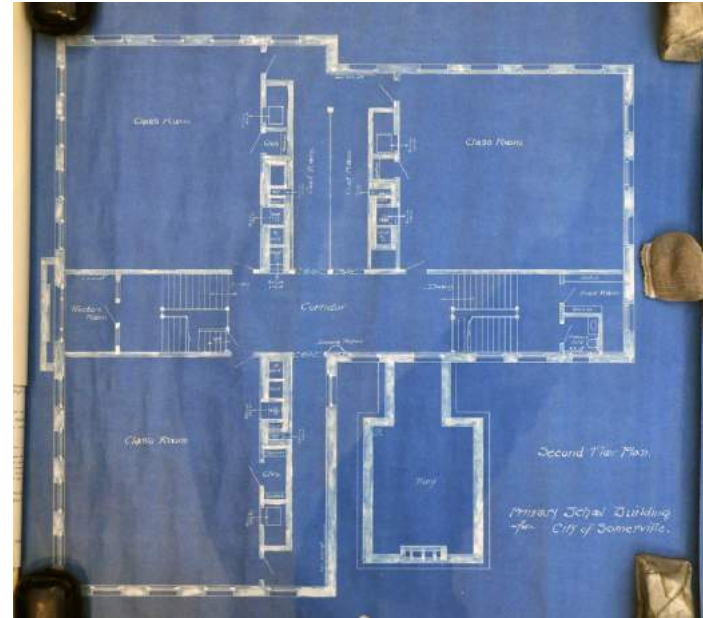


Photograph of the completed Brown School prior to 1907 expansion, Somerville Report, 1901

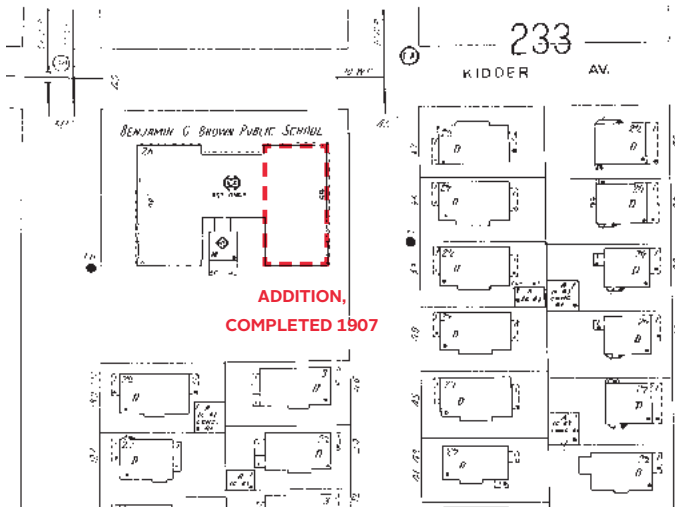
Research sources include the State Archives, Brown School Nomination to the State Register (MHC SMV.1116), and the 1900 and 1901 Somerville Annual Report, Reports of the Schools Committee



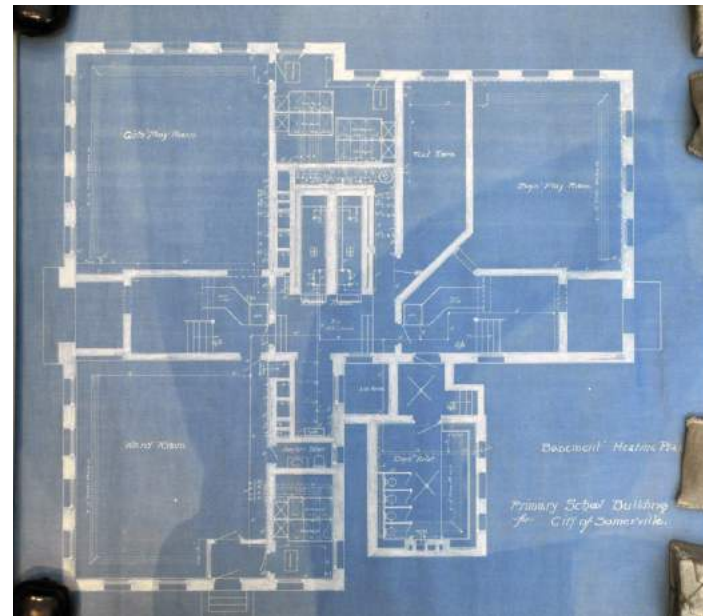
Proposed First Floor Plan, 1900



Proposed Second Floor Plan, 1900



Sanborn Map, Vol. 2 Sheet 239, 1933

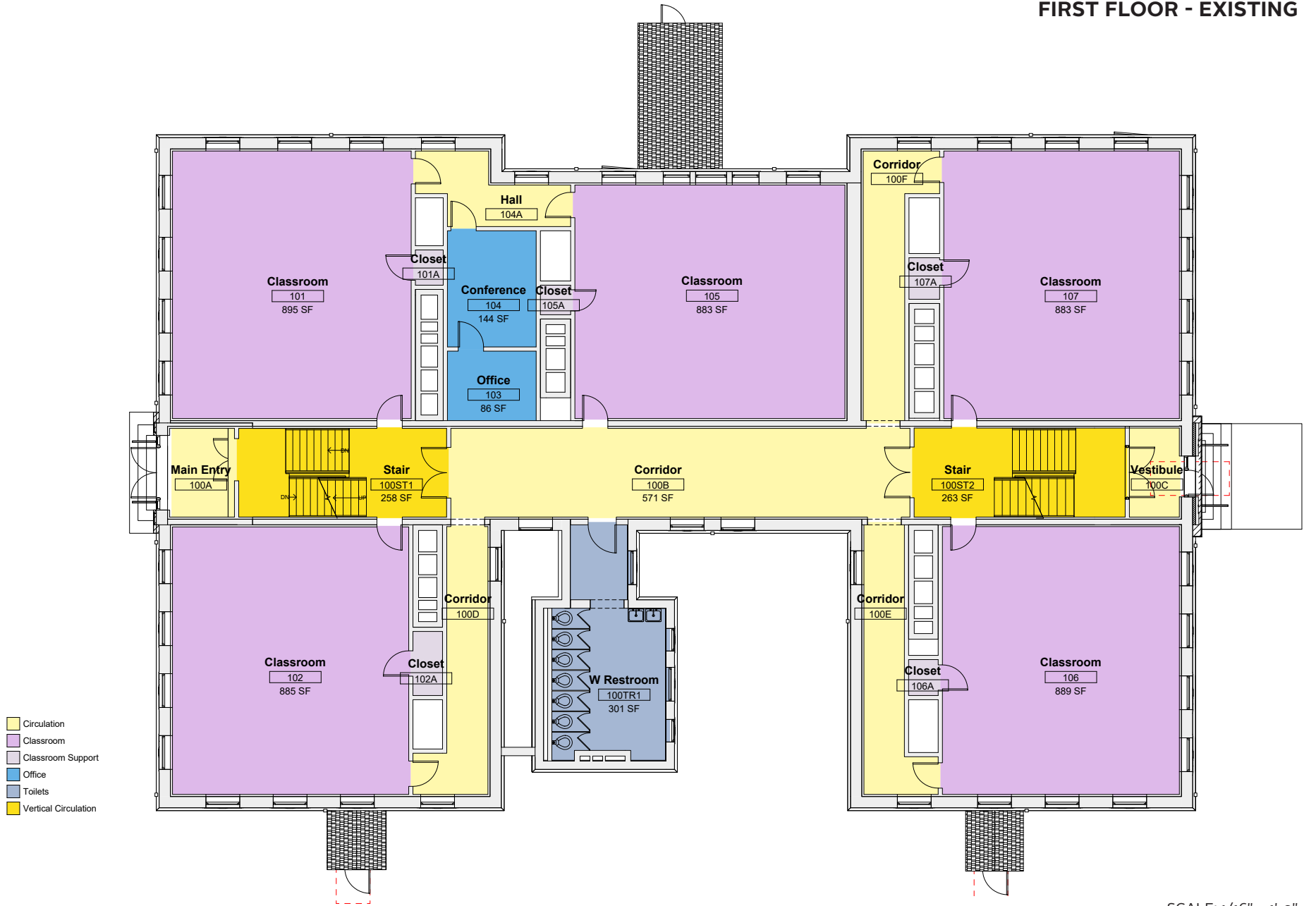


Proposed Basement Floor Plan, 1900

BASEMENT - EXISTING



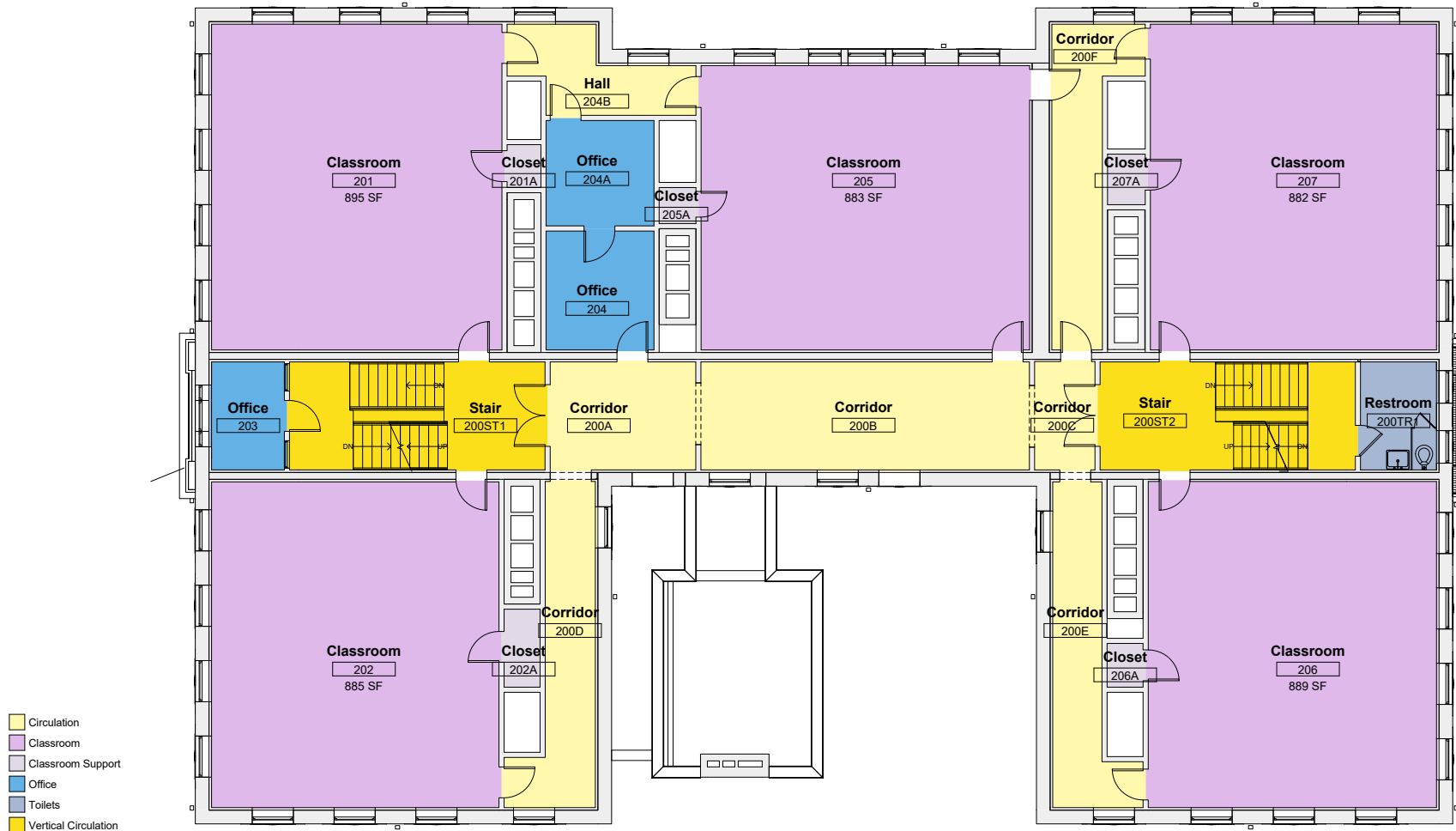
FIRST FLOOR - EXISTING



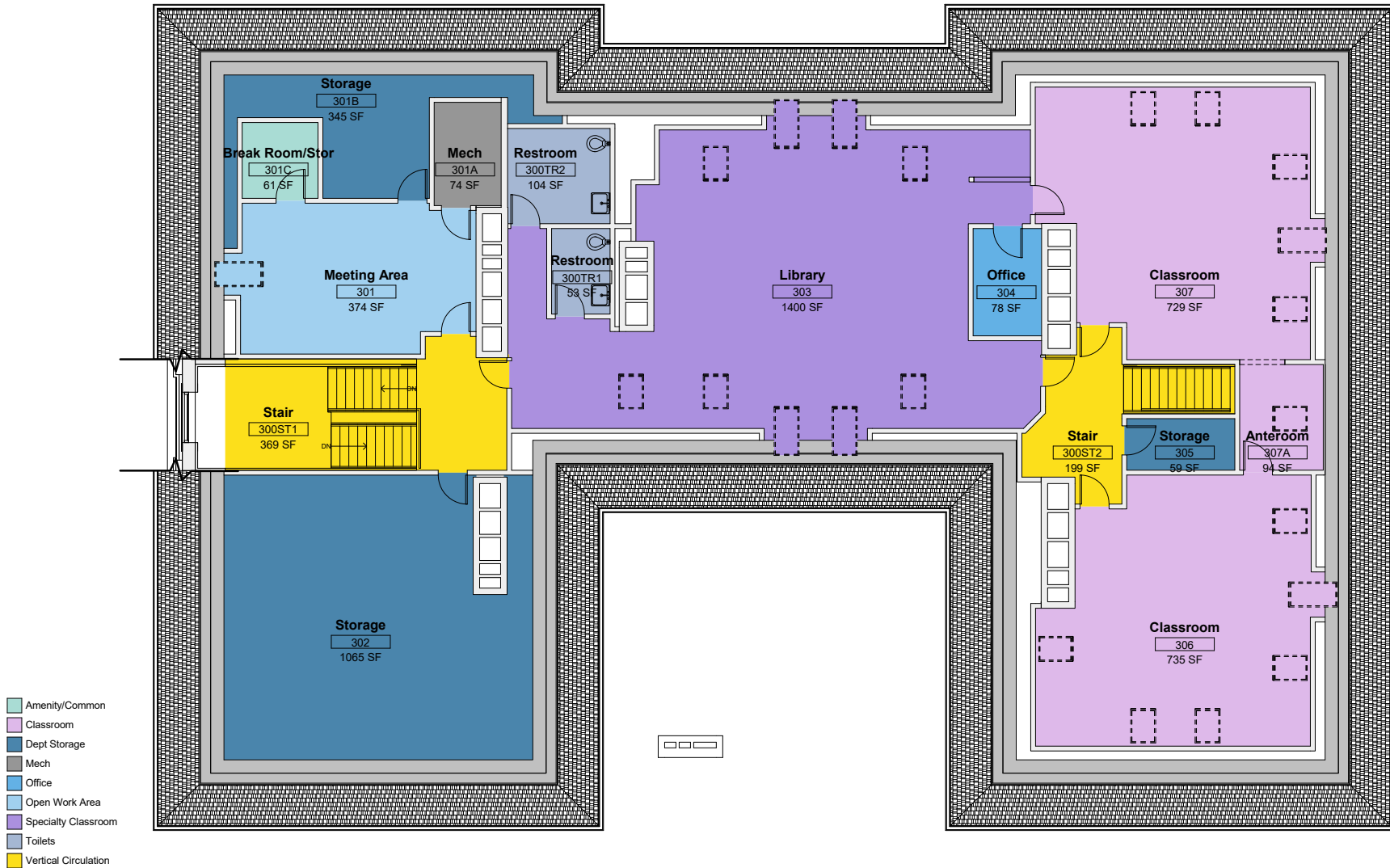
SCALE: 1/16" = 1'-0"



SECOND FLOOR - EXISTING



THIRD FLOOR/ATTIC - EXISTING



SCALE: 1/16" = 1'-0"



EXISTING CONDITIONS ASSESSMENT

CODE

Construction Type:

The Brown School building is built of masonry exterior bearing walls and what is likely wood-framed structural floors. Wood joist construction was observed below the floor planks on the 3rd floor, and wood roof framing was observed in the attic storage room. We are therefore assuming that the building is typically wood construction on at the floor assemblies, some combination of masonry and wood interior wood bearing walls, and wood roof construction. The building most closely resembles Type IIIB construction, where the exterior walls are of noncombustible materials and of brick construction that achieves a 2-HR fire resistance rating. The interior building elements can be of any material permitted by 780 CMR.

Existing Occupancy Type

Group E (Classrooms)

Planned Occupancy Type

Group E (Classrooms & Any Associated Assembly Spaces)

Change of Use

No change of use is currently anticipated for the building.

Number of Exits

Two interior exit stairways which serve all floor levels and discharge to grade. The basement is also served by four exits which lead directly to the exterior.

Preliminary Means of Egress Considerations for Renovation

- Alterations shall be done in a manner that maintains the level of protection provided for the means

of egress. Newly reconfigured space should be provided with an adequate number of exits and exit capacity as required per code.

- Because the building is not occupied by more than one tenant, there are no particular required upgrades to the existing exit enclosures (other than any necessary maintenance to ensure that the level of fire protection provided per original building construction is maintained).

Sprinkler System

Only the Basement and Third Floor levels are sprinklered. A "major alteration" will require providing an automatic sprinkler system throughout. See further discussion below relative to sprinklers and additions.

Renovation and Addition Considerations

- See City Hall for 521 CMR compliance triggers. There is no accessible route to any level apart from the basement currently, and no existing elevator.
- We understand an addition is being considered to the building on the south side (infilling part of the school yard). Under MGL c148, s26, a system of automatic sprinklers is required to be installed through the combined building and addition.
- Provided that the combined building is sprinklered throughout, an addition is feasible without the need for a firewall if the total height and area of the addition and existing building is maintained below limitations permitted for new construction. The height and floor area limitations for a sprinklered building of Type IIIB construction and Group E occupancy are three (3) stories and 43,500 SF, respectively, not including any potential increase due to frontage.



Masonry cracking and displacement, interface of 1901 and 1907 wings



Interior view of wing interface; condition of interior finishes



Settlement and displacement of granite foundation units

STRUCTURE

Brown is split into two construction campaigns. The original structure was built in 1901, while the east addition appears to have been added in 1907. Both structures are two stories, with a half below-grade basement below and a finished attic above, and appear to consist of load bearing masonry walls that support wood framed floors. Some first floor framing may be supported by supplemental interior columns and girders, though it does not appear that this continues up the building. In the preliminary assessment round, the only visible framing was in the attic spaces where wood rafters could be observed. This wood appeared to be in good condition. Limited ceiling probes were conducted in summer 2021 in the northeast corner to confirm the extent of the foundation issue (see below). However, more probing would be required to ascertain joist direction, sizing and bearing locations in order for further analysis of floor capacities and potential wall removals / relocations to be discussed.

Radiating zones of distress in the structure, envelope, and foundations were observed on the north and east facades, with the origination of these issues located at the north facade of the 1907 addition where it abuts the original structure. We noted significant movement (both vertical and lateral) of the exterior bearing wall that translated all the way through the wall. 7" of vertical displacement was measured across the floor of Classroom 107. There was evidence of cracking in the foundation walls, in the adjacent slab on grade as well as significant deflection of the floor structures above.

Our initial assessment was that this damage was caused by historical foundation settlement, and the team recommended a series of test pits and borings to confirm potential causes and whether it is still a dynamic condition. A prior crack monitoring survey and report was reviewed, and test pits and borings were executed in late 2021. Since the settlement occurred, and based on the observations in the test pits and recent crack gauge readings, the design team concludes that building

movements remain stable with no imminent risk of instability to the structure. For more information, please refer to the geotechnical memo in the appendix.

FACADE & ENVELOPE

Facades and Windows

The facade masonry is in fair condition, except for the 1907 east wing which has significant settlement and displacement issues most pronounced on the north and east elevations. Apart from that zone, an estimated 25% of total wall area on the building will need repointing, with limited areas of full repointing, and areas of step-cracking near window heads and corners that will need to be addressed. Stone coursing, sills, and keystones will require 100% repointing and cleaning with selective repair for cracks and spalls. Chimneys are in fair to poor condition (particularly the northwest chimney) and will require full repointing as well as partial to full rebuilding from the roof upwards. The two south chimneys are missing chimney caps, and the southwest chimney is missing a coping unit; these should all be replaced.

The existing windows are non-original aluminum inserts, and the upper third of each masonry opening is infilled with a metal spandrel panel. The aluminum windows are in fair to good condition. Probing is required to confirm if original wood jambs and other frame elements still remain. While the condition of the windows could lead to retaining them, the inappropriate color and appearance raises aesthetic questions relative to the overall scope of facade renewal.

Exterior Doors and Stoops

The non-original replacement doors are in fair to poor condition with numerous areas of corrosion and signs of heavy wear. The east and west stoops are in very poor condition and require full rebuild. The accessible ramped entrance on the north facade is constructed of concrete masonry units with a flat roof and should be removed with the reconfiguration of an accessible entry sequence into the building.



Main Entry and granite stoop



Masonry conditions, North Facade; East Entry stoop and handrail



Drone photograph of Brown School roof

Roofing

The main roof is a moderately sloped, hipped design with deep overhanging eaves on all sides of the building. The ancillary shorter two-story toilet wing has a flat roof with parapets. The west wing of the roof is covered with slate shingles. The central and east wings are covered with composite asphalt shingles. There are five large brick masonry chimneys with multiple flues and risers. Small modern unit skylights look to have been added recently as part of a third floor renovation. External fascia-mounted metal gutters are present at the perimeter of each roof area and drain to externally mounted downspouts, which discharge to daylight. A snow fence is located along the west slope of the west wing, above the Willow Avenue entrance.

The roofs were surveyed using drone photography. The areas of slate roof look to be in fair to good condition overall. The composite asphalt roofing looks to be in fair condition, with visible patched areas where penetrations were re-flashed, and surface wear elsewhere. On the toilet wing, the low-slope membrane and parapet flashing looks to be in good condition, and is presumed to date from the last five years after the roof collapsed in this area circa 2015.

See City Hall Roofing for an introduction to the qualitative infrared drone survey. No thermal anomalies were noted at the Brown School.

CIVIL/SITE INFRASTRUCTURE

Nitsch has been provided with an existing conditions site/civil drawing which dates from 1997. This was excerpted from the unbuilt HMFH Bid Set for a new Brown School. The information below is based on this document and on-site observations.

The Brown School is located on a 0.6-acre site at the intersection of Willow, Kidder, and Josephine Avenues. The site includes the two-story brick school building, a large, paved school yard, and small, fenced, perimeter landscaped areas between the building and the adjacent streets. These landscaped areas appear to be used as

outdoor classrooms and include benches and signage for a “story walk.” A small school garden with compost bins was observed adjacent to the main entrance.

Site parking is limited to informal parking within the paved schoolyard and a single space on a paved space on the paved ramp off of Kidder Avenue. The entrance off of Kidder Ave also appears to be the only designated accessible entrance to the school.

Water Systems

A 10-inch water main is located in Kidder Avenue and a 12-inch water main is located in Willow Avenue. Record information indicates that the existing building is served from the main in Willow Avenue via a domestic service on the north side of the building. An existing hydrant is located on the north side of the building and a fire alarm is located at the intersection of Josephine and Kidder Avenues.

Sanitary Sewer

Existing 8-inch sewer mains are located in Josephine and Willow Avenues. Record information indicates that the existing building is served by an existing 6-inch sewer service connected to the main in Josephine Avenue.

Site Drainage

Based on the City of Somerville Stormwater Management Plan, dated June 15, 2020, the Brown School is located within a portion of the City served by separated storm sewers. The exterior building roof drains discharge to grade around the entire perimeter of the building. At least one catch basin is located in the paved school yard, which 1990s record drawings indicate to be connected to the building via a 4-inch drain line. Runoff from the roof drains and perimeter site sheet flow towards the drainage system located in the adjacent roadways. Follow-up confirmation of the existing drainage systems is recommended.

The portion of the drainage system appears to discharge to the City of Medford drainage system and



Paved schoolyard area south of the school and informal on-site parking



External downspouts daylighting to grade at the sidewalk



Catch basin in the paved schoolyard at the rear of the building

eventually the Mystic River. The Mystic River is identified as being impaired for Phosphorus, E. Coli, Fecal Coliform, Petroleum Hydrocarbons, TSS, Copper and Lead per the EPA-approved Massachusetts Integrated List of Waters Report.

Gas/Oil

Record information indicates an existing gas service exiting the north side of the building, which connects to a 6" main in Willow Avenue. An oil fill location, likely abandoned, was observed on the east side of the building, adjacent to the asphalt ramp. It is unknown if any former tank(s) are still on-site.

Other Utilities

Utility poles are located around the site perimeter with overhead wire connections to the existing building.

Preliminary Site Opportunities and Constraints

- A building addition and/or improvements planned for this site offer a major opportunity to improve site programming for the school. Currently, the school doesn't have a gym and play space is limited to the paved courts (no play structures).
- Site parking is very limited (1 "space"). Evaluate parking needs and identify strategies to increase dedicated parking, either on-street or within site.
- Small garden and composting bins observed. Opportunity to expand on outdoor educational classroom/rain garden for science study.
- Limited existing universal accessible route and entrances. This should be evaluated as part of any site improvement.
- Existing downspouts daylight to grade, a major opportunity for better stormwater management.

MECHANICAL SYSTEMS

The primary heating source for the building is steam radiators. There are two (2) gas-fired low-pressure steam boilers in the first floor mechanical room, which are nearing the end of their service life [M1]. The boiler has a Honeywell control system [M2]. The condensate receiver and pumps are also nearing the end of their service life [M3]. Standing water was observed in the mechanical room, however the source was not identified. The third floor is not served by the main heating system. Two (2) gas-fired boilers are abandoned in place in the attic [M4], and these spaces, including the library and storage areas, are heated and cooled with Fujitsu mini-split heat pumps with outdoor units on the flat roof [M5]. There is no mechanical ventilation.

ELECTRICAL & FIRE ALARM

The electrical room was not accessible during the site visit. Electrical infrastructure was not evaluated for condition or capacity. There is a pad-mounted utility transformer on the building grounds.

PLUMBING & FIRE PROTECTION

The water service and meter were not accessible during the site visit. Basement and attic have sprinklers. Plumbing fixtures throughout the building appear in fair condition but are outdated [P1].

Kitchen

There is a small warming kitchen in the basement that contains multiple commercial refrigerators and a commercial-style gas double-oven. No mechanical cooling or exhaust are present in the kitchen. Grease traps were not observed during the site visit. A camera inspection of the grease traps and sanitary piping is recommended.



M1, M2. Gas-fired boilers, controls



M3. Condensate receiver



M4, M5. Abandoned gas-fired boilers on Third Floor, replaced with mini-splits



P1. Basement toilet room

GEOTECHNICAL

Refer to Technical Appendices for Haley & Aldrich memo on Brown geotechnical conditions.

HAZARDOUS MATERIALS

Refer to Technical Appendices for Environmental Site Assessment and Hazardous Materials Survey.

