DRISCOLL

Feasibility Study Report

Driscoll School, Brookline, Massachusetts

Owner

Brookline, Massachusetts

Client

Brookline, Massachusetts

Architect

Jonathan Levi Architects LLC

December 05. 2018 DRAFT

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1.0 OVERVIEW AND BACKGROUND

1.0.1 Overview and Background

Since 2005, Brookline has experienced historic enrollment growth in its public schools. The K-8 elementary schools have grown by 40% going from 3,904 students in 2006 to 5,482 students in 2017, which is equivalent to adding three schools into our existing schools in just over 10 years. For a decade now, the Town and School Department have been addressing the expanding student population by studying potential sites for a new elementary school and by adding classrooms to existing schools by dividing classrooms; converting offices, locker rooms, and hallways into classrooms; renting private buildings; and building new classrooms or adding modular classes. Despite adding nearly 60 classrooms to our existing schools through this "Expand-in-Place" strategy, the schools continue to be severely overcrowded.

On June 13th 2018, the Town completed its third study since 2013 on selecting a site for a new school. The Select Board and School Committee approved moving forward with expanding the Baldwin School, expanding and renovating the Driscoll School, and renovating and possibly expanding the Pierce School.

Expanding and renovating Baldwin, Driscoll, and Pierce over time allows the town to address the enrollment increases in North Brookline and South Brookline while not overbuilding in either part of town. The Baldwin School will directly address the ongoing and expected student enrollment growth that is projected to add 375 more students within five years. Driscoll and Pierce have both grown by more than 57% since 2006, and neither school has received significant upgrades since the 1970s.

1.1 PRELIMINARY DESIGN PROGRAM
1.2 Introduction

This study was developed in response to the charge from the Driscoll School Building Committee (SBC), Brookline School Committee and Town Select Board. It addresses current inadequacies at the existing Driscoll school as well as complementing other initiatives by the Town of Brookline to respond to current and projected facility needs due to overcrowding and infrastructure deterioration. The study incorporates input from three main areas of investigation:

- Comprehensive research into the existing conditions of the site including regulatory and legal limitations.
- The school district's educational vision and program.

- The needs of the surrounding townscape and neighborhood.

The exploration of these preconditions for design was weighted towards the beginning of the study phase in order to provide the foundation for good decision-making around conceptual design alternatives. Prime among these considerations were the issues of traffic, both vehicular and pedestrian, and questions of both the quantity and quality of open space for the students and the surrounding community.

A broad array of alternatives was introduced in two main categories; approaches to addition-renovation incorporating the existing building on the one hand, and new construction on the other. In each case, considerations of the fit to the educational program were weighed together with the requirements of outdoor programming.

Jonathan Levi Architects

EXISTING

SITE PLAN
DRISCOLL SCHOOL, BROOKLINE

1.2.1 Summary of Deficiencies

The existing building was constructed in several phases starting in the 1920s. The resulting educational environment sprawls in a linear fashion - presenting difficulties of connectivity of the educational community and travel distance from one end of the building to the other. In addition, as a result of the additive process which has led to the configuration of the existing fabric, the building presents an array of entrances and a warren of interior circulation spaces making orientation and wayfinding daunting to both the visitor and the everyday user. Chief among these wayfinding challenges is the remote location of the current administration area from the main building entrances.

In overall terms, the building is too small in gross area for its current population and is far too small for the design enrollment which is been established. The result of this is a long list of spaces which are substandard in size compared to contemporary school design practice and in comparison to the guidelines of the Massachusetts School Building Authority (MSBA). A plan indicating the location of the substandard spaces in two gradations of deficiency follows.

Major deficiencies include:

- Gymnasium
- Cafeteria
- Multipurpose room
- Administration suite
- Custodial/receiving/storage (no loading dock)

Of the above examples, the undersized cafeteria currently results in lunch seatings as early as 10.30am in the morning and as late as 1.00pm in the afternoon.

Typical deficiencies include:

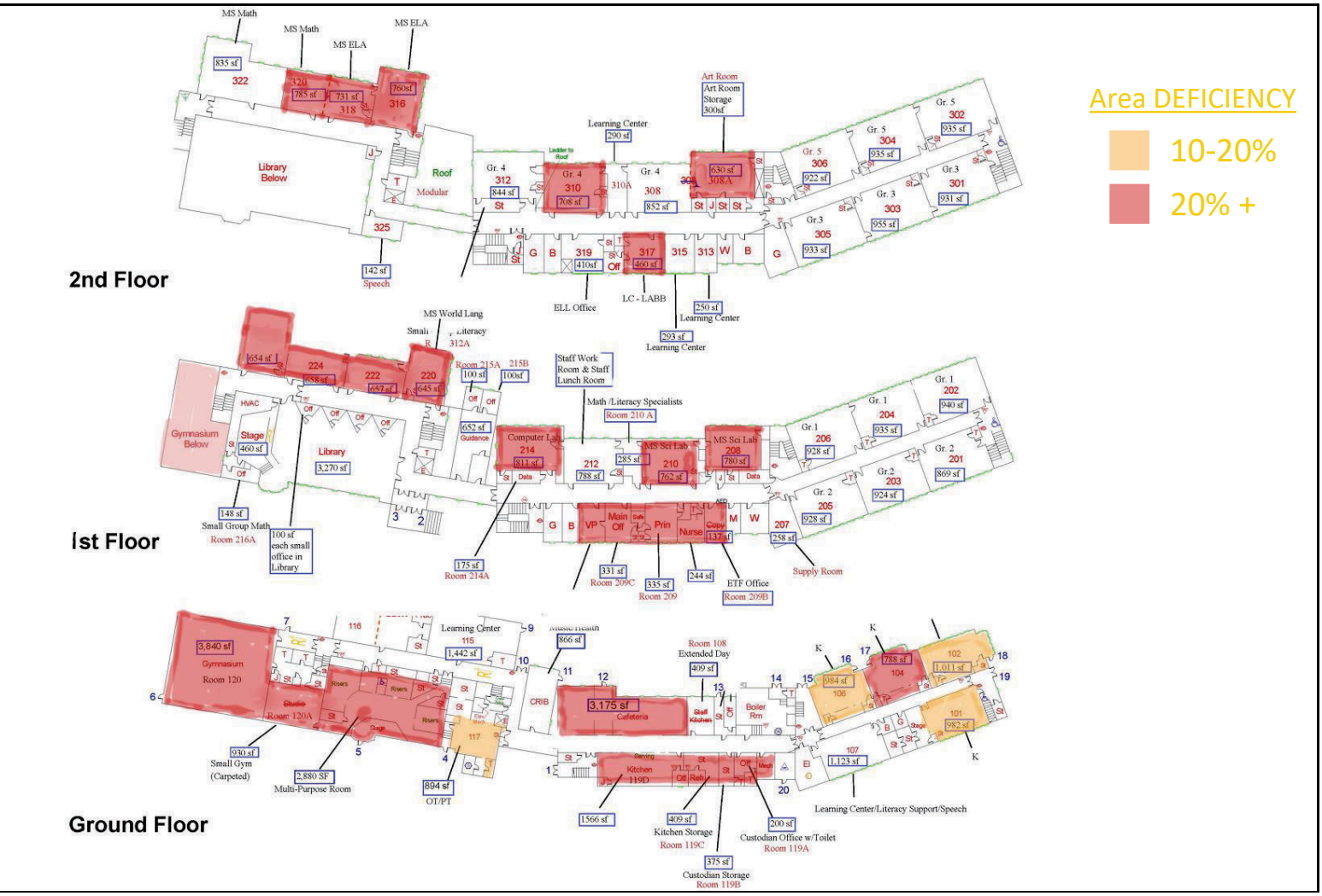
Pre-kindergarten classrooms
Academic classrooms, particularly in the middle wing of the existing school
Science classrooms
Music classrooms
Art classrooms

Of these a particularly notable example is that of the science classrooms, which are a fraction of the MSBA required size, impacting both education and safety.

In addition to educational deficiencies, the building's infrastructure demands comprehensive upgrades; from full replacement of the mechanical, electrical and plumbing systems to thermal upgrading of the enclosure to reduce operating costs.

Deficiencies on the exterior of the building were of great concern to the SBC. The current relationship between the cafeteria and the outdoor recess areas requires the students to traverse a significant distance. These outdoor play spaces are spread out in a linear fashion, creating difficulties of supervision.

As has been mentioned above, the building has no loading dock or service area. This means that service traffic is mixed together with both school vehicles and student pedestrians. Similarly, parent and bus vehicles are not separated and must compete with one another on Westbourne Terrace



1.2.2 Design Enrollment

The Driscoll School is to be designed for 800 students.

Grades K-5	505 students,
Grades 6-8	253 students
BEEP	44 students

1.2.3 Summary of Capital Budget Statement

The project cost for the project is expected to be between $101-105M with 50 structured parking spaces below the bulding, and between $93-97M without the structured parking.

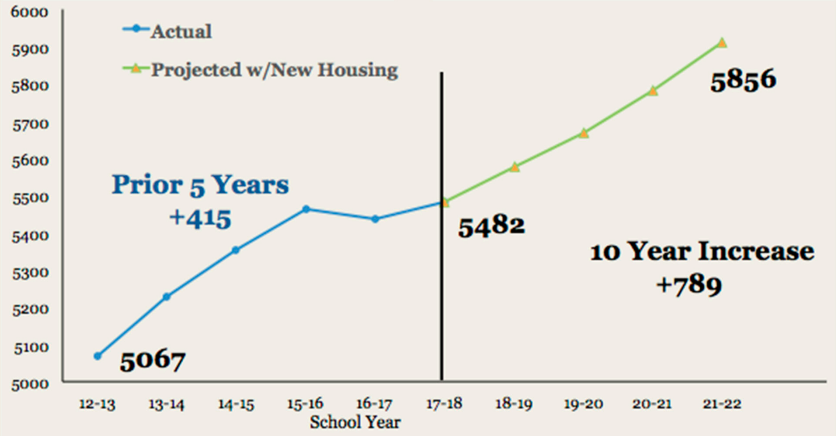
Enrollment Growth since 2005 – By School

PUBLIC SCHOOLS of BROOKLINE

	2005-2006	2017-2018	# Growth since 2005	% Growth since 2005
Baker	647	763	116	18%
Devotion	670	801	131	20%
Driscoll	366	613	247	67%
Heath	360	534	174	48%
Lawrence	478	722	244	51%
Lincoln	410	578	168	41%
Pierce	546	859	313	57%
Runkle	427	612	185	43%
	3,904	5,482	1,578	40%

Actual K-8 Enrollment since 2005 Projected Enrollment through FY2022

PUBLIC SCHOOLS of BROOKLINE



Source: PSB 2017 Enrollment Projection Report, April 2018
Includes known Large Development Projects filed with Planning Department as of November 2017
Projection methodology does not yet include growth due to T-districts or

DRISCOLL - Project Directory

Board of Selectmen:	**Neil Wishinsky**	*Chair*
	Ben Franco	
	Nancy Heller	
	Bernard Greene	
	Heather Hamilton	
School Building Committee:	**Neil Wishinsky** nwishinsky@brooklinema.gov	*Co Chair, Select Board*
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	Karen Breslawski karenbski@gmail.com	*Building Commission*
	David Lescohier david@lescohier.com	*Advisory Committee*
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DRISCOLL - Project Directory

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1.2.5 Project Schedule

The currently proposed project schedule is as follows:

Design Feasibility Phase: August 2018 - December 2018
Schematic Design Phase: January 2019 - April 2019
Design Development and Construction Documents: July 2019 - June 2020
Construction: July 2020 - August 2022
Occupancy: Fall 2022

DRISCOLL SCHOOL

SCHEDULE OF MILESTONE DELIVERABLES - Working Document 9/13/18

FEASIBILITY STUDY

	9/10/18	9/17/18	9/24/18	10/1/18	10/8/18	10/15/18	10/22/18	10/29/18	11/5/18	11/12/18	11/19/18	11/26/18	12/3/18	12/10/18	12/17/18	12/24/18	12/31/18	1/7/19	1/14/19	1/21/19	1/28/19	2/4/19	2/11/19	2/18/19	2/25/19	3/4/19	3/11/19	3/18/19	3/25/19	4/1/19	4/8/19	4/15/19	4/22/19	4/29/19	5/6/19	5/13/19
Community Forum			9/25																																	
Advisory																																				
Transportation																																				
Park & Recreation																																				
Select Board																																				
School Committee																																				
School Building Committee				10/4		10/18		11/1		11/15		11/29		12/13		12/27		1/10		1/24		2/7		2/21		3/7		3/21		4/4		4/18		5/2		5/16
Working Group	9/13	9/20	9/27		10/11		10/25		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8		11/8	
Conservation Commission																																				
Planning Board																																				
Building Committee																																				

Cost Estimates

1 Project Organization

2 Data Collection, Survey, Traffic

3 Visioning and Programming

4 3 Alternative Design Strategies
- Preliminary Evaluation of Alternative Design Strategies
- Final Evaluation of Revised Test Fit Alternatives
- Public Presentation of Preferred Alternative
- Finalize Preferred Alternative

5 SD Floor Plans and Site Plans
- Refine SD Plans
- Develop Vertical Surfaces
- Finalize Schematic Design
- Issue Schematic Design Report

1.3 Educational Program

1.3.1 Educational Program

Town

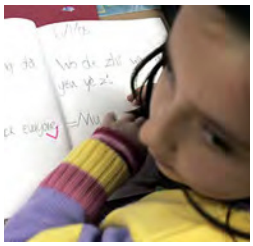
1.3.2 Visionaing Report

Please reference the following Educational Visioning Report prepared by New Vista Design.

PUBLIC SCHOOLS of BROOKLINE

Driscoll School

Educational Visioning Workshop and Focus Group Notes – September 2018



To initiate the information gathering and goal setting process for the Driscoll School Renovation and Expansion Project, a series of Focus Group Interviews were conducted with Driscoll faculty and staff members on September 18, 2018, and an Educational Visioning Workshop was held for the Driscoll School teachers, parents and community members on September 22, 2018. Facilitated by the selected Driscoll School project architectural firm of Jonathan Levi Architects (JLA), and the partnering educational planning firm of New Vista Design, the focus groups and workshop sought to elicit and record the best thinking of teachers, parents and community members about Driscoll School's current and future educational goals and priorities, and connect them to best practices and possibilities in innovative school facility design.

Notes from the Educational Visioning Workshop and Focus Group Interviews can be found on the following pages. Additional teacher interviews and workshops, as well as community forums will be held over the course of the project. For more information, or to share your own ideas about and priorities for the Driscoll School Expansion and Renovation Project, please contact Driscoll School Principal Susy Talukdor at suzie_talukdar@psbma.org

Educational Visioning Workshop Notes

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Faculty and Staff Focus Group Interview Notes

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- K-2 Teachers ..... Page 12
- Grade 5 Teacher ..... Page 12
- Grade 6-7 Science Teacher ..... Page 12
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- Librarian ..... Page 14
- Nurse ..... Page 15
- Physical Education ..... Page 15
- Art Teacher ..... Page 16
- Music Teacher ..... Page 17
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Driscoll Renovation and Expansion Survey

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Workshop Highlights

On September 22, 2018, a group of approximately 20 Driscoll School teachers, administrators, parents and community members participated in a three-hour long Educational Visioning Workshop facilitated by Jonathan Levi Architects and New Vista Design. The workshop was a collaborative session designed to explore goals and design priorities for the Driscoll School Renovation and Expansion Project. The following bullet points highlight selected participant responses with regard to Priority Goals and Desired Design Patterns and features for the new Driscoll School facility. A more complete set of notes can be found on the following pages.

Priority Goals

- Create a welcoming space that celebrates diversity and allows all students to feel safe, no matter their background
- Provide flexible, varied and creative spaces that celebrate the Driscoll School educational program and culture, and support a whole child approach to learning and enrichment
- Inspire students to be engaged, curious and productive learners
- Organize classrooms into smaller learning communities that foster community, belonging and synergy
- Create spaces that are inspirational, functional, and adaptable to future developments in educational programming and delivery
- Provide a separate space for the 6-8 grade program that is designed for more autonomous movement and activity
- Foster indoor/outdoor connections and provide indoor and outdoor areas for age appropriate movement and play
- Design a building that can serve as a dynamic community resource and hub, used and appreciated by all
- Create a green building with sustainable features and systems that can be observed and monitored by students

Desired Design Patterns and Features

- Learning Neighborhoods
- Child Scaled Spaces
- Welcoming Entry Zone
- Flexible and Agile Classrooms
- Collaboration Spaces
- STEAM and Maker Spaces
- Indoor/Outdoor Connectivity
- Visible Learning and Transparency
- Natural Light
- Green Building (Building as Teacher)
- Student Configurable Environments
- Community Access
- Good Wayfinding
- Multi-Purpose Cafeteria
- Quiet and Autonomy

Priority Goals

The following list of priority goals for the design of the Driscoll School Renovation and Expansion Project in Brookline, MA was recorded during the participant introduction section of the Educational Visioning Workshop that took place on September 22, 2018. Approximately 20 Driscoll School and PSB parents and community partners attended the workshop. Priorities have been grouped together by themes.

School Organization and Feel

- Creating a welcoming space that celebrates education and diversity in a community that is both urban and suburban, transient and educated with varying cultural understandings
- A place where all students feel safe - no matter their background in culture, trauma, learning or social differences and difficulties
- Space that will help attract and retain the best teachers and administrators
- A place for children to feel secure and safe - physically, socially, and emotionally
- Lots of natural light (ideally no electrical lights are needed during the day)
- Learning communities / classroom zones
- Kids taking the lead. Autonomy is their learning

Flexible, Varied and Creative Spaces

- The learning environment is paramount and the central vision of the school. The physical space should be inspirational not just adequate, flexible for future changes and functional.
- Space: functional and flexible, easily adapted to variety of curriculum but also dedicated - not sacrificing the optimal for multi-purpose
- A heart (hub) that helps students connect, makes them curious
- Spaces that allow students to work on projects together (maker projects, creative arts, gardening, etc.)
- Space where students can focus and find quiet when needed
- STEM facilities for today and tomorrow
- Vocational space to promote exploration
- Getting kids to carry learning outside the four walls of the classroom
- A space for free, imaginative play (both playground and inside the building)
- Education on display to promote curiosity and help collaborate
- North Star Idea - "Only connect"! (Forster)

Priority Goals Continued

Flexible, Varied and Creative Spaces

- Center education in connection rather than information
- Across the planet to the reaches of space and time
- Connect educators across the system and world to each other, within the building and outward
- Enough space for growing student body
- Spaces designed for collaboration
- Recording Studio (so students can record videos/lectures)
- More space for scientific discovery - learning in/outside of classrooms
- Spaces for teachers to plan and collaborate with each other
- Places for quiet reflection / smaller groups / less chaos
- Music programs - orchestra / band / chorus meet simultaneously
- Need more space for music programs
- Space for whole room VR experiences (shared with lab?)
- Maker Space and Fabrication Lab with accommodations for 3D printing, soldering, robotics work, wood working, laser cutter, CNC, other power tools and ventilation

Community Space and Use

- I would like Driscoll to be a hub of the community. It should be a resource not just for K-8 students on 180 days/year but a community building and space used and appreciated by all
- Space for community events. Parents are involved in the school and the relationships between students, teachers, and administrators are important
- Drawing in the community - a place where parents feel invited in to share in their children's learning

Academic Programming and Connections

- For middle schoolers, especially, to be engaged in learning, excited about learning, taking ownership of their own learning
- Developing social and civic skills from K - 8, with middle schoolers being supported to take leadership roles in their school community
- I would like the schedule to foster relationships, between students-teachers, students-students, administrators-teachers-students, etc. This should form the basis of rich collaboration and learning across grades, disciplines, race/gender/religion, in and out of school

Priority Goals Continued

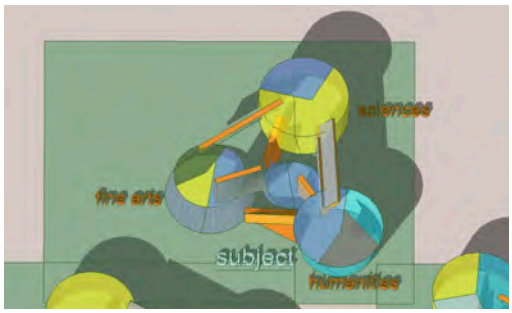
Outdoor Space

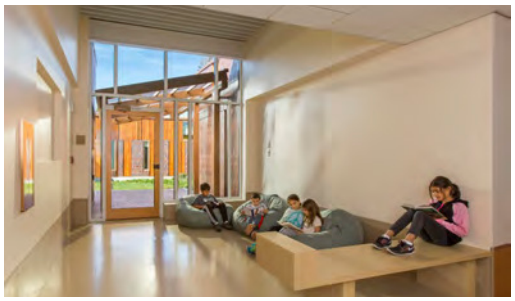
- Outdoor space that can be used educationally during school day by school and the community, and then by community in/out of school time
- Shade on playground
- Outdoor space and connection to nature
- Nurture curiosity, competency and comfort in the world around each child from within a microscope to the child next to her
- Connect to nature, the outdoors and the light
- Outdoor space/entire building as learning space
- Environmentally friendly (LEED gold certified)
- Set-up to teach and practice care for environment (composting, saving resources, etc.)
- Access to play space both planned (i.e. field/playground) and organic (i.e. garden/flower beds, etc.)
- Strong whole school staff community - communal space for full staff events like Friday breakfasts, as well as cohort spaces
- Retain a computer lab space for whole class instruction outside a typical classroom. This can complement a student printing center, info commons, and maker space/fab lab
- Playground space - not just an open field and blacktop

Design Patterns 1.0

The following set of priority "21st Century Design Patterns" for the design of the Driscoll School Renovation and Expansion Project in Brookline, MA was recorded during the Educational Visioning Workshop that took place on September 22, 2018. Three team of four-five participants each worked to create their own set of priority Design Patterns, after which each team presented to the larger group. These are listed below in order of the frequency with which each pattern appeared on a team list, with each pattern receiving 5 votes for appearing on a team list, and like patterns grouped together.

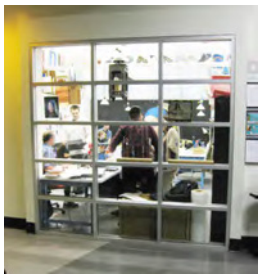
- Clusters of Learning (30 votes)
  - Learning Communities
  - Differentiated Cohorts
  - Classroom Neighborhoods
  - Spaces for Differentiated Delivery
    - Possibility of Different Groupings of Kids in Grade Levels
  - Hallway Learning
- Child Scaled (15 votes)
  - Little Kids Like to Feel Big
  - Different "Feel" for Students as They Grow
    - School Changes with Them
    - But with Flexibility
- Welcome Zone (15 votes)
  - Main Entry is Symbol of School's Identity
  - Inclusive and Welcoming
  - Welcoming Entryway
  - Gathering Space for Parents and Community
  - Workspace for Parent/Teacher Projects
- STEAM and Maker Spaces (15 votes)
  - Maker Space on Roof
  - Overlap Between Computer Room and Library
    - Connections to Robotics and Art Room
- Outdoor Connections (15 votes)
  - Outdoor Gardens
  - Rooftop Gardens
  - All Weather Covered Outdoor Spaces
  - More Natural Shade Trees

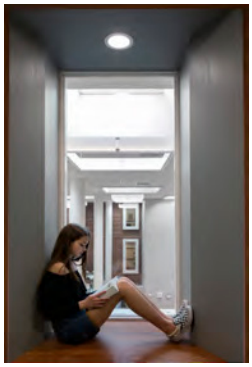
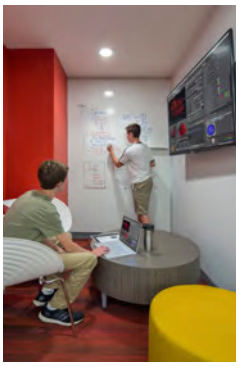




Design Patterns 1.0 Continued

- Visible Learning and Transparency (10 votes)
  - Transparency and Connectivity
- Natural Light (10 votes)
- Gathering Spaces (5 votes)
  - Large, Flexible, Partitionable Space
- Building as Teacher (5 votes)
- Collaboration Space (5 votes)
- Flexible and Agile Classrooms (5 votes)
  - Students and Teachers Still Have individual "Owned" Spaces
- Student Configurable Environments (5 votes)
- Community Access (5 votes)
  - Community Separate, Community Engaging
- Wayfinding (5 votes)
  - Indoor/Outdoor
- Building as Teacher (10 votes)
  - Energy Monitoring
- Agile Cafeteria (5 votes)
  - More Usable Space
  - Addresses Flow
  - Chair and Furniture Appropriate
- Quiet and Autonomy (5 votes)
  - Sound Dampening
  - Swing Space That Can Change and Adapt for Varied Uses
- Distributed Resources (5 votes)
  - For Middle School
  - Informal Supervision of Middle Schoolers
- Music and Conservatory Time (5 votes)
  - Rooms for All at Same Time: Band, Orchestra, Chorus and Music Production
- Branch Libraries (5 votes)
  - Distributed Books and Materials to Appropriate Grade Levels



Blue Sky Ideas

The following "Blue Sky" ideas for the design of Driscoll School renovation and expansion were recorded during the Educational Visioning Workshop that took place on September 22, 2018. Individual participants wrote about their own Blue-Sky Ideas and then shared them with the larger group. Ideas have been grouped together by like-themes.

Blue Sky Ideas, though sometime not feasible due to budget or design constraints, often hold the seeds of aspirational ideas and design approaches that can be implemented on some level within the design.

- I like the idea of a school that grows with the child - giving more autonomy with age. More playful, child-sized for K-2, more independent for 3-5, and more chance to have 6-8 as leaders
- A separate space for 6th - 8th designed for as much student autonomous movement and activity, including collective and collaborative work, run by students, i.e. civic and leadership development
- I want the middle school (6-8) to feel like a vibrant community, rather than an after-thought.
- A place where parents/caretakers could gather and feel welcome in the school as true partners with teachers and staff
- A place where parents could gather to share information, share problems and solutions with each other
- A place where parent leaders can work with staff and each other as they work on PTO projects - Art Equinox, science solstice, other events
- New families, especially those new to the US suburbs, can come to learn about the school, community and be welcomed here
- Community involvement - a space for parents as learners. A parent resource center/PTO office - a place for parents to come together and support each other, while reinforcing connections with the school community

Blue Sky Ideas Continued

- Shared community outdoor/indoor space, even commercial venues, like cafes/restaurant/public library more like a college campus than elementary school
- I would rather see a new construction than renovation and with bigger physical footprint of the building to acknowledge the increased enrollment
- Subterranean parking
- I wish the theatre was a welcoming space that was easy to access and pleasant to be in - that could make collective events more attractive
- Spatial as well as pragmatic integration of Performing as well as Visual Arts.
- Acoustically tuned and isolated band rooms and performance space are great, but it is equally important to UNBOX these activities and move them into the learning commons, outdoor gathering environments and integrated learning spaces
- Sustainability and eco revelatory design
- Students understand the resources required to make this building
- Sustainable building - low energy / low upper use / natural materials
- Natural light and ventilation
- True outdoor classroom/learning garden, as dedicated space with resources and facilities to support multi-disciplinary experiential learning as well as passive play and exploration. = An outdoor, living library
- A teaching kitchen - as a support element to learning garden, maker space, and other teaching/learning objectives (culture, history, anthropology, chemistry, art)
- Super-effective use of outdoor space, so all that space at front (east side of building) isn't wasted
- I have an elderly friend who lives on Beacon Street close to the school. She walks her dog around the perimeter of the school. I would like to see her path expanded around the fields, and have a path through the parking lot
- Idea: all sensory experience learning - speaking to all children's senses and inspiring their learning and encourage their curiosities encourage critical thinking of their own
    - Specifics: hands-on learning labs based on subject areas within building - nature, plants, garden / STEM / music/ art/ physics, chemistry / writing (including poetry, fiction, etc.)
    - Steps: create different zones for learning
- Creative use of the rooftop - it could be for a garden, a playground, or outside learning/eating space(s)
- Outside performing space
- I would like to see more robust access to outdoor space. A garden incorporated with more "wild" elements to go along with structured play space (field/playgrounds). My children are growing up in a very urban environment and access to a variety of plants etc. is something I would like them to have access to.

Participant List

1.	Susy Talukdor	Driscoll School Principal
2.	David Pollack	Architect, parent and School Committee member
3.	Victor Kusmin	Building Committee
4.	Abbie Fennell	Extended Day Director
5.	Ryan Garms	Driscoll PTO
6.	Len Wholey	Parent
7.	Jesse Kirdahy	Driscoll Staff
8.	Sara Stoutland	Building Committee
9.	David Krewinghaus	Parent
10.	Dan Deutsch	Building Committee
11.	Dan Chandler	Parent
12.	Maria Foster	Driscoll PTO
13.	Tom Hantakas	Driscoll Staff
14.	Kazuyo Masuda	Parent
15.	Amanda Sullivan Kramer	Parent
16.	Alex Loscalzo	Parent
17.	Arjun Mande	Building Committee
18.	Amy Deutsch	Parent
19.	David Lescohier	Building Committee
20.	Sofya Raskhodnikova	Parent
21.	Helen Charlupski	School Committee

- Jonathan Levi — Architect, JLA
- Carol Harris — Architect, JLA
- David Stephen — Ed Programmer, New Vista Design

PUBLIC SCHOOLS of BROOKLINE

Driscoll School Renovation and Expansion Project

Faculty/Teacher Meeting Notes 9.18.18

The following notes were taken during drop-in meetings with Driscoll School teachers and administrators that took place on September 18, 2018.

Driscoll School Principal - Susy Talukdor

- This is Susy's second year as principal. She has been with district since 2006, originally as directory of METCO
- Driscoll is a PK-8 school with 639 students presently
- The student design enrollment for the expansion project is 760, which assumes a four-section school
- The school has approximately 110 teachers and staff including Para-Professionals
- Presently there are three classrooms per grade
- Certain grade levels present concerns:
  - Kindergarten hovering around 22-23
  - Have the physical capacity in elementary school grades for more students
  - Middle school classrooms are not as big, but kids are bigger
  - Almost at 25 students per section
  - Spaces feel really tight
  - Particularly the science rooms
- A full-inclusion school
  - Presently have a student who is wheelchair bound with two aides
- There has been a 67% increase in student enrollment since 2005

Driscoll School Assistant Principal - David Youkils

- We should think about multi-purpose rooms
  - The school now does winter concerts and band concerts in the evening
  - Very high participation
- The library here has the highest circulation by far of any of the K-8 libraries. Speaks to the quality of the librarian and the importance of that space
- At the new Coolidge Elementary, each learning center has two half-rooms
  - A bit of a larger office which serves as a "U" of flexibility
  - This is very useful
- Programs that are central to the Driscoll identity and traditions include:
  - **Arts Equinox Event**
    - Two days where school focuses on arts
  - **Science Solstice Event**
    - Event in December that focuses on science
  - **Mandarin Language Program**
    - Starts in Kindergarten
    - Lunar year celebration
  - **Advisory Group**
    - District-wide 6th grade guidance program

Grade K-2 Teachers

- McaKenzie Snow / Kindergarten
- Angela Harvey / First Grade
- Danielle Trimarchi / Second Grade

- Would like to flip Location of lower and upper grades, which would provide larger classrooms close to playgrounds
  - Concern about losing classroom size
  - Maintain bathrooms in all Kindergarten classrooms
  - We would like enough bulletin board space
- Like Kindergarten cubbies in classrooms
  - Grades One and Two in the hallway
- OT/PT/Sensory
- Safe space for kids having difficulty in classroom –
  - Need a dedicated safe space
- Collaborative spaces that are developmentally appropriate
  - Collaboration with Special Ed… right now can be very isolating
- Natural light and air conditioning – we are suffering
  - Heat is held in the classrooms
- A performance area that could fit more kids on stage, updated sound system, connected to multi-media center
- Enough space to fit growing population… requires a four-section school with 21 students per classroom would be amazing
- Cafeteria flow. The server isn't big enough. A college set up with food in the center and kids access it.
- Parking for teachers
- Makerspace at Heath

Grade 5 Teacher - Francesa Stark

Grade 6/7 Science Teacher - Eric Hazlinsky

- Francesca attended Driscoll School as a child
- Francesca brought along notes from the 3-5 grade team
- School building and learning being together, not building vs. learning
  - When thinking about creating space
  - Always have two adults in the room – then need nooks and spaces so that can work
  - Flow so that teachers can get materials. Spaces and places to store and get materials
  - Many kinds of learners that need to be served
- LEED certified/Healthy and Teachable building
  - Indoor/outdoor arboretum – planting and trees labeled
  - Indoor/outdoor connections
  - Driscoll "bird sanctuary," vertical gardens and composting
- Windows fold in and seem to trap CO2
- Ventilation is terrible
- Eric has been here 8 years and has been in three different classrooms
  - Very humid, and not conducive to teaching
- Maybe a rooftop greenhouse or garden
- Now have dedicated science classrooms for grades 6-8
- Curriculum includes:
  - Eco systems and biomes
  - Basic cellular biology
  - Human body systems
  - Water and weather
  - Engineering
  - Oceans
  - Brain
- Would be great to have a prep room and a fume hood in one classroom
- Could be in a room between the classrooms
- Not meeting minimum safety guidelines – eyewash

Grade 5 Teacher, Grade 6/7 Science Teacher Continued

- Now have two classrooms. Both are tight and are barely adequate. Two rooms would be enough if they are much larger
- Would probably need three science classrooms in a four-section school… (but the MSBA is assuming this is a three section school)
- Francesca started the KEEP (Kids Expect Environmental Protection) Club 5-8
  - Could this be a Green themed school?
  - This is a question. There is interest in town for sustainability. There is a goal for the Baldwin building of LEED Silver
  - The Heath has a theme of hands on STEM education
- Have lots of great science materials, but there is nowhere to put them
  - Come in kits, that are sometimes large bins. There is nowhere to put this
- Driscoll has a buddy system, with older kids working with younger kids
- Consider a flex space
- We have 3200 SF out of which we can shape Maker Space, Digital Fabrication Lab, High Powered Tech Lab computing space
- In order to define these spaces, who can assist? Lots of people are interested.
- A rooftop garden would be space saving and inspirational. Illustrate urban gardening and tie it into a greenhouse.

Grade 6-8 Teachers

- Courtney Pelletier -
- Sara Wishner / MS Special Ed
- Lisa Soltani / 6-7 Math
- Hilary McConnell / Guidance and Health

- Special Education – Sarah has small and large groups of students
- Doesn't need a full classroom space, but two breakout spaces off of your space
- Has 10 kids in one grade level
- Sometimes wants to have a meeting space that is directly adjacent or in the room
- This is a good model of general education classes
  - Being able to create stations
  - Room for multiple adults (now one adult is usually in the hallway)
  - Classrooms should support differentiated small group work
- Courtney has no room in her classroom to even create groups. Can't do a Socratic Seminar
- Need the equivalent of a "rug area…" where whole group instruction takes place, as well as areas for work
- Once you ask kids to open Chromebooks - teachers need to be able to see their screens
  - It's so easy for all of us to get distracted
- Integrating Middle School into the rest of the school – having a separate space is great, but having a place for integration (i.e. whole school gathering)
- Multiple size collaboration spaces
  - For advisory, it would be nice to have a place to fit two classrooms together
  - A space for grade level groups to meet together would be great
  - If we do it, have to use the theater
- The sense that the middle school level is that they are ready to tear this place down to the ground
- The entry into the building is very awkward. People don't know where to find the main office
- Need a safe space/de-escalation room for middle school kids who are having a hard time. We need a "break" space accessible to every classroom. If those could be located directly adjacent to or in the classroom then they don't miss as much instructional time. Can learn to manage their feelings in an age appropriate way.

Grade 6-8 Teachers Continued

- Guidance needs an office suite – 4 offices will work.
- What would make the middle school experience different?
  - Maybe more furniture options for middle school kids
  - When we were a two-section school we had a "middle school hallway"
  - 6th grade cohort teachers were all in same hallway
  - That was really helpful for a lot of reasons
    - Talk about students that we shared
    - Worked very well
    - Used to know more about students
    - Was more comfortable for kids
- The reason it changed is become in a three-section school, then teachers have to teach across grade levels
- Mixing together 7-8 seems less of an issue

Librarian - Anne Reid

- Presently, there are 2.5 library staff
  - One full-time librarian
  - One full-time Ed Tech (Jesse)
  - .5-time Enrichment Support Coordinator (Kyle Tompkins)
    - He is also at the Coolidge .5 time
    - He is creating a Maker space/program
    - Thinking about Maker Space on a cart
- This is a book-loving community
- The annual circulation of books is 24,000 volumes
- As Driscoll has grown, the library has not gotten more staff.
- This is big library for one person, any new design should take that into account
- Would like the Library, Computer Lab, Maker Space collocated
- Flexible and nimble space with everything on wheels
- As close to the students and teachers as possible
- Concern about staffing and inventory control
- Kids check out books – circulate 24K books
  - It's a huge library
  - Every book is inventoried
  - Anne has been "weeding"
  - Has Author days for students – 120-200 students – need to use the auditorium
- Anne spends a lot of time going into classrooms
- The library now is used heavily for events
- Also have special events and faculty meetings
- Bookcases are on wheels – which Anne loves
- The present space is a little overwhelming for one person… originally had two
- Libraries are not a "drop-off special" which means that teachers come with their students
- Now have a chrome book cart – only need 3-4 computer stations
- Also have two "Book Rooms" that are run by the literacy department
  - Teachers check out 6 copies of one book and do a reading group
- Need a workroom and storage space
  - AV storage
  - Book storage
- A room with a table where you can be working on things like that
  - Trying to get replacement tables with wheels… would be nice to have stacking chairs and flip top tables
  - Also, more student friendly and scaled furniture
- Ideal zones within the library would be:
  - Presentation zone and teaching area
    - Flexible enough for little kids or faculty
    - Rug area
    - Connected to multi-purpose area so kids can see screen from tables
  - Multi-purpose work zone with flexible tables and chairs
    - Could be combined with presentation zone

Librarian Continued

- Work Room/Storage Room
  - Processing books and book repair
  - Often have parent volunteers
  - Sink and storage for napkins and plates
  - Video and book storage with part of nearby
  - A desk space that is away from circulation
- Circulation desk
  - Right next to the Work Room
  - In theory, the circulation desk could be small, but it ends up being Anne's workspace, since she is the only one here
- Section for younger kids
  - Picture books and curl rug
- Stacks zone with three distinct areas (K1-2, 2-5, young adults)
  - Each group needs to feel like they have their space
  - Older kids look forward to having young adult section opened up to them
- Display Space built-in throughout the library
  - Put out books face out

Nurse - Marianne Dewing

- Marianne likes the nurse's station at Runkle, but doesn't think she needs something as big
- Her bathroom is way too small
- She needs to be near main office – not necessarily near the main office
- There is a protocol for kids getting picked up
  - She only has one cot
  - Kids usually stay with her
- Needs a small area for a private conversation with a parent
- Ideal Vision:
  - Three little areas + a wheelchair accessible bathroom
  - Area for sitting and greeting (office)
- Working, waiting and quick treatment
  - Another area to bring back to area where can check blood pressure

Physical Education

- Joe Iadarola
- Lauren Deutsch

- Sidelines and end-lines are very close to the wall
- Need two teaching stations – a smaller gym or a divider
- Have two sections that are triple blocks
- Presently use a "second gym" that was formerly a woman's shower
- Presently have vinyl divider but doesn't help with the noise
- This gym will be double the size of the gym now.
  - Normally 6k gym and additional Health Alternative space
  - Don't presently have these programs but that is because of space
  - Now have some fitness equipment, could set it up
  - Would be best to have a multi-purpose fitness space
- They do teach dance and gymnastics
- Lockers
  - Ideally kids would have space to change
  - Now they don't… they only have 2 bathroom stalls that aren't even dedicated to the gym

Physical Education Continued

- Bathrooms are very unpleasant spaces
  - Like to do things where kids where heart rate monitors. That creates privacy challenges
  - Will be an issue of parity between schools
- In terms of spectator capacity basketball would draw the biggest crown
  - Would prioritize movement space over spectator space
  - Only seven basketball games per season
  - 30 spectators maximum
- After school program uses it until 5:00
  - Also rented out on nights and on weekends
- Lunch and Recess
  - Use blacktop, playground, field (not an actual soccer field)
  - For gym, try to use the outdoor space whenever possible
  - Tennis courts are nice and convenient, but can always set up nets
- Used by community presently
- Triangular space behind the tennis courts is in an awkward space
  - Irrigation system on field floods all the time, lots of puddling on field where sprinklers
  - After a rain, drainage is a problem in certain areas
  - There would be value to have a full soccer field or more outdoor space

Art Teacher - Olivia Reyelt

- Maryanne Taylor was not present, but may have sent in her thoughts and ideas
- Olivia teaches part-time at the Driscoll School and part-time at the Runkle School
- The current art room new and is a dream come true
  - Two adjoining rooms (only one of which is a teaching space)
  - Children have room to spread out
  - Olivia tends to do K-3 and Maryanne works with older kids
  - Students have art once a week
- One teacher can prep in the other room for lessons
- Have a storage closet and wall – which is great
- For a four-section school we would probably have two classrooms
- The kiln is currently in what was a bathroom which works great
- It would be good to be able to spill outdoors for observational drawing
- Two sinks in a room, that can each serve three kids
- The new school would likely get two separate rooms with sinks and projectors – that would alleviate schedule
- Display happens around the school, but there are not very clear, clean places to appreciate the art work. It often looks chaotic.
- Display cases throughout the school would be great
- Annual Art Show now takes place in the hallway – but doesn't flow as nicely as it could
- Lincoln school has a large wall outside of the cafeteria
- Proximity to classrooms can allows for more collaboration
- At Health School the front porch of the school has music, art and science rooms which puts it front and center

Music / These bullet points were sent by the Music Teacher

These bullet points were sent in by the Music teacher

- Larger music rooms to accommodate 60+ ensembles
- Good ventilation
- Sound proofing
- Carpet to suck up noise
- Flexible open spaces for dancing and movement
- Smartboards and other technology
- Instrument storage within the building (model of one at home and one at school might be good)

Speech Language Pathologist - Mardi

- Speech has three separate offices in the current
  - With a conference room for 3-4 kids that is adjacent
  - Mardi wouldn't like that. She works with lots of kids that are on the spectrum and she needs the flexibility
  - Would not like to share therapy room
- Mardi is only full time SLP, and there is another that is part time. There would be no more than two
  - Ideally, two Therapy Rooms (conference rooms) next to each other with a shared office
  - 6-8 person conference rooms
  - There will be a Lab site in each of the three cohorts of the school
  - Tend to work with 1-5 students at a time
- Would be good to be near OT
- Mardi doesn't like the idea of having kids working in hall, particularly kids who are on Ed plans

Education Technology (Ed Tech) - Jesse Kirdahy

- Ed Tech is housed within the building
- Jesse works with Anne (librarian)
- There is a blurred line between information literacy and Ed Tech
- Have been a 6th grade teacher for 6 years
  - First year at Ed Tech
  - Things like the projectors are still wired
  - The projectors now are terrible
  - Anything that uses one particular proprietary software is problematic
  - Just a good display with multi-touch interactive activity would be great
  - Technology has been ad hoc in such an old building
- Having drops for ethernet and projectors in sensible locations
- Teacher workstation in every classroom
- We should go to the Coolidge and see what they are doing
- The big picture: use standard protocols that are modular
- We have the beginning of a Maker Space
  - This is a collaborative effort
  - Now in small space (currently a storage room)
  - Hoping to put together a Fabrication Lab
  - Have a 3-D printer and would like to add soldering, robotics, laser cutter, CNC machine with good ventilation/exhaust
- Vision is to have a curriculum workflow for a
  - 3D workstations for mock up
  - 3D printing
- Would like to print practical things
- Jesse liked plan for Baldwin that showed collaborative spaces
  - Collaborative grade level team offices
  - Need a staff room to build community

Education Technology Continued

- Get Ed Tech involved in the conversation:
  - CIO, CTO and the Help Desk
- Computer Lab
- Within a few months they will have a Chromebook for 3rd grade up
- Have Chromebook Carts. They are locked.
- Looked into lockers with charging, but if port changes then would be too problematic
- Think about "between space" between Library and Computer Lab (Virtual Reality Lab)
  - Could literally be a between space with a class set of iMacs (what they have now)… or Chromebooks with larger touch screens
- Technology Lab
  - 28 stations plus teacher console
  - Lower elementary teachers still use Computer Lab
  - iPads are good for lower grades, plus directed work in a Computer Lab
  - Also special media projects (but that might be better affiliated with Digital Fabrication Lab)
  - When thinking about VR, keep in mind that reflective light can interfere with tracking. Unless technology changes significantly, we would need lighthouse beacons set up in corners of room. Would need to be about 300 SF
- Consider print centers for teachers within the cohort collaboration areas
- Consider print services space with greater functionality, color printing, binding, etc.
  - Like 370 SF duplicating room at Coolidge
  - A publication space where teachers and students can publish to quickly
- Consider Audio Production space for podcasts and radio station
- We have been generally trying to push the Media Center into a more multi-functional space and not a repository for books
- Ideal mode in central space where everything going on is visible
- But there needs to be a degree of transparency
- Now there are 24k volumes in the Library, but that is way too big. The ideal size would be 15-17k – smaller and high quality
  - Mostly fiction
  - Non-fiction sports books
- The Library now has
  - Listening centers
  - Projectors
  - Laminator
- Need to balance out idea of Library as collaborative space, with fact that Anne is working with 20 student groups a week
- Solar panels and wind turbines
- Additional Thoughts: The breakfast that the Driscoll staff does on Fridays is a big deal. Teaching teams are responsible for bringing in breakfast for the whole school
  - Having a long serving table and communal seating for teachers
  - Would like grade level team rooms as well as central team rooms. If one or the other, go for central team room

Kitchen and Maintenance Staff

- Claudia Aguilar
- Larry Cronk – Custodian
- Ed Clancy – Supervising Custodian
- Gus Travassos – Director of Food Service for District
- Marijana Gojak

- They start breakfast at 7:30 – 8:00
  - 10-20 students generally, depending on what they have for breakfast
  - Then have only two hours to prep for lunch
  - 2 people make food for 300 kids
  - Depending on the enrollment, the staffing would be increased

Kitchen and Maintenance Continued

- They now have 5 lunches because the cafeteria is so small, the first one is at 10:15 and the last lunch
  - 5 lunches every day
  - Mon, Weds, Thursday – 10:15 – 12:50 (30-minute lunches)
  - Tuesday starts earlier and finishes at 1:10
  - Friday is early release – goes 10:10-1:00
  - Last lunches are older kids and they wait around
- Cash free system – everyone has money on account
- Right now, one cashier is sufficient
- Cueing means that hallways get blocked
- Kitchen Issues
  - Need AC in the kitchen – its bad in the winter, but horrible in the summer
- In terms of equipment:
  - Main issue is that they have a "hot-line" with food warmers, with no water to or from the area, so very hard to clean
  - The new one needs a lot of water and need to bring it from the sink
  - Would like an "impinger oven" to make pizza – they are not cheap because they need their own exhaust
  - Something to close the gate, so kids can't come between lunches and take things
  - The idea of food stations at this level would be overwhelming for kids
- A full-service kitchen, all made here from scratch
  - Given the size of the school, there is an outdated walk-in fridge
  - A walk-in freezer would be great
  - Dry storage is OK
  - Marijana has an office, but it is so loud
  - Bathroom would be good
- After school program is located out of cafeteria
  - They use smaller kitchen space for storage and have an office nearby
- Location and size of cafeteria may change
- Custodial:
  - Have lost all of their storage area
  - Would like slop sinks on floor – to minimize back injuries
  - Right now there is a lack of loading and service area. Ideally, where would trucks come?
- A semi- would have to pull up in the bus drop-off area
- Maybe, backing into the lower parking lot?
- Neighbors in back have complained about early deliveries
  - Would like loading dock in close proximity to cafeteria
  - Moving towards composting (for pick up), have been doing recycling for a while
- Security
  - 4 doors that are on automatic system for opening in morning
  - After school programming doesn't feel secure – door left unlocked or open for access to gymnasium.
  - Run by district
  - No way to lock any section down for access to gym or
- After school have athletics (basketball practice), music and art
  - Need more storage
  - Portable furniture in cafeteria
  - Larger cafeteria
- Consider varied size furniture
- Chairs get dirtier when not connected to tables
- Need chairs lower to the ground… the ones there now are more adult size
- Consider rolled rubber or vinyl flooring – the new Devotion school is 90% rubber flooring
  - Jury is still out, since the school just opened
  - Welded seams
  - Don't have to buy finish
  - Limited on chemicals they can use, machines are ionized
  -

Kitchen and Maintenance Continued

- Would like fewer lamps – will be going to 100% LED
  - Still need to change LED ballasts occasionally
  - Used to have to change out fluorescents all the time
- Devotion is the new standard in Brookline. Check-in with Ed in about a year to see how systems have worked
  - The computer control monitoring system is a new
  - Have computer-controlled heat in Driscoll, which is controlled remotely
- Driscoll doesn't have a lot of outside groups using it after school, but a new school will be more desirable

Survey Responses

A survey was sent out to the Driscoll School faculty and staff posing a number of questions. The following responses were recorded.

1. In what ways would you like to see the Driscoll academic program and school community grow and evolve over the next 10 years?

   - It would be great to have a larger auditorium that could also be used as a center for community events. In other words, school as community center.
   - More after school programs and offerings, including applied academic enrichment.
   - I would love a stronger middle school model, with many more opportunities for hands-on, project based, and applied learning.
   - I hope the sense of community, class size, conservatory program, and Chinese program will continue to be as strong as it is today.
   - Continue our great art programming.
   - There needs to be an increased diversity of learning options for children in the lower grades - more electives, perhaps.
   - I'd like to see the establishment of some younger age non-competitive recreational sport teams (girls running, for example).
   - There needs to be an expansion of pre-K and after-school options.
   - The environment of the school needs to be designed to be more community-friendly.
   - The program should be inclusive of all student needs, challenge higher level thinking and problem-solving connections, and provide real-world community application of concepts being learned.

2. How do you see the design of a renovated and/or new Driscoll facility supporting the school's growth and evolution?

   - A larger auditorium is the easy part. Project-based learning classrooms in the middle school would be a dream. There is a lot of research and models available to look at for this.
   - Supporting student learning through increased technology and more efficient climate control (air temperature).
   - The Art Room must have adequate space.
   - The outdoor space needs more shading options for parents, teachers, and children. The outdoor space is widely used by the community - some seating should be provided that makes socializing and face-to-face interaction more possible (rather than the spectator benches positioned in the glaring sunlight).
   - The new Driscoll renovations should be as ecologically friendly as possible; make greater use of passive solar and other sustainable energy options.
   - It should include adaptations for children with disabilities (improved speakers, graduated lighting schemes, better signage).

- It would be really great if a key tag or ID card solution could be put into place so that parents could access Driscoll's locked doors for music lessons, after-school activities, and access to the library. We are locked out all the time for events and activities that we are supposed to be able to attend!
- It would be good to have outdoor classrooms, a roof garden, a maker space, an energy efficient building and lots of natural light.

3. What are the three most important things Jonathan Levi Architects need to know about as they move forward with design development?

- Community ownership is essential.
- We need to improve the middle school experience.
- Make sure teacher voice is at the center of the new design. In the new Coolidge corner school building, teacher voice was not valued and many aspects of the design reflect that. Don't make that mistake at Driscoll, please. For example, ask teachers about storage, placement of bathrooms, and distance between important parts of the building. Trust that teachers know what is needed!
- Green design, handicapped accessible (not just mobility - vision, hearing, and sensory too), community-focused- with multiple options for seating and shade outdoors
- Spend a lot of time with teachers especially about logistics such as bathrooms different ergonomic necessities for children 5-14 years old. Let teachers in before final adjustments to help with placement of lights sinks etc.

Additional Comments:

- A bathroom in the art room would be so nice.
- The entire area needs more shade. This is particularly significant as we anticipate hotter, more humid springs, summers, and falls due to climate change.

1.4 Initial Space Summary

1.4.1 Space Summary

Please reference the following Driscoll Space Summary and associated Program/ Adjacency Diagram.

FINAL DRAFT
11/28/2018

Driscoll School Project - FINAL DRAFT Space Summary

= Change from MSBA Template
= Renovation Space at CCS

4 Section School + District-Wide SWD Program + District-Wide ELL Program	Proposed DRISCOLL 800 Students			Existing DRISCOLL			COOLIDGE CORNER (For Reference) 1,010 Students			MSBA GUIDELINES (For Reference) 758 Students		
ROOM TYPE	ROOM NFA	# OF RMS	area totals	ROOM NFA	# OF RMS	area totals	ROOM NFA	# OF RMS	area totals	ROOM NFA	# OF RMS	area totals
CORE ACADEMIC SPACES			**47,950**			26,047			**55,710**		**37**	**34,290**
Pre-Kindergarten w/ toilet	1,200	3	3,600	1,011	1	1,011	1,225	2	2,450	1,200		-
Kindergarten w/ toilet	1,200	4	4,800	*918*	3	2,754	1,174	5	5,870	1,200	4	4,800
General Classrooms - Grades 1-5	840	20	16,800	*903*	15	13,539	890	25	22,250	950	18	17,100
General Classrooms - Grades 6-8	840	12	10,080	*738*	6	4,426	891	15	13,370	950	9	8,550
Teacher Planning Grades 3-8	50	24	1,200									
Science Classroom / Lab	1,200	3	3,600	771	2	1,542	1,193	3	3,580	1,200	3	3,600
Prep room	80	3	240				133	3	400	80	3	240
ELE Small Classroom	450	4	1,800	410	1	410	297	3	890			
Project Areas	400	6	2,400				231	9	2,080			
Small Group Room / Literacy & MathSpecialists	250	6	1,500	*201*	4	803						
Literacy and Math Specialist												
Literacy Specialist K-2							170	1	170			
Literacy Specialist 3-5							155	2	310			
Literacy Specialist 6-8							150	2	300			
Small Group/ Math Specialists												
Math Specialist K-2							215	2	430			
Math Specialist 3-5							155	2	310			
Math Specialist 6-8							0	0	0			
Enrichment Challenge Support	250	1	250				230	1	230			
ELE Typical Classroom												
Teacher Planning ELE												
World Language Classrooms	840	2	1,680	*781*	2	1,562	850	2	1,700			
Small Group Rooms												
Small Group Rooms - Grades K-2							157	3	470			
Small Group Rooms - Grades 3-5							150	3	450			
Small Group Rooms - Grades 6-8							150	3	450			
SPECIAL EDUCATION			**7,420**			5,088			**10,980**			**7,560**
SWD Classroom PK-8	450	4	1,800							950	6	5,700
SWD Classroom Teacher Planning	50	4	200									
SWD Classroom PK-8 toilet										60	6	360
De-Escalation Room	50	1	50									
Learning Center (LAHB)	840	3	2,520	*675*	6	4,052						
Learning Center Teacher Planning	50	3	150									
Resource Room - LAHB	450	1	450				450	1	450			
										500	3	1,500
Speech	150	2	300	142	1	142	147	3	440			
OT / PT	950	1	950	894	1	894	1,090	1	1,090			
OT / PT Office	150	1	150									
Special Ed Team Facilitator	150	1	150				150	1	150			
BCBA	150	1	150				150	1	150			
Psychologist	150	2	300				150	1	150			
Special Education Conference	250	1	250				130	1	130			
Therapeutic Learning Center Small Group K-2							190	2	380			
Therapeutic Learning Center Chill Out K-2							90	1	90			
Therapeutic Learning Center Relax K-2							80	1	80			
Comprehensive Learning Center K-2							380	1	380			
Comprehensive Learning Center Chill Out K-2							70	1	70			
Shared CLC/ LC Office K-2							100	1	100			
Therapeutic Learning Center Large Group 3-5							360	1	360			
Therapeutic Learning Center Small Group 3-5							200	2	400			
Therapeutic Learning Center Chill Out 3-5							80	1	80			
Therapeutic Learning Center Relax 3-5							100	1	100			
Comprehensive Learning Center 3-5							410	1	410			
Comprehensive Learning Center Chill Out 3-5							70	1	70			
Shared CLC/ LC Office 3-5							110	1	110			
Self-Contained SWD - Grades 1-5 toilet												
Self-Contained SWD - Grades K-2 toilet							60	1	60			
Self-Contained SWD - Grades 3-5 toilet							60	1	60			
Self-Contained SWD - Grades 6-8												
Therapeutic Learning Center Large Group 6-8							360	1	360			
Therapeutic Learning Center Small Group 6-8							200	2	400			
Therapeutic Learning Center Chill Out 6-8							80	1	80			
Therapeutic Learning Center Relax 6-8							100	1	100			
Comprehensive Learning Center 6-8							400	1	400			
Comprehensive Learning Center Chill Out 6-8							70	1	70			
Shared CLC/ LC Office 6-8							110	1	110			
Self-Contained SWD - Grades 6-8 toilet							60	1	60			
Learning Center K-2							470	2	940			
Learning Center 3-4							400	1	400			
Learning Center 5-6							400	1	400			
Learning Center 7-8							450	1	450			
Special Education Team Clerk							100	1	100			
Special Education Records							60	1	60			
Special Education Waiting							390	1	390			
Special Education Conference							170	1	170			
TLC Social Worker							150	1	150			
Psychologist							170	1	170			
Psychologist / Social Worker Conference							280	1	280			
Psychologist / Social Worker Safe Room							70	1	70			
Psychologist / Social Worker Testing							80	1	80			
Psychologist / Social Worker Waiting							430	1	430			
Life Skills Store												
ART & MUSIC			**11,820**			5,466			**13,990**			**7,225**
Art Classroom - Grades K-5	1,000	1	1,000	630	1	630	1,020	2	2,040	1,000	1	1,000
Art Classroom - Grades 6-8	1,200	1	1,200				1,180	1	1,180	1,200	1	1,200
Art Workroom w/ Storage & kiln	150	2	300	300	1	300	160	3	480	150	2	300
Band / Chorus - 100 seats	1,500	1	1,500	790	1	790	1,810	1	1,810	1,500	1	1,500
Music Classroom / Large Group - 25-50 seats	1,200	2	2,400	866	1	866	1,185	2	2,370	1,200	1	1,200
Music Practice / Ensemble - Small	75	0	-				80	4	320	75	3	225
Music Practice / Ensemble - Large	200	1	200				280	1	280	200	1	200
Multipurpose Room	3,500	1	3,500	2,880	1	2,880	3,780	1	3,780			
Stage	1,600	1	1,600				1,600	1	1,600	1,600	1	1,600

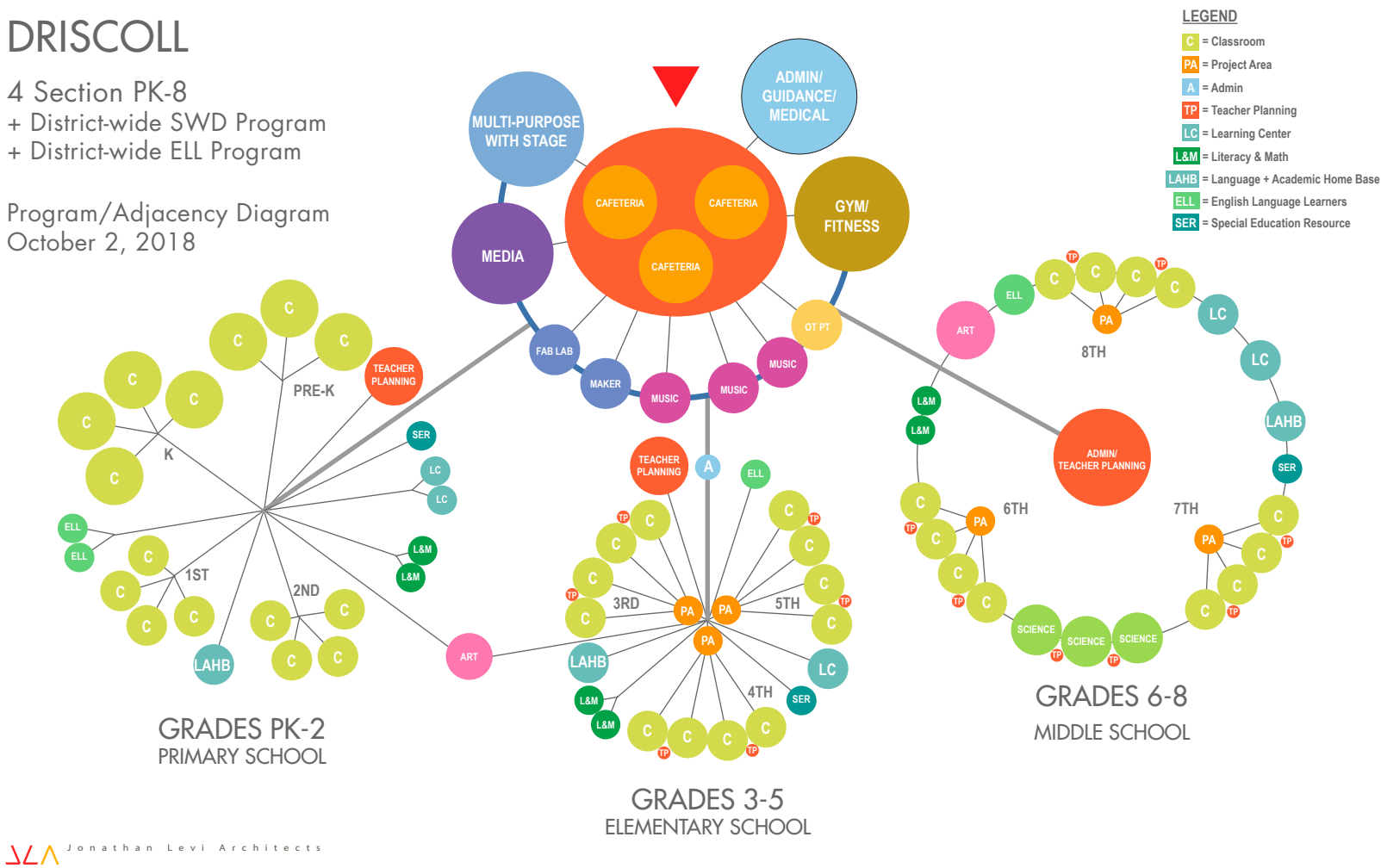
FINAL DRAFT
11/28/2018

Driscoll School Project - FINAL DRAFT Space Summary

= Change from MSBA Template
= Renovation Space at CCS

4 Section School + District-Wide SWD Program + District-Wide ELL Program	Proposed DRISCOLL 800 Students			Existing DRISCOLL			COOLIDGE CORNER (For Reference) 1,010 Students			MSBA GUIDELINES (For Reference) 758 Students		
ROOM TYPE	ROOM NFA	# OF RMS	area totals	ROOM NFA	# OF RMS	area totals	ROOM NFA	# OF RMS	area totals	ROOM NFA	# OF RMS	area totals
Multipurpose Chair Storage	120	1	120				130	1	130			
VOCATIONS & TECHNOLOGY			**2,950**			811			**2,970**			**3,200**
Tech Clrm. - (E.G. Drafting, Business)	950	1	950	811	1	811	910	1	910	1,200	1	1,200
Tech Shop - (E.G. Consumer, Wood)	2,000	1	2,000				2,060	1	2,060	2,000	1	2,000
HEALTH & PHYSICAL EDUCATION			**11,220**			4,770			**10,680**			**8,333**
Gymnasium	6,000	1	6,000	3,840	1	3,840	6,120	1	6,120	6,000	1	6,000
Gym Storeroom	210	1	210				210	1	210	150	1	150
Gym Storeroom	80	1	80				80	1	80			
Health Instructor's Office w/ Shower & Toilet	180	1	180				220	2	440	183	1	183
Locker Rooms - Boys / Girls w/ Toilets	400	2	800				420	2	840	1,000	2	2,000
Small Gym	3,000	1	3,000	930	1	930	2,990	1	2,990			
Health/Fitness Classroom	950	1	950									
MEDIA CENTER			**4,310**			4,130			**5,170**			**4,300**
Media Center/Reading Room	4,000	1	4,000	*1,865*	2	3,730	4,860	1	4,860	4,300	1	4,300
Media Center Office	140	1	140	100	4	400	140	1	140			
Media Book Room	170	1	170				170	1	170			
DINING & FOOD SERVICE			**6,787**			5,938			**7,850**			**8,485**
Cafeteria / Dining (2 seatings)										5,685	1	5,685
Cafeteria / Dining (3 seatings) / Multi-Use	4,000	1	4,000	3,175	1	3,175	5,100	1	5,100			
Kitchen	1,800	1	1,800	1,566	1	1,566	1,790	1	1,790	2,058	1	2,058
Kitchen Office	70	1	70				70	1	70			
Kitchen Storage	60	1	60	409	1	409	60	2	120			
Kitchen Toilet	60	1	60				200	1	200			
Kitchen Custodial	30	1	30				30	1	30			
Chair / Table / Equipment Storage	467	1	467				540	1	540	453	1	453
Staff Lunch Room	300	1	300	788	1	788		0		290	1	290
MEDICAL			**710**			244			**720**			**710**
Medical Suite Toilet	60	1	60				100	1	100	60	1	60
Nurses' Office / Waiting Room	250	1	250	244	1	244	290	1	290	250	1	250
Examination Room / Resting	100	4	400				190	1	190	100	4	400
Examination Room / Resting							70	2	140			
ADMINISTRATION & GUIDANCE			**5,965**			1,798			**4,920**			**3,231**
Principal's Office w/ Conference Area	375	1	375	335	1	335	350	1	350	375	1	375
Principal's Secretary / Waiting	125	0	-					0	0	125	1	125
Assistant Principal's Office - AP1	130	1	130	280	1	280	140	2	280	130	1	130
Assistant Principal's Office - AP2	130	1	130				230	1	230	130	0	-
General Office / Waiting Room / Toilet	510	1	510	331	1	331	870	1	870	512	1	512
Conference room	285	1	285				300	1	300	283	1	283
Teachers' Mail and Time Room	100	1	100				370	1	370	100	1	100
Duplicating Room	165	1	165					0	0	167	1	167
Records Room	140	1	140				130	1	130	140	1	140
Supervisory / Spare Office	130	1	130				110	1	110	130	1	130
General Waiting Room	100	1	100	652	1	652	120	1	120	100	1	100
Guidance Office	150	3	450	100	2	200	305	2	610	150	4	600
Guidance Storeroom	40	0	-				40	2	80	40	1	40
Professional Learning and Teacher Planning												
Teachers' Work Room	500	3	1,500				1,010	1	1,010	529	1	529
Small Conference Room	250	3	750									
Specialist Collaborative Workspace	250	3	750									
World Language Office	150	2	300				310	1	310			
METCO Office	150	1	150				150	1	150			
CUSTODIAL & MAINTENANCE			**2,995**			1,408			**4,920**			**2,316**
Custodian's Office	150	1	150	200	1	200	120	1	120	150	1	150
Custodian's Toilet / Shower							90	1	90			
Custodian's Workshop	335	1	335				450	1	450	333	1	333
Custodian's Storage	375	1	375	375	1	375	470	1	470	375	1	375
Storeroom	500	2	1,000	258	1	258	668	4	2,670	505	1	505
Recycling Room / Trash	400	1	400				270	1	270	400	1	400
Receiving and General Supply	355	1	355	400	1	400	380	1	380	353	1	353
Network / Telecom Room	150	2	300	175	1	175	390	1	390	200	1	200
Outdoor Storage	80	1	80				80	1	80			
OTHER			**1,300**			409			**13,120**			**0**
Other *(specify)*												
Extended Day Storage	420	**1**	420	409	1	409	420	1	420			
Extended Day Office	320	**1**	320				320	1	320			
PTO	380	**1**	380				380	1	380			
Staff Showers	90	**2**	180				90	2	180			
Mechanical / Emer Generator							11,820	1	11,820			
Total Building Net Floor Area (NFA)			**103,427**			***56,109***	**(MSBA -**	**104,588)**	**131,030**			**79,652**
	K-5	504		K-5	400							
Proposed Student Capacity / Enrollment			**800**			***616***			**1,010**			**758**
	6-8	252		6-8	216							
Total Building Gross Floor Area (GFA)[2]			**155,140**			*98,000*	**(MSBA -**	**156,882)**	**196,979**			**119,477**
	BEEP	44										
Grossing factor (GFA/NFA)			**1.50**						**1.50**			**1.50**

1.4.1 Program/ Adjacency Diagram



Jonathan Levi Architects

1.5 Evaluation of Existing Condidions

1.5.1 Title search
Town

1.5.2 Availaibitliy for Development
Town

1.5.3 Historic Regisrations
Jonathan Levi Architects received the following email from Ray Masak of the Brookline Building Department on Nov. 20, 2018 regarding the historic status of the Driscoll School:

Please be advised that the Driscoll School is neither listed nor deemed eligible to be listed on the State or National Register of Historic Places. Therefore, it is not subject to an 18-month demolition delay. However, like all other properties not listed or deemed eligible for listing on the State or National Register of Historic Places in Brookline, the Preservation Commission may impose a one-year demolition delay on the property if it determines that the building is of historical significance. Based on my professional judgment and familiarity with the Brookline Preservation Commission, I anticipate that the Commission will impose a one-year demolition delay on the Driscoll School.

Valerie Birmingham
Preservation Planner
Town of Brookline
333 Washington St.
Brookline, MA 02445
(617)730-2089
vbirmingham@brooklinema.gov

1.5.4 Development Restrictions
Zoning
The project will be looking for relief on height, with the amount determined in Schematic Design including the design of the mechanical penthouse. The project is expected to comply with other zoning guidelines at this time. It is designated in a T-5 zone of the Brookline Zoning Bylaws.

1.5.5 Building Code Compliance
Please see following report prepared by Howe Engineers.

1.5.6 Accessibility Compliance
Please see following report prepared by Howe Engineers.

CHAPTER 34 NARRATIVE

BROOKLINE DRISCOLL SCHOOL
BROOKLINE, MA

Prepared For:

Jonathan Levi Architects
266 Beacon Street
Boston, MA 02116

HOWE ENGINEERS
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SUBMITTED: NOVEMBER 16, 2018

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DOCUMENT HISTORY

Chapter 34 Design Narrative..... November 16, 2018

This document – Chapter 34 Design Narrative is intended for use by the design team to understand the code requirements if the existing Brookline Driscoll School were to be renovated. This document contains the code basis for the building design, functionality of the egress system, fire protection recommendations, and a comprehensive code outline.

This document is a preliminary draft based on the existing building plans sent from Johnathan Levi Architects on October 26, 2018. It is also based on observations from a walkthrough of the building by Howe Engineers on November 9, 2018.

PURPOSE

The purpose of this report is to outline the requirements from Chapter 34 of the Massachusetts State Building Code for the Brookline Driscoll School. This report will explain the required upgrades for each level of renovation on the existing school.

APPLICABLE CODES AND REQUIREMENTS

The following codes are presently adopted in the State of Massachusetts:

- **Building** — Massachusetts State Building Code (MSBC), 9th Edition, which is an amended version of the 2015 International Building Code and the 2015 International Existing Building Code (IEBC).
- **Accessibility** — Massachusetts Architectural Access Board (MAAB), 521-CMR.
  2010 ADA Standards for Accessible Design
- **Electrical** — Massachusetts Electrical Code, 527-CMR, 12.00. The Massachusetts Electrical Code is an amended version of the 2017 National Electrical Code (NFPA 70).
- **Elevators** — Massachusetts Elevator Regulations, 524-CMR.
- **Energy** — 2015 Edition of the International Energy Conservation Code (IECC) as amended by the State of Massachusetts
- **Fire Prevention** — 527 CMR Massachusetts Fire Prevention Code, NFPA 1, 2012 Edition
- **Mechanical** — International Mechanical Code, 2015, as adopted and amended by the MSBC (Chapter 28).
- **Plumbing** — Massachusetts Fuel Gas and Plumbing Codes, 248-CMR.
- **Other** — National Fire Protection Association (NFPA) Standards, as referenced by the MSBC and the MFPR.

PROJECT DESCRIPTION

Howe Engineers has prepared this report to document and provide the code compliance requirements for the existing Brookline Driscoll School. The existing school is a three (3) story building with an approximate footprint area of 35,000 square feet. It was constructed in three phases: the central portion was constructed in 1910, with the east wing added in 1928 and the west wing added in 1953. The school includes a ground floor, 1st floor, and 2nd floor. All three levels contain classrooms for students from Pre-K through 8th grade.

In addition to classrooms, the Ground floor contains a gymnasium, a theater, and a cafeteria with associated kitchen. The 1st floor also contains a library and a computer lab. The 2nd floor contains only classrooms with accessory office and storage space. There is accessory office, storage, and mechanical space throughout the building. This narrative addresses requirements contained in the 9th edition of the 780 CMR, The Massachusetts State Building Code (MSBC) based on proposed renovations to the building.

GENERAL OPERATING ASSUMPTIONS

The following general operating assumptions serve as the basis for the Life Safety and Fire Protection design and should be incorporated into the new facilities operations plan. It is the responsibility of the Owner/Operator to ensure that these assumptions are enforced:

- Storage is restricted to 12 feet in height or less except where specifically designed fire sprinkler systems are provided.
- The materials used shall meet the interior finish requirements of the International Building Code (IBC), and NFPA 1.

CHAPTER 34 SCOPING REQUIREMENTS

COMPLIANCE METHODS

Section 301.1 of Chapter 34 of the MSBC presents the various options available to evaluate the code requirements applicable to repair, alteration, change of occupancy, addition, or relocation projects to existing buildings. Users elect one of the available compliance methods to evaluate the existing building based on the proposed scope of work of the project. The three compliance options available are as follows:

a. Prescriptive Compliance Method:

Users electing to use this compliance method should follow the requirements outlined in Section 4 of Chapter 34 to perform the existing building evaluation. This section has vague requirements that would require multiple complex discussions with local officials. Although, Howe Engineers anticipates that some issues will be required to be discussed, it is our opinion that this option leaves to much discretion to the building official and does not provide enough guidance.

b. Work Area Compliance Method:

Users electing to use this compliance method should follow the requirements of Sections 5 through 13 of the MSBC Chapter 34 to perform the existing building evaluation.

c. Performance Compliance Method:

Users electing to use this compliance method should follow the requirements of Section 14 of Chapter 34 of the MSBC to perform the existing building evaluation. This method generally requires more upgrades than the work area method would require and thus has not been chosen.

The work area compliance method has been selected for use on this project based on the clear requirements and the ability to limit upgrades largely to the work area.

GENERAL MASSACHUSETTS AMENDED REQUIREMENTS (780 CMR 34.00)

Section 101.4.5 Fire Prevention:

This section states all references to the International Fire Code (IFC) shall be considered reference to 527 CMR: Board of Fire Prevention Regulations. This stipulates that the requirements of the Massachusetts General Laws Chapter 148 Section 26G may apply with respect to automatic sprinkler system requirements. In general, this section of the Massachusetts General Laws requires sprinkler protection to be provided in occupancies where the altered area exceeds 7,500 square feet.

The building is fully sprinklered and thus will satisfy the requirement above.

Section 102.6.4 Existing Means of Egress, Lighting and Ventilation

These special provisions address means of egress in all buildings and are designed to ensure a minimum acceptable level is maintained. The specifics of these provisions must be satisfied regardless of any project work. The requirements are enforced at the discretion of the approving authorities. The specifics of these requirements are as follows:

a. The number of means of egress serving every space and/or story as required by Chapter 10 of the MSBC. Table 1006.3.1 requires that the following number of exits be provided per floor based on the occupant load:

Table 1

Occupant Load Per Story	Minimum Number of Exits or Access to Exits from Story
1-500	2
501-1000	3
More than 1000	4

Refer to the occupant load and egress analysis tables below. Based on the occupant load of each floor, four (4) exits are required from the ground floor and three (3) exits are required from the 1st and 2nd floors. A sufficient number of means of egress is provided from the building in accordance with the table above. Refer to Page XX for more detailed occupant load and egress calculations.

b. The capacity of means of egress provided from each story and space must satisfy the criteria of Section 1005.1 of the MSBC.

Section 1005.1 provides requirements for the proper sizing of egress components. Components are given a capacity factor that determines, based on their size, what occupant load they are individually capable of handling. So long as the capacity is in excess of the occupant load, the means of egress are in compliance with the code. The total width of means of egress should not be less than the total occupant load served by the means of egress multiplied by 0.30 inches per occupant for stairways and by 0.20 inches per occupant for other egress components. If the building were to be provided with a voice communication fire alarm system, the egress capacities would decrease to 0.20 inches per occupant for stairs and 0.15 inches per occupant for other egress components.

The following tables show the occupant load and the egress capacity for the building:

Ground Floor:

Space	Size (sq. ft.)	Loading Factor (sq. ft. per occupant)	Occupancy
Multi-Purpose Room (Risers)	1,265	7	181
Multi-Purpose Room (Floor & Stage)	1,615	15	108
Gymnasium	4,770	15	318
Cafeteria	3,175	15	212
Classrooms	10,206	20	517
Offices	600	100	6
Kitchen	1,566	200	8
Storage	784	300	4
		Total	1,354

Area	Exit Description	Clear Width of Limiting Component (in)	Capacity Factor (in/occ.)	Exit Capacity (people)
Egress Serving Ground Floor	Door 1 (Stair 3)	66	0.2	330
	Door 5 (Stair 1)	34	0.2	170
	Door 8 (Stair 2)	67	0.2	335
	Door 10 (Cafeteria)	33	0.2	165
	Door 13 (Stair 4)	67	0.2	335
	Door 17 (Stair 5)	66	0.2	330
	Total			1,665 > 1,354

1st Floor:

Space (1st Floor)	Size (sq. ft.)	Loading Factor (sq. ft. per occupant)	Occupancy
Stage (Library)	460	15	31
Room 212 (Staff Work/Lunch Room)	788	15	53
Classrooms	9,382	20	475
Room 208 & 210 (Science Laboratories)	1,542	50	32
Library	3,270	100	33
Offices	2,179	100	25
Supply Room	258	300	1
		Total	650

Area	Exit Description	Clear Width of Limiting Component (in)	Capacity Factor (in/occ.)	Exit Capacity (people)
Egress Serving 1st Floor	Main Entrance	144	0.3	480
	Stair 1	62	0.3	206
	Stair 2	76	0.3	253
	Stair 3	71	0.3	236
	Stair 4	54	0.3	180
	Stair 5	67	0.3	223
			Total	1,578 > 650

2nd Floor:

Space (2nd Floor)	Size (sq. ft.)	Loading Factor (sq. ft. per occupant)	Occupancy
Classrooms	13,441	20	681
Offices	530	100	7
Art Room Storage	300	300	1
		Total	689

Area	Exit Description	Clear Width of Limiting Component (in)	Capacity Factor (in/occ.)	Exit Capacity (people)
Egress Serving 2nd Floor	Stair 1	62	0.3	206
	Stair 2	82	0.3	273
	Stair 3	69	0.3	230
	Stair 4	54	0.3	180
	Stair 5	69	0.3	230
			Total	1,119 > 689

As shown in the tables above, the egress capacity exceeds the occupant load calculated within the space and is compliant with the requirements of the building code for egress capacity.

c. Any means of egress which is not so arranged as to provide safe and adequate means of egress, including exit signage and emergency lighting in accordance with Chapter 10 of the MSBC.

Adequate emergency signage is currently provided in the building. Currently the school emergency lighting is provided by battery backup. An emergency power backup system is not currently provided to the building. Adequate ventilation should be confirmed by the mechanical engineer.

EXISTING BUILDING EVALUATION – MSBC WORK AREA METHOD

GENERAL

A MSBC Chapter 34 evaluation of the existing building is required to determine the required fire protection and life safety improvements when any alteration or renovation work is undertaken.

Each of the following classes of work has an associated chapter within the MSBC Chapter 34 which outlines the provisions for that type of work on an existing building.

Repairs:
Repairs are defined as "the reconstruction or renewal of any part of an existing building for the purpose of its maintenance or to correct damage". These include the restoration of materials, elements, equipment or fixtures for the purpose of maintaining a good or sound condition.

Alteration Level 1:
Alterations are defined as "any construction or renovation to an existing structure other than repair or addition." Level 1 alterations include, "removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose."

Alteration Level 2:
A Level 2 alteration consists of the reconfiguration of space, addition or subtraction of a door or window, the reconfiguration of any system, or adding any equipment to the building. Level 2 alterations should also comply with the provisions for a Level 1 alteration.

Alteration Level 3:
A Level 3 alteration consists of the reconfiguration of more than 50% of the building area. Level 3 alterations should also comply with the provisions for a Level 1 and 2 alterations.

Additions:
Additions are any extension to a building which increases the floor area, number of stories, or height of the building.

Change In Use:
Portions of buildings where a change in purpose or level of activity occurs which involves a change in the application of the requirements of the applicable codes.

This report will outline the requirements for each level of renovation as the project may include a gut renovation which would be considered a Level 3 Alteration. A Level 3 Alteration also requires compliance with Alteration Levels 1 and 2.

REQUIREMENTS FOR REPAIRS & ALTERATIONS – LEVEL 1, 2 & 3-

Alteration Level 1

A Level 2 or 3 alteration is anticipated, which requires that the provisions of Level 1 also be complied with.

Interior Finish:

All newly installed interior finishes should comply with the flame spread requirements of the MSBC Chapter 8 (MSBC Ch.34 702.1). New carpeting used as an interior floor finish material should comply with the radiant flux requirements of Section 804 of the MSBC (MSBC Ch.34 702.2).

All new interior finishes must comply with the requirements of the MSBC. As per MSBC Table 803.11, the following interior finish ratings are required at a minimum for a fully sprinklered Educational Occupancy:

- **Exit Enclosures and Exit Passageways: Class A or B**
- **Corridors: Class A, B, or C**
- **Rooms and Enclosed Spaces: Class A, B, or C**

Classification of interior finishes will be provided in accordance with ASTM E 84 / UL 723.

Alteration Level 2

MSBC Ch.34 801.2 of Level 2 alterations requires that alterations categorized as Level 2 comply both with the requirements of Chapter 7, Alterations Level 1, and Chapter 8, Alterations Level 2.

Fire Protection Systems:

The Brookline Driscoll School is fully sprinklered and thus complies with this section.

Fire Alarm System:

The existing detection system includes smoke detection in corridors and heat detection in classrooms, as well as sprinklers throughout the building. The current fire alarm system within the work area is zoned and does not have voice communication capabilities. It will be required to be upgraded to a fully addressable system with voice communication. Where the work area is more than 50 percent of the floor area, the fire alarm throughout the entire floor must be upgraded.

Interior Finish:

Refer to the Level 1 Alterations interior finish section. In addition, where the *work area* on any floor exceeds 50 percent of the floor area, Section 803.4 should also apply to the interior finish in exits and corridors serving the *work area* throughout the floor.

Means of Egress - General:

The means of egress within work areas are required to comply with the following requirements of this section if the following conditions exist: (MSBC Ch.34 805.2).

Number of Means of Egress:

The minimum number of exits is required to be in accordance with the MSBC Section 102.6.4 (see report section above).

As previously described, the building meets the number of means of egress requirements and the overall capacity requirement on a per floor basis.

Guards:

Guards are required to be provided for floors that are more than 30-inches above the floor or grade below that is currently not provided with guards or with guards that are in danger of collapsing (MSBC Ch.34 803.5 & 805.11).

Door Swing:

In the work area and in the egress path from the work area to the exit discharge, all egress doors serving an occupant load greater than 50 should swing in the direction of exit travel (MSBC Ch.34 805.4.2). Where the work area exceeds 50 percent of the floor area, all doors on the floor of the work area are required to swing in the direction of egress where serving an occupant load that is greater than 50 (MSBC Ch.34 805.4.2).

All doors in the work area serving an occupant load greater than 50 will need to swing in the direction of travel.

Door Closing:

In any work area, all doors opening onto an exit passageway at grade or an exit stair should be self-closing or automatically closing by listed closing devices. This requirement applies unless the exit enclosure is not required by the MSBC or if the means of egress are not within the work area (MSBC Ch.34 805.4.3).

Door closers are not required in the corridors based on the building being sprinklered. However, door closers to the enclosed stairwells are required and should be provided. Two of the exit stairs in the building are currently unenclosed and will need to be enclosed by 1-hour rated construction as they connect less than four stories.

Dead Ends:

Dead-end corridors in any work area should not exceed 35-feet (MSBC Ch.34 805.6). In Group E, Educational Occupancies equipped throughout with an automatic sprinkler system, the maximum dead-end length is increased to 50 feet for existing, newly constructed, or extended dead-end corridors.

Based on our walkthrough of the building, all existing dead ends in the buildings comply with the maximum length of 50 feet.

Openings in Corridor Walls:

MSBC Ch.34 805.5.3 requires such openings are sealed with materials consistent with the corridor construction.

For Group E, Education Occupancies, corridors are not required to be rated given that the building is fully sprinklered.

Means of Egress Lighting:

The means of egress lighting in all work areas should conform to the requirements of the MSBC for new construction. Where the work area on any floor exceeds 50 percent of that floor area, the entire floor is subject to the new construction requirements of the MSBC for means of egress lighting (MSBC Ch.34 805.7).

The means of egress lighting in the building will need to comply with new construction requirements in the MSBC.

Exit Signs:

The exit signs in all work areas should conform to the requirements of the MSBC for new construction. Where the work area on any floor exceeds 50 percent of that floor area, the entire floor is subject to the new construction requirements of the MSBC for exit signage (MSBC 34 805.8).

The exit signage in the building will need to comply with the requirements of the MSBC for new construction.

Accessibility:

The requirements of 521 CMR apply to the project. Refer to the Accessibility portion of this report.

Energy Conservation:

Level 2 alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the International Energy Conservation Code. The alterations (e.g. new work) should conform to the energy requirements of the International Energy Conservation Code as they relate to new construction only.

Structural Requirements:

The structural requirements contained within the Alteration Level 1 and 2 requirements should be evaluated by the design team's structural engineer.

Electrical Requirements:

The electrical requirements contained within the Alteration Level 1 and 2 requirements should be evaluated by the design team's MEP engineer.

Mechanical Requirements:

The mechanical requirements contained within the Alteration Level 1 and 2 requirements should be evaluated by the design team's MEP engineer.

Plumbing Requirements:

The plumbing requirements contained within the Alteration Level 1 and 2 requirements should be evaluated by the design team's MEP engineer.

Alteration Level 3

If more than 50 percent of the entire floor area of the school is renovated, then the renovations must comply with the requirements of Level 3 Alterations. MSBC Ch.34 901.2 of Level 3 alterations requires that alterations categorized as Level 3 comply both with the requirements of Chapter 7, Alterations Level 1, Chapter 8, Alterations Level 2, and Chapter 9, Alterations Level 3.

Existing Shafts and Openings

Existing stairways that are part of the means of egress must be enclosed in accordance with MSBC Ch. 34 903.1 from the highest work area floor to, and including, the level of exit discharge and all floors below.

Section 1016.1 of the MSBC will allow 50 percent of the stairwells to remain open if they do not connect more than 2 stories and the exit access travel distance is measured along the stairwell. Given that all exit stairs in the building serve 3 stories, this exception does not apply, and all exit stairs will be required to be enclosed with 1-hour rated self-closing doors.

New ductwork to MEP shafts should be provided with fire/smoke dampers.

Interior Finish:

Interior finish in exits serving the work area must comply with MSBC Ch.34 803.4 between the highest floor on which there is a work area to the floor of exit discharge.

Automatic Sprinkler Systems:

The Brookline Driscoll School is fully sprinklered and thus complies with this section.

Fire Alarm and Detection Systems:

Fire alarm and detection systems complying with Sections 804.4.1 and 804.4.3 must be provided throughout the building in accordance with the MSBC for new construction.

The fire alarm throughout the school would need to be upgraded to be fully addressable with voice communication.

Means of Egress Lighting:

Means of egress from the highest work area floor to the floor of exit discharge must be provided with artificial lighting within the exit enclosure in accordance with the requirements of the MSBC for new construction.

Means of egress lighting throughout the school will need to be provided per the requirements of the MSBC for new construction.

Exit Signs:

Means of egress from the highest work area floor to the floor of exit discharge must be provided with exit signs in accordance with the requirements of the MSBC for new construction.

Exit signs will need to be provided throughout the school per the requirements of the MSBC for new construction.

Accessibility:

The requirements of 521 CMR apply to the project. Refer to the Accessibility portion of this report.

Structural Requirements:

The structural requirements contained within the Alteration Level 1, 2, and 3 requirements should be evaluated by the design team's structural engineer.

Energy Conservation:

Level 3 alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the International Energy Conservation Code. The alterations must conform to the energy requirements of the International Energy Conservation Code as they relate to new construction only.

ADDITION

General

An *addition* to a building or structure should comply with the MSBC as adopted for new construction without requiring the *existing building* or structure to comply with any requirements of those codes or of these provisions, except as required by this chapter. Where an *addition* impacts the *existing building* or structure, that portion should comply with the IEBC.

An addition should not create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of mechanical, plumbing, or electrical systems.

Other Work

Any *repair* or *alteration* work within an *existing building* to which an *addition* is being made should comply with the applicable requirements for the work as classified in Chapter 5 (MSBC Ch.34 1101.3).

Height and Area Evaluation

No *addition* shall increase the height of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *MSBC* for new buildings. No *addition* should increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *MSBC* is provided.

From the site walkthrough conducted on November 9, 2018, it was found that the building is constructed of Type IIIA or IIIB Construction. This building exterior is constructed of brick, and the interior is constructed of a combination of concrete and wood joists. The wood joists would default the building to Type III Construction. Most of the wood appeared to be enclosed with a layer of drywall, which would allow the building to be considered Type IIIA Construction. However, if portions of the wood joists do not contain drywall, the building would be considered Type IIIB Construction. According to Table 504.3, Table 504.4, and Table 506.2 of the MSBC, a fully sprinklered Educational Building has the following height and area limitations based on Type IIIA or Type IIIB construction:

Construction Type:	Type IIIA	Type IIIB
Maximum Height (Stories)	85	75
Maximum Height (Feet)	4	3
Maximum Area (Square Feet)	70,500	43,500

Currently, the building is 3 stories in height and the footprint area is approximately 35,000 square feet. Based on which construction type (IIIA or IIIB) is determined, additions may be permitted if they do not cause the building to exceed the applicable maximum height and area values in the table above. If the applicable area value is exceeded, the addition would require construction of a fire wall to separate areas of the building.

ACCESSIBILITY

For each Level of Alteration defined above, the Massachusetts Architectural Access Board (MAAB) separately governs accessibility requirements. The MAAB requirements are only applicable to public spaces in a building. In the Brookline Driscoll School, most spaces appeared to be accessible to the public (e.g. students can visit them including teacher offices) and thus MAAB is applicable. MAAB is not applicable to employee-only areas.

MAAB application criteria for existing buildings are identified in MAAB Section 3.3. There are three (3) thresholds used to determine the extent of compliance required with MAAB provisions. These thresholds are determined over a rolling 36-month period and are as follows:

1. If the work being performed costs less than $100,000, then only the work being performed must comply with MAAB.

Exception: General maintenance and on-going upkeep of existing, underground transit facilities will not trigger the requirement for an *accessible entrance* and toilet unless the cost of the work exceeds $500,000 or unless work is being performed on the *entrance* or toilet.

2. If the work being performed costs more than $100,000 but less than 30% of the full and fair cash value of the building, then the work being performed must comply with MAAB and the following features must be provided:
    a. An accessible public entrance;
    b. A public accessible toilet room;
    c. An accessible telephone; and
    d. An accessible drinking fountain.

Exception: Whether performed alone or in combination with each other, the following types of *alterations* are not subject to **521 CMR 3.3.1**, unless the cost of the work exceeds $500,000 or unless work is being performed on the entrance or toilet. (When performing exempted work, a memo stating the exempted work and its costs must be filed with the permit application or a separate building permit must be obtained.)

3. If the work being performed costs more than 30% of the full and fair cash value of the building, then the entire building must be made to comply with MAAB. Work performed that is limited solely to electrical, mechanical, or plumbing systems and that does not involve the alteration of any elements or spaces required to be accessible by MAAB, and has a total value of less than $500,000 are excluded from this threshold review [MAAB 3.3.2 (b)]. However, if any non-exempt work is permitted within the 3-year period, all exempt work must be included.

When determining the appropriate level of work as described above, the cost of the work to be used in the calculation for Item 3 is all permitted work over a 3-year period.

ADAAG REQUIREMENTS

ADAAG is applicable to all public and private places of work. ADAAG does not requires upgrades be made for alteration work that is limited to work similar to re-roofing, maintenance, mechanical systems etc. Further, alterations include, but are not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, changes or rearrangement in structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions. Normal maintenance, reroofing, painting or wallpapering, asbestos removal, or changes to mechanical and electrical systems are not alterations unless they affect the usability of the building or facility.

ADAAG is different than MAAB, which does "count" this work. However, any work that does affect the primary function of the building should be made to be compliant. In addition, up to 20% of the project cost may be spent on accessibility upgrades before it is considered disproportionate.

Costs that may be counted as expenditures required to provide an accessible path of travel may include:

1. Costs associated with providing an accessible entrance and an accessible route to the altered area, for example, the cost of widening doorways or installing ramps;
2. Costs associated with making restrooms accessible, such as installing grab bars, enlarging toilet stalls, insulating pipes, or installing accessible faucet controls;
3. Costs associated with providing accessible telephones, such as relocating the telephone to an accessible height, installing amplification devices, or installing a text telephone (TTY); and
4. Costs associated with relocating an inaccessible drinking fountain

In choosing which accessible elements to provide, priority should be given to those elements that will provide the greatest access, in the following order

1. An accessible entrance;
2. An accessible route to the altered area;
3. At least one accessible restroom for each sex or a single unisex restroom;
4. Accessible telephones;
5. Accessible drinking fountains; and
6. When possible, additional accessible elements such as parking, storage, and alarms

It is assumed that the renovation of the school will trigger full compliance with MAAB given that the cost of the project will be more than 30% of the assessed value of the building. Given this, the following items would be required to be accessible:

- All bathrooms must be accessible.
- All entrances and grade exit doors must be accessible
- All doors and doorways must be accessible including providing adequate push/pull clearance
- Accessible seating must be provided in the theater and gymnasium and dispersed front and back
- An accessible route to the stage must be provided.
- Sinks and counters in classrooms must be accessible including not exceeding 34” AFF and providing knee clearance underneath
- 5% of the lockers in each locker room must be accessible
- 5% of all lockers in the school corridors must be accessible
- 5% of all showers, but not less than one in each locker room, must be accessible
- The cafeteria/kitchen, including any transaction desks, must be accessible
- 5% of items, but not less than one of each type, in Science Laboratory space must be accessible
- Accessible parking must be provided
- All exterior pathways must be accessible
- All Classrooms must be accessible
- Assembly areas should be accessible and provide assisted listening devices

During the walkthrough conducted on November 9, 2018, the following accessibility deficiencies were found in the school:

General

- Many doors throughout the school do not provide the 18 inches of pull side clearance required by 521 CMR 26.6.3. Refer to the floor-by-floor comments below for additional details.
- Many doors throughout the building are located in recesses greater than 6 inches in depth and are thus subject to the requirements of 521 CMR 26.6.2.
- The exit stairs have handrails that are non-accessible due to shape, height, and length of extension.
- The exit stair nearest to the main entrance has nosings on each step. The underside of these nosings have an angle less than the minimum of 60 degrees allowed by 521 CMR 27.3.
- The elevator provided in the building lacks the hall lantern on each floor required by 521 CMR 28.4. The handrail inside the elevator measures 31 inches above the ground, less than the 32-36 inches required by 521 CMR 28.7.2.
- The majority of restrooms in the building, including both staff-only restrooms and boy's and girl's restrooms provided for students, are not accessible. Making any of the existing restrooms accessible will likely require a reduction in the number of fixtures to accommodate the larger stalls.
    - The women's restroom on the 1st floor between Room 207 and Room 209B contains a stall measuring 68 x 71 inches. This stall could be made to be accessible by moving the partition to increase the length of the stall to 72 inches.
- The majority of drinking fountains provided in the building are non-accessible. An accessible drinking fountain is provided across from Room 222 on the 1st floor, and in the locker space adjacent to the gymnasium on the Ground Floor.
- The following rooms contain a non-accessible sink/counter that does not provide proper knee clearance:
    - Locker Room (Ground Floor)
    - Room 102
    - Room 115
    - Room 208 (Science Laboratory)
    - Room 220
    - Room 302
    - Room 308A
    - Room 316

Ground Floor

- Many of the doors on the odd-numbered side of the corridor do not provide the 18 inches of pull side clearance required by 521 CMR 26.6.3. The doors on the even-numbered side of the corridor do not present a pull side clearance issue.
- The door leading from Room 116 directly to the exterior is not accessible, as it includes exterior steps down to grade level.
- The set of double doors adjacent to Room 115 leading to the exterior have 30 inches of clear width each. This is less than the 32 inches required by 521 CMR 26.5.

- The door leading from Room 113 directly to the exterior is equipped with a door knob and is thus not accessible.
- The exterior discharge of the stair adjacent to Room 106 is not accessible as it includes an exterior step down to grade level.
- The dishwasher drop-off counter adjacent to the kitchen is 34.5 inches above the ground, greater than the 28-34 inches allowed by 521 CMR 35.6.
- The landing at the top of the corridor ramp in front of Room 115 is 44 inches in length, less than the 60 inches required by 521 CMR 24.4.3. Also, the top handrail for this ramp is 33 inches above the ground, less than the 34-38 inches required by 521 CMR 24.5.2.
- Room 117 (classroom) is non-accessible as it is only reachable via 3 steps down from the corridor.
- The set of double doors leading from the corridor into the multi-purpose room have 29.5 inches of clear width each. This is less than the 32 inches required by 521 CMR 26.5. The stair through this door down to the multi-purpose room does not have compliant handrails.
- There is a ramp up to the stage in the multi-purpose room, but the ramp does not have handrails and there is no accessible route to reach this ramp and access the stage.
- Aisles in the multi-purpose room risers only have handrails on one or neither side. Handrails are required on both sides by 521 CMR 27.4.1. Handrails would likely be required on one wall for aisle stairs at the ends of the room. Center aisles would require discontinuous handrails. In addition, a MAAB variance would be required for not having handrails on both sides.
- The exit leading to the exterior from the corner of the multi-purpose room is non-accessible as it includes one interior step down to the discharge door. The stair leading down to this exit from Room 117 is non-accessible as it does not have handrails.
- The set of double doors at the top of the ramp leading down toward the gymnasium have 29.5 inches of clear width each. This is less than the 32 inches required by 521 CMR 26.5. The top handrail for this ramp is 32 inches above the ground, less than the 34-38 inches required by 521 CMR 24.5.2. Also, there is no landing at the top of this ramp. Handrails are required to be added to the exterior stair through the discharge at the bottom of this ramp.
- There is a stair leading up from the gymnasium floor to the locker room. The stair does not have compliant handrails.
- The exit leading to the gymnasium floor to the exterior is non-accessible as it includes one interior step down to the discharge door.

1st Floor

- Various doors on both sides of the corridor do not provide the 18 inches of pull side clearance required by 521 CMR 26.6.3. For the doors leading into Room 222, this issue can be resolved by removing one locker from each end of the row of lockers provided between the doors.
- There is 41 inches between the two sets of double doors forming the main entrance when the doors are fully opened into the vestibule. This is less than the 48 inches required by 521 CMR 26.7.
- The door leading into Room 220 provides 9” push side clearance, less than the 12” required by 521 CMR 26.6.4 for latched doors with closers.
- The ramp leading up to the stage in the library is non-accessible based on cross-slope and handrails.

- The doors leading into the offices in Room 215A and Room 215B have 29.5 inches clear width. This is less than the 32 inches required by 521 CMR 26.5.

2nd Floor

- The doors leading into the Grade 3 and Grade 5 classrooms in the 1953 wing do not provide the 18 inches of pull side clearance required by 521 CMR 26.6.3.
- A latch is required to be added to the door leading from Room 316 directly into the exit stair. Once the latch is added, the door will have non-compliant push clearance.

PLUMBING FIXTURES

The following tables contain the required plumbing fixture counts for the planned occupant load within the school, along with the number of fixtures being provided. The planned occupant load of the school includes 800 students and 125 staff. The fixture counts are based on fixture factors found in 248 CMR 10.00. As outlined in 248 CMR 10.00, additional fixtures are required for the occupants of the multi-purpose room on the Ground Floor. The existing fixture counts are based on the information gathered on the November 9, 2018 site walkthrough. The school contain boy's and girl's restrooms designated for students as well as men's and women's restrooms designated for staff. Additionally, there are 19 unisex single-user restrooms in the school, 10 of which are located in classrooms and are thus counted toward the student plumbing fixture requirement. The remaining single-user restrooms were counted toward the staff plumbing fixture requirement.

The total occupant load presented in these tables is based on the program load of the school. Using this program load will require approval from the plumbing official. Based on the tables below, the number of water closets and lavatories provided is sufficient to serve the planned occupant load of the building. Four drinking fountains will need to be added to meet the requirements for the planned occupant load.

Occupancy	Subcategory	Water closets			Lavatories		Drinking Fountains
		Male	Female	Urinals	Male	Female	
Education	Kindergarten	1 per 20	1 per 20		1 per 20	1 per 20	1 per 75
Educational	Elementary	1 per 60	1 per 30	1 per 60	1 per 60	1 per 60	1 per 75
Educational	Staff	1 per 25	1 per 20	33%	1 per 40	1 per 40	--
Educational	Auditorium	1 per 600	1 per 200	1 per 200	--	--	--

Brookline Driscoll School

Occupancy	Subcategory	Total Occupant Load	Required						Provided						
			Water closets			Lavatories		Drinking Fountains	Water closets				Lavatories		Drinking Fountains
			Male		Female	Male	Female		Male			Female	Male	Female	
			Toilets	Urinals					Toilets	Urinals	Total				
Educational	Kindergarten	128	3.20		3.20	3.20	3.20	1.71	17	8	25	15	12	12	7
Educational	Elementary	672	5.60	5.60	11.20	5.60	5.60	8.96							
Educational	Staff	125	2.50		3.13	1.56	1.56		6	0	6	7	6	7	--
Educational	Auditorium	289	0.24	0.72	0.72										
	TOTALS	**1,214**	**11.54**	**6.32**	**18.25**	**10.36**	**10.36**	**10.67**	**23**	**8**	**31**	**22**	**18**	**19**	**7**

Toilet Travel distance

According to the Massachusetts Plumbing Code, the maximum allowable toilet travel distance from the most remote point is 300 feet. Staff are allowed to travel up or down one story, but students are not permitted to travel up or down one story to access the facilities. **The school meets the requirements for toilet travel distance.**

CONCLUSION

The renovations to the Brookline Driscoll School would be conducted in accordance with the requirements of the Massachusetts State Building Code (MSBC). The following items would be required in the school if it were to be renovated:

1. From our walkthrough, it was determined that the current fire alarm system is zoned and does not have voice communication capabilities. If a Level 2 or 3 Alteration is desired, the entire fire alarm must be upgraded to be fully-addressable and provide voice communication.
2. The building is fully sprinklered and thus meets the sprinkler requirements for all levels of alteration.
3. The building is constructed of Type IIIA or IIIB Construction. This building exterior is constructed of brick, and the interior is constructed of a combination of concrete and wood joists. The wood joists would default the building to Type III Construction. Most of the wood appeared to be enclosed with a layer of drywall, which would allow the building to be considered Type IIIA Construction. However, if portions of the wood joists do not contain drywall, the building would be considered Type IIIB Construction. The building is subject to the height and area limitations for Type IIIA or IIIB construction found in Chapter 5 of the MSBC. Currently, the building is 3 stories in height with an approximate footprint area of 35,000 square feet. Additions may be permitted if they do not cause the building to exceed the applicable maximum height and area values. If any of the area values are exceeded, the addition would require construction of a fire wall to separate areas of the building.
4. If the renovation triggered full accessibility compliance, then the following major items would be required:
    a. Doors throughout the school would need to be altered to provide the 18 inches of pull side clearance required by 521 CMR 26.6.3.
    b. Doors entering into exit stairs throughout the building would need to be replaced with latching, rated doors, and handrails in the stairs would need to be replaced. The two unenclosed exit stairs will need to be enclosed by 1-hour rated construction.
    c. The exit stair nearest to the main entrance has non-compliant nosings on each step.
    d. The elevator would require relocation of the internal handrail and the addition of a hall lantern on each floor as required by 521 CMR 28.4.
    e. Restrooms would need to be altered to be accessible. This would likely require a reduction in the number of fixtures provided.
    f. Four drinking fountains would need to be added, and drinking fountains throughout the building would need to be made accessible.

g. Sinks and benches in the following rooms would require alterations to provide accessible knee clearance:
    a. Ground Floor: Locker Room, Room 102, Room 115
    b. 1st Floor: Room 208 (Science Laboratory), Room 220
    c. 2nd Floor: Room 302, Room 308A, Room 316

5. Currently, sufficient egress capacity is provided for the occupant load of each floor of the building. Means of egress should be provided as outlined in this report.
6. Adequate plumbing fixtures are currently provided as noted within the report.

Please contact our office if you have any questions regarding the items addressed in this letter.

Prepared by,

Jeremy A. Mason

Jeremy A. Mason, P.E
Project Director

1.5.7 Physical Conditions

Site - Rights of Passage
Legal access use that connecting passageways from Bartlett Crescent to Washington St. and the passageway behind the retail at Beacon St. to Washington St. are to be maintained. Passageways are graphically shown in option site plans.

Site - Drainage Structure
A drainage structure, dating back to 1894, runs the length of the site, please reference the site survey included in section 1.6 Site Development Requirements. Initial findings indicate it is deep enough that a new building may be built over it, or the drain may be re-routed. An invert is believed to be paved over in the passageway to the east and would need to be revealed to confirm the invert height at that location. These site development costs are anticipated to be included in the the projected cost ranges.

Structure - addition/renovation
Please reference the following addition/ renovation approach prepared by the Structural Engineer, LeMessurieur.

I. Structural Systems Overview

The proposed renovated building will keep most of the current building consisting of two and three stories constructed originally in 1910 and subsequently enlarged with additions in the 1920's and 1950's and the new renovation will add a new building section consisting of three levels plus a basement.

The proposed new building structure will be a structural steel frame with concrete floor slabs on composite steel deck. The roof will be steel roof deck except at areas where concrete is required for sound attenuation below rooftop mechanical equipment or for fire ratings. Lateral loads will be resisted by structural steel braced frames. Foundations will be cast-in-place reinforced concrete walls, slabs-on-grade, and spread footings.

II. Existing Building Renovations

The new addition will be seismically isolated so that the structure of the new addition will be designed to meet the current Code for new buildings under wind and seismic provisions while the existing renovated building will be designed to meet the Code for existing buildings under wind and seismic provisions.

The existing building code can be satisfied without a seismic and wind upgrade and still allow some modifications of masonry walls by limiting the impact to less than ten percent of the lateral resistance which can translate closely into ten percent of the length of masonry walls in either of the two main directions of the building. Attached is a diagram of observed structural systems from a 27 September 2018 site visit.

If necessary a seismic and wind upgrade to this existing building can include the following options but are not limited to this list and may likely require additional new foundation elements.

1. steel bracing
2. new reinforced masonry walls
3. concrete shear walls
4. reinforcement of existing brick masonry walls with shotcrete
5. combinations of those listed above

III. Foundations

Based on information provided by McPhail Associates in the 27 November 2018 document titled "Preliminary Foundation Engineering Report", foundations for the project will be as follows:

A. Walls

Typical foundation walls will be 16-inch thick reinforced concrete with 8-inch wide shelves as required to support façade elements. Exterior foundation walls will extend down to a minimum of 4'-0" below finished

exterior grade. A drainage system will be installed around the perimeter of the foundation to divert ground water away from the building. All foundation walls enclosing below-grade space shall be waterproofed on the exterior surface.

B. Slab-on-Grade

The lower level and first floor slab-on-grade will be a 5-inch thick slab-on-grade. A 15-mil vapor barrier and a 12-inch layer of crushed stone will be placed beneath the slab to provide an adequate substrate and to allow for an under-slab drainage system. An allowance shall be provided for depressions, and trenches, and other potential equipment requirements.

C. Footings

The foundations will be reinforced concrete spread footings and continuous wall footings bearing on compacted structural fill or undisturbed soil. The allowable bearing pressure will be per the recommendations of the geotechnical report which states a maximum uniform design force of 2 tons per square foot.

D. Pits

Elevator and other pits that may be required pits will consist of an 18-inch thick reinforced concrete base slab and 12-inch thick reinforced concrete pit walls. All pits shall receive waterproofing.

E. Foundation Requirements

Based on the geotechnical report the site is underline with fill and organics of significant thickness, up to 22 feet, which are unsuitable for building foundation support. New foundations and slabs-on-grade shall be supported on aggregate piers installed through the fill and organic layers. This method of construction is a form of ground improvement and permits the use of conventional foundations for building support once the ground improvements are complete.

IV. Gravity Load System for New Addition

A. Ground Floor

Slab-on-grade as described above.

B. Typical Floor Construction

Floor construction will be 3¼-inch lightweight concrete on 3-inch deep, 18-gage galvanized, composite steel deck for a total slab thickness of 6¼-inches. The floor slab will be reinforced with WWF 6x6-W4.0xW4.0 throughout. Beams and girders will be structural steel rolled shapes (typically W14, W16, & W18) made composite with the floor slabs via ¾-inch diameter, 5½-inch long welded steel shear studs. Columns will be structural steel rolled shapes (typically W12).

C. Typical Roof Construction

The roof will be 3-inch deep, 18 gage, galvanized steel roof deck. Roof beams and girders will be structural steel rolled shapes. Where it is preferred or necessary to place concrete on the roof, the construction will be similar to the typical floor construction described above. Hot-dipped galvanized steel dunnage will be provided on top of the roof if necessary to support mechanical equipment and for mechanical equipment screening.

D. Typical Façade Support

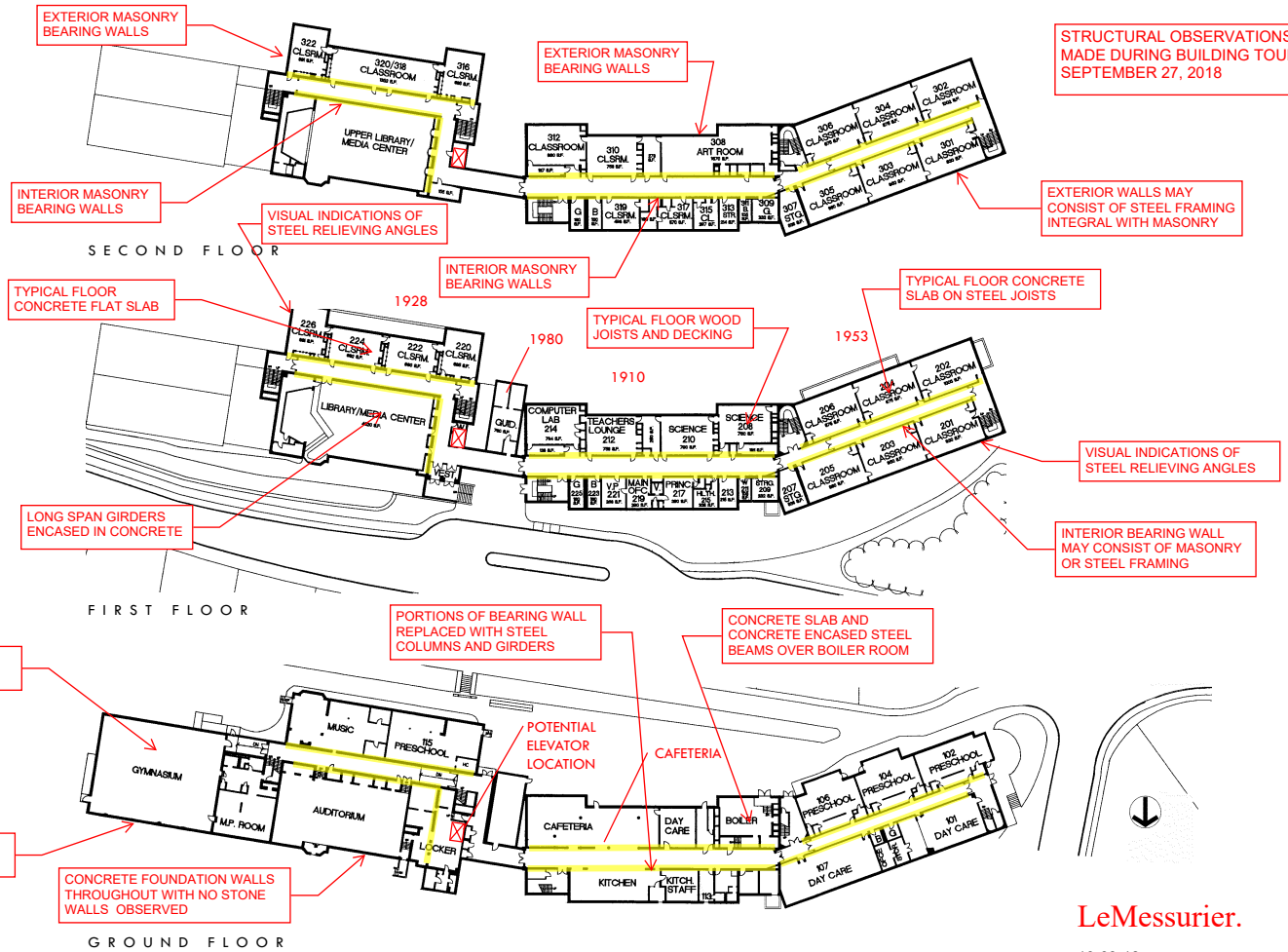
Continuous support of the building façade is expected to occur from each framed level above grade. This may likely consist of hung steel angle frames with all material outside the air and vapor barrier system to be hot-dipped galvanized.

V. Lateral Load System for New Addition

The lateral force resisting system will consist of concentrically braced steel frames in both primary structural directions. Structural steel tubes will be oriented diagonally in vertical planes between columns to provide resistance to wind and seismic forces. Final locations of the frames will be coordinated with the architectural layout as design progresses.

NO ATTIC OR ROOF ACCESS MADE

STRUCTURAL OBSERVATIONS MADE DURING BUILDING TOUR SEPTEMBER 27, 2018



LeMessurier.

10-03-18

Existing Driscoll School stuctural systems

1.5.8 Geotech Evaluation
Please reference Appendix 3.2 for the Preliminary Foundation Report prepared by McPhail Associates.

1.5.9 Geoenvironmental
Please reference Appendix 3.4 for the Phase 1 Site Assessment prepared by McPhail Associates.

This assessment has identified no Recognized Environmental Conditions (RECs) or CRECs in connection with the subject site and has identified one (1) HREC with connection to the subject site. TheHREC [historic recognized environmental condition] references a subterranean oil tank that was appropriately removed in 1996.

1.5.10 Hazardous Materials
Please reference Appendix 3.3 for report prepared by CDW.

1.5.11 Traffic
Please reference Appendix 3.1 for Traffic Report prepared by Vannasse Assoicates.

Overall, a safe environment to the school can be maintained and the increased traffic conditions with respect to delays and queues will be limited to short periods in the morning and afternoon.

1.6 Site Development Requirements

1.6.1 Site Narrative

The existing large site spans from a commercial zone along Beacon Street to the east (project east) to the heart of the residential neighborhood to the west (project west). The western part of the site is currently filled by the existing building footprint. To the south and the east are areas for a small athletic field, hard paved recreational space, a fenced play equipment area and approximately 50 spaces of at grade parking.

The topography slopes gently upward from the south (project south) frontage at Washington Street to the existing building footprint where, on the north (project north) it berms steeply upwards to meet Westbourne Terrace. Neighborhood tennis courts are located in the northeastern corner of the site where, due to their geometry and size, there is a residual triangle of underutilized pavement. The neighborhood context is primarily single family residential with four-story apartment blocks along the north side of Westbourne Terrace. These latter are sited well up from street level and present an imposing presence of great height in relationship to the relatively depressed school site to the south.

Due to topography and geometry the site is largely southeast facing, presenting great potential for the solar orientation of any new additions or school.

There are several encumbrances across the property which are easily dealt with in any of the design alternatives. These include a deeply buried storm drain alignment traversing the center of the site from Bartlett Crescent to a point roughly midway along the East property line. There are also two rights of passage. On the west there is a 20 foot right of passage connecting Washington Street to the easterly end of Bartlett Crescent. To the east there is another 20 foot right of passage connecting Washington Street to the termination of the way at the rear of the Beacon Street commercial properties.

Please reference the following Site Survey.

1.6.2 Site Survey

LEGEND

234	SURFACE CONTOUR
	STONE WALL
	METAL GUARDRAIL
	EDGE OF PAVEMENT
	CHAIN LINK FENCE
26.75 / 26.25	CURB WITH TOP AND BOTTOM CURB ELEVATION
	EDGE OF WOODED AREA
8"CI	SEWERLINE & MANHOLE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION
12"RCP	DRAINLINE WITH PIPE SIZE, MATERIAL & FLOW DIRECTION, CATCHBASIN, MANHOLE & ROUND CATCHBASIN
6"CI	WATER MANHOLE, WATER MAIN WITH SIZE, TEE, GATE VALVE & FIRE HYDRANT
10"DI	GAS MAIN WITH SIZE & GATE VALVE
OHW	EXISTING UTILITY POLE WITH DESIGNATION OVERHEAD WIRES AND GUY POLE
E	ELECTRIC MANHOLE & UNDERGROUND ELECTRIC LINES
T	TELEPHONE MANHOLE & UNDERGROUND TELEPHONE LINES
	RETAINING WALL
	STONE RETAINING WALL
	EDGE OF GRAVEL ROAD
28.8 / 23.2	RETAINING WALL WITH TOP AND BOTTOM ELEVATIONS
	BENCH
PT	PICNIC TABLE
PB	PLANTER
× 232.6	SPOT ELEVATION
26.8 / 12"M	PROMINENT DECIDUOUS TREE WITH SIZE AND SPECIES
26.8 / 18"P	PROMINENT CONIFEROUS TREE WITH SIZE AND SPECIES
	LIGHT POLE
205.24	MONITORING WELL WITH TOP METAL CASING EL.
RCP	REINFORCED CONCRETE PIPE
CI	CAST IRON
CMP	CORRUGATED METAL PIPE
VC	VITRIFIED CLAY
PVC	POLYVINYL CHLORIDE
SMH	SEWER MANHOLE
DMH	DRAIN MANHOLE
CB	CATCH BASIN
RCB	ROUND CATCH BASIN
	DOUBLE GRATE CATCHBASIN
	D GRATE CATCHBASIN
	BOLLARD
	SIGN
	MANHOLE (UNKNOWN UTILITY)
	FLOOR DRAIN
ICV	IRRIGATION CONTROL VALVE
	SPRINKLER/ DRINKING FOUNTIAN
	BASKETBALL HOOP
	PARKING METER
FF THOLD	FINISH FLOOR ELEVATION THRESHOLD
(C)	CALCULATED
(R)	RECORD
DHSB	DRILL HOLE IN STONE BOUND

TREE ABBREVIATIONS

M	MAPLE
O	OAK
P	PINE
C	CEDAR
CA	CATALPA
CH	CHERRY
E	ELM
AS	ASH
B	BIRCH
LC	LOCUST
D	DOGWOOD
CR	CRAB APPLE

NOTES:

1) ELEVATIONS SHOWN HEREON REFER TO TOWN OF BROOKLINE DATUM, BASED ON THE INVERT ELEVATION OF THE SEWER MANHOLE LOCATED ON WASHINGTON SOUTH OF LOCUS WHICH WAS HELD AND SHOWN AS HAVING AN ELEVATION IS 88.70'.

2) UNDERGROUND UTILITIES SHOWN HEREON ARE COMPILED FROM FIELD LOCATIONS OF STRUCTURES AND FROM AVAILABLE RECORD INFORMATION ON FILE AT THE TOWN ENGINEERING OFFICES, TOWN D.P.W., MASS HIGHWAY DEPT. AND UTILITY COMPANIES. OTHER UNDERGROUND UTILITIES MAY EXIST. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.

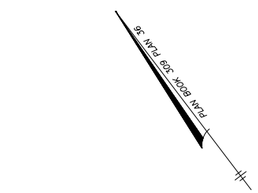
3) FIELD CREW LOCATED A FEATURE WHERE THE RECORD LOCATION OF THIS DRAIN MANHOLE IS SHOWN ON PREVIOUS PLANS AND HAVE CONCLUDED IT HAS BEEN PAVED OVER.

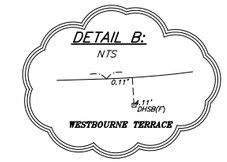
4) A GAS VAULT WAS LOCATED AT THE SOUTHEAST CORNER OF LOCUS ON WASHINGTON STREET. NATIONAL GRID WAS CONTACTED FOR DETAILED SKETCHES FOR THIS VAULT BUT DID NOT RETURN CORRESPONDENCE.

5) THE UTILITY SKETCH PROVIDED BY NATIONAL GRID SHOWS THE GAS LINE IN THE SIDEWALK ALONG THE DRISCOLL SCHOOL ON WESTBOURNE TERRACE. THE GAS LINE HAD BEEN MARKED OUT IN THE STREET BY AN UNKNOWN PARTY, BOTH ARE SHOWN HEREON.

6) SEWER SERVICE CONNECTION CARDS SUPPLIED BY THE TOWN SHOW A MANHOLE IN THIS LOCATION. IT WAS CONFIRMED VIA METAL LOCATOR THAT A MANHOLE MAY EXIST, BUT IS BURIED A FEW FEET BELOW GRADE.

7) NOTE THAT THE PASSAGEWAY TAKING IN BOOK 3299, PAGE 109 ALSO GRANTS RIGHTS OF THE PASSAGE TO TWO UNDEFINED PROPOSED 20' WIDE PASSAGEWAYS LOCATED WITHIN LOTS 7 & 11 IN BLOCK 92. THE TWO LOTS ARE SHOWN ON A PLAN RECORDED AT THE NORFOLK COUNTY REGISTRY OF DEEDS IN BOOK 3244, PAGE 94. THE PHYSICAL LOCATION ON LOT 11 APPEARS TO BE 20' WIDE. ON LOT 7, ACCESS CURRENTLY RUNS THROUGH THE MIDDLE OF THE PARKING LOT.





ASSESSORS:

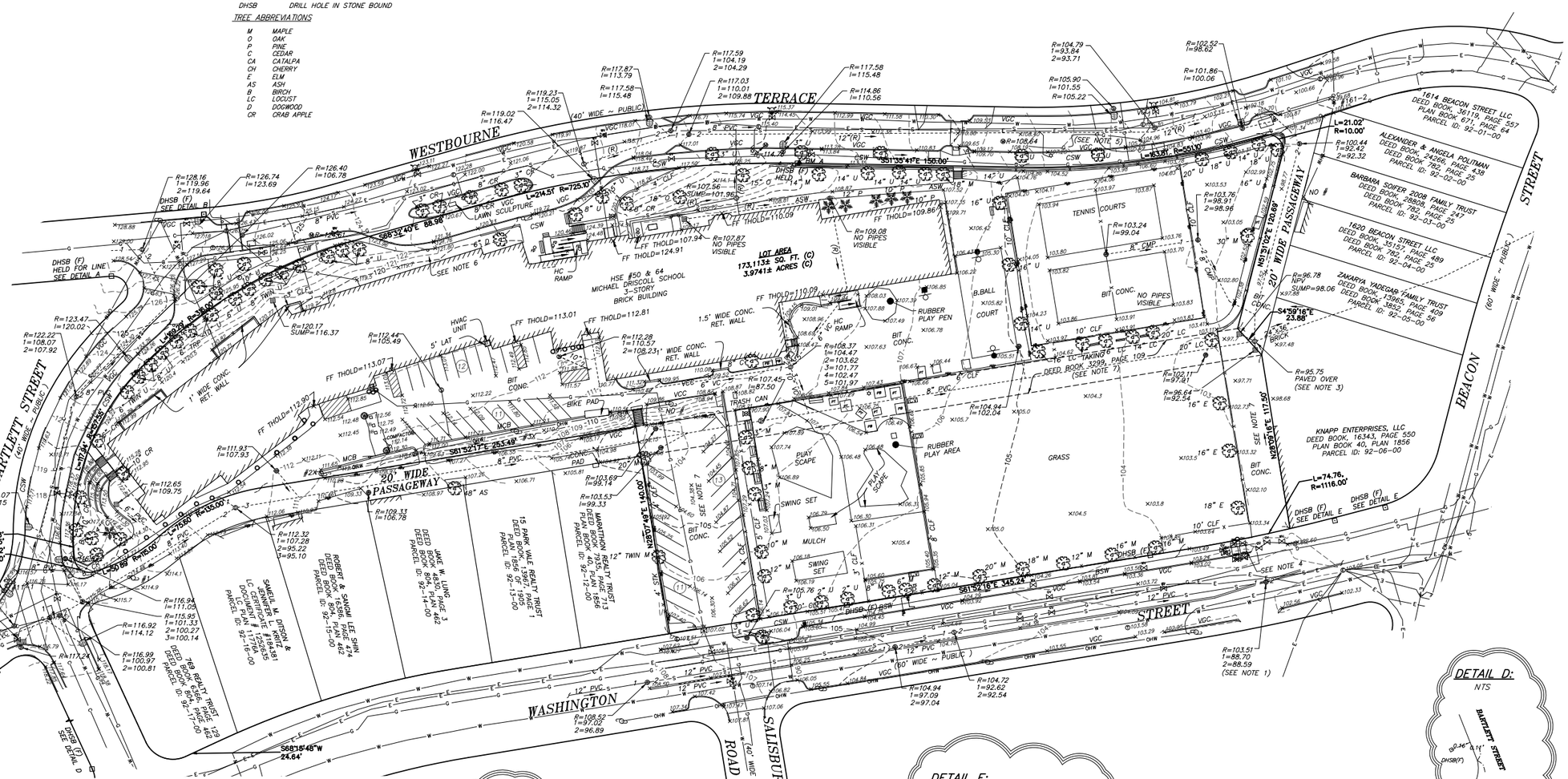
PARCEL ID: 92-18-00

REFERENCES:

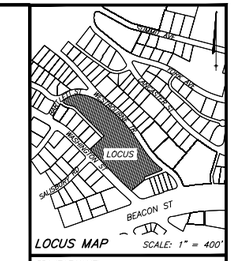
DEED REFERENCES
DEED BOOK 1137, PAGE 521
DEED BOOK 1137, PAGE 522
DEED BOOK 1137, PAGE 525
DEED BOOK 1145, PAGE 418
DEED BOOK 3244, PAGE 95
DEED BOOK 3299, PAGE 109
PLAN REFERENCES
PLAN 46 OF 1954
DEED BOOK 3299, PAGE 109
DEED BOOK 3244, PAGE 94
DEED BOOK 930, PAGE 389
DEED BOOK 930, PAGE 388
DEED BOOK 913, PAGE 459

RECORD OWNER:

TOWN OF BROOKLINE
333 WASHINGTON STREET
BROOKLINE, MA



▲ ELEVATION BENCH MARKS DATUM: SEE NOTE 1		
NO.	DESCRIPTION	ELEV.
A	STONE BOUND WITH A DRILL HOLE AT A POINT OF CURVATURE ON THE SOUTHERLY SIDELINE OF WESTBOURNE TERRACE	113.46'



PROJECT NAME

MICHAEL DRISCOLL SCHOOL

50 & 60 Westbourne Terrace
Brookline, Massachusetts 02446

PREPARED FOR:

JONATHAN LEVI ARCHTIECTS

266 Beacon Street
Boston, Massachusetts 01923

HANCOCK ASSOCIATES

Civil Engineers

Land Surveyors

Wetland Scientists

315 ELM STREET, MARLBOROUGH, MA 01752
VOICE (508) 460-1111, FAX (508) 460-1121
WWW.HANCOCKASSOCIATES.COM

NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION

DATE:		EC	DRAWN BY: RCT
SCALE:	1"=30'		CHECK BY: JDB

EXISTING CONDITIONS PLAN OF LAND IN BROOKLINE, MA

DRAFT

PLOT DATE: Oct 06, 2018 4:50 pm
PATH: V:\Vol1\HSA\2M 3D Projects\21770 Brookline- JLA\DWG\

DWG: 21770-SV2.dwg
LAYOUT: EC
SHEET: 1 OF 1

EC

PROJECT NO.: 21770

1.7 Preliminary Evaluation of Alternatives

1.7.1 DistrictInformation

Town:
-Analysis of school assignment practices
-tuition agreements
-acquisition of existing buildings

1.7.2 Alternatives

Seven initial preliminary alternatives were presented and reviewed. These were grouped into two categories; the first being those utilizing an addition/renovation approach, and the second involving new construction.

Option A:	Code Renovation with East Addition
Option B:	Right Size Renovation with East Addition
Option C:	Code Renovation with South Addition
Option D:	Right Size Renovation with South Addition
Option E:	Star - New Construction
Option F:	Magnet - New Construction
Option G:	Shoal - New Construction

The addition/renovation approaches were themselves divided into two branches. The first, following up on an initial site selection study by a previous architect, looked at making up the balance of needed gross floor area within an addition to the east. This addition would further extend the linear additive nature of the existing school. The second

OPTION A "Code Renovation with East Addition
- Off site swing space/temporary gym"
&
Option B "Right Size Renovation with East Addition
- Off site swing space/temporary gym"

Option C "Code Renovation with South Addition
- Off site swing space/temporary gym"
&
Option D "Right Size Renovation with East Addition
- Off site swing space/temporary gym"

Option E
"Star - New construction/occupied site/temporary gym"

Option F
"Magnet - New construction/occupied site/temporary gym"

Option G
"Shoal - new construction/occupied site/temporary gym"

Jonathan Levi Architects

CONCEPT DESIGN THUMBNAIL SITE PLAN

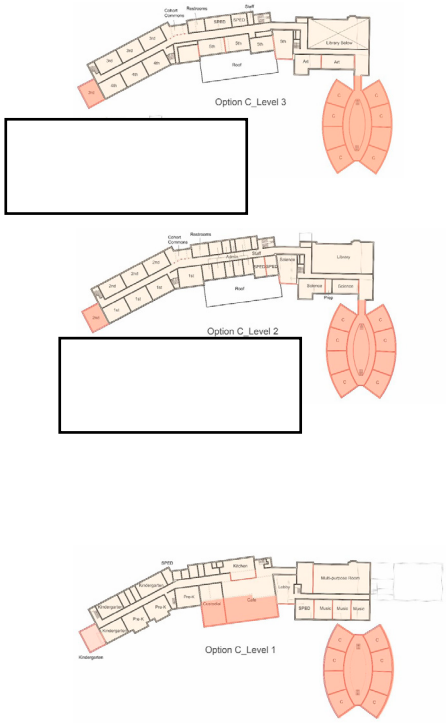
Preliminary Concept Design Alternatives

Option A.1 – 'Code Renovation with East Addition'

DRISCOLL SCHOOL, BROOKLINE

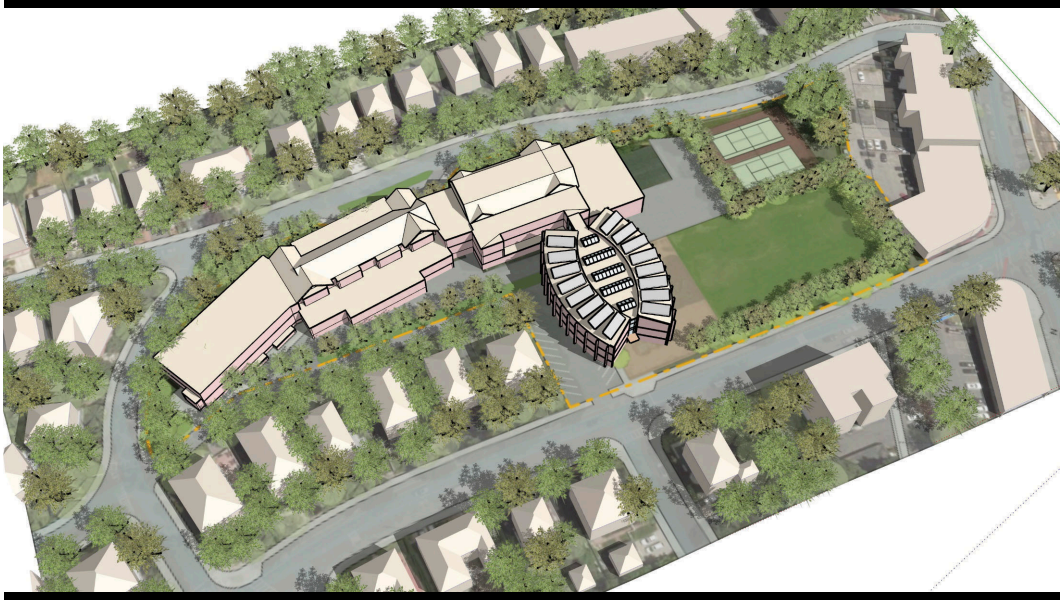
View of Option A.1 from Washington Street

Diagrammatic plans of Option A.1 indicating renovated and addition areas



Diagrammatic plans of Option C.1 indicating renovated and addition areas

Preliminary Concept Design Alternatives



Option C.1 – 'Code Renovation with South Addition'

DRISCOLL SCHOOL, BROOKLINE

View of Option C.1 from Washington Street

approach explored placement the added area to the south of the school in an attempt to create more of a center of gravity for the school community. Each of these addition approaches were broken down to sub alternates with a minimum code renovation version and a so-called 'right sized' version.

The new construction alternatives were created in order to offer the widest spectrum of geometric possibilities as varying expressions of the educational program. These ranged from a so-called "star" shaped plan with radiating academic wings, to a "magnet" shaped building surrounding a projected media center fronting on Washington Street, to a series of concave crescent shape wings surrounding a central learning Commons/cafeteria atrium.

Preliminary Concept Design Alternatives

Option E – 'Star' with massing

DRISCOLL SCHOOL, BROOKLINE

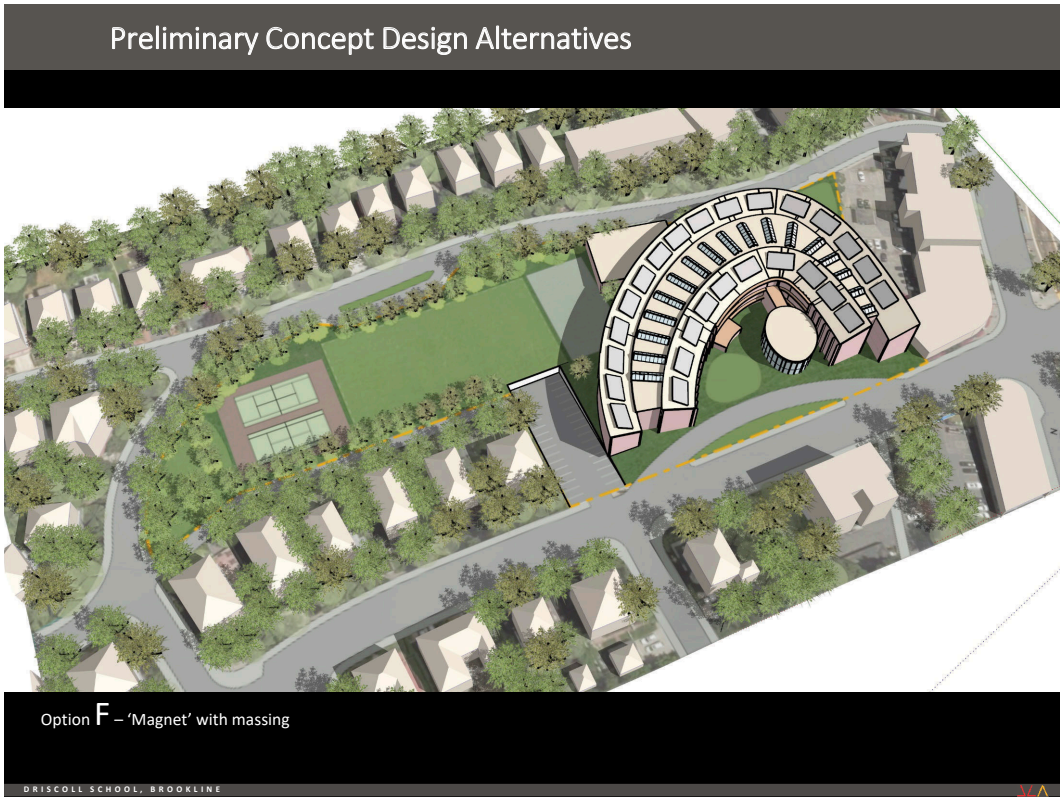
View of Option E - with roof from Washington Street

Preliminary Concept Design Alternatives

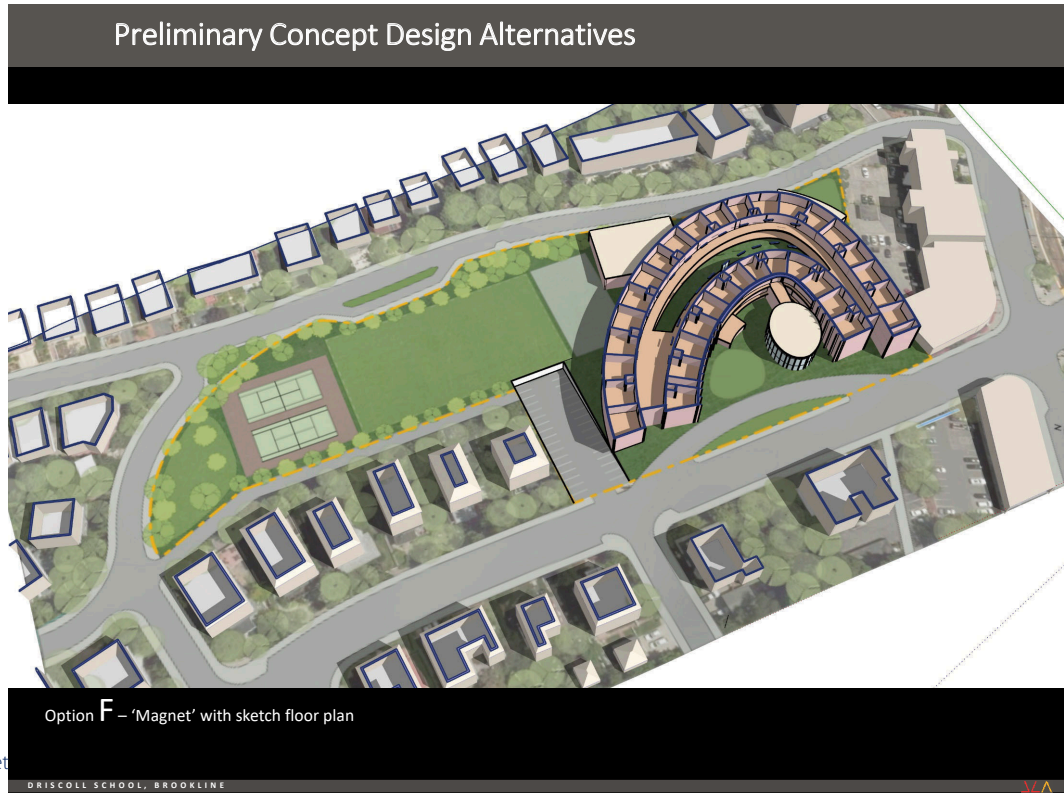
Option E – 'Star' with sketch floor plan

DRISCOLL SCHOOL, BROOKLINE

View of Option E - without roof from Washington Street



View of Option F - with roof from Washington Street



View of Option F - without roof from Washington Street

Preliminary Concept Design Alternatives

Option G – 'Shoal' with massing

DRISCOLL SCHOOL, BROOKLINE

View of Option G - with roof from Washington Street

Preliminary Concept Design Alternatives

Option G – 'Shoal' with sketch floor plan

DRISCOLL SCHOOL, BROOKLINE

View of Option G - without roof from Washington Street

2.0 PREFERRED SCHEMATIC REPORT
2.1 Introduction

2.1.1 Overview of process

The study process was organized with the structure of regular meetings with key Brookline staff to discuss the team's findings as well as facilitating information gathering and inputs from key stakeholders. More formal presentations were made to the School Building Committee. In addition there were also presentations at the Driscoll School for public input and commentary.

The collaborative effort across Brookline Departments and Commissions included meetings with:

- Fire Department
- Police Department
- Traffic Department

2.1.4 Summary of Final Evaluation of Alternatives

With further consideration these seven initial alternatives were resolved into four pre-final options:

Option '0' – 'Code Renovation'
Option 'A.1' – 'Addition/Renovation'
Option 'F.1' – 'Modified Magnet'
Option 'H' – 'Modified Star'

The latter two new construction options, by committee request, included the reduction of the building footprint by an increase of one floor of building height from the initially contemplated three-stories. A code renovation approach was kept as a base for comparison. The pre-final addition/renovation approach acknowledged the undesirability of the south addition as it would take away more open space than other options. The selected addition/renovation option was necessarily explored in great depth in order to fully understand the tailoring of individual program pieces to individual spaces in the existing building.

Option 0
"Minimum Code Renovation/Addition"

Option A.1
"Renovation with East Addition "

Option F.1
"Modified Magnet - New Construction"

Option H
"Modified Star - New Construction"

Jonathan Levi Architects

CONCEPT DESIGN THUMBNAIL SITE PLAN

This resulted in a proposal which incorporated both partition relocations and selective additions in order to reflect as best as possible the full breadth of the educational program and its required adjacencies.

2.1.5 Summary of Preferred Solution

The preferred option consists of a four-story structure, measured from the grade at Washington Street. The building would be an apparent three stories in height from Westbourne Terrace due to the site topography. There is an additional basement level below the Washington Street elevation which comprises an assumed 50 car garage as well as athletics suite with the 6100 square-foot gymnasium and associated athletic facilities accessed from a multistory lobby.

Option H 'Modified Star' new construction.

2.2 Evaluation of Existing Conditions

2.2.1 Evaluation of Exisitng Conditions

Please reference 1.5 Evaluation of Existing Conditions in the Preliminary Design Program

2.3 Final Evaluation of Alternatives

2.3.1 Final Evaluation of Alternatives

Option 0 'Code Minimum Renovation/Addition',
Option A.1 'Addition/Renovation',
Option F.1 'Modified Magnet' new construction and
Option H 'Modified Star' new construction.

Option 0 - 'Code Minimum Addition/Renovation'

This minimum renovation/addition project consists of a code and mechanical upgrade to all spaces within the existing building, retaining all existing wall locations, plus an addition to increase the overall area to match the required gross sf. While addressing gross sf, this option cannot reflect the educational program or meet the functional requirements of a municipal asset which is meant to efficiently serve the Town for the next 70 years. This is because of numerous deficiencies including:

- Undersized K and PK classrooms
- Only one PK classroom can be co-located with K
- Cafeteria, and Multipurpose spaces grossly undersized
- Administration grossly undersized – cannot grow without displacing classrooms
- Properly located Science, Music and Art classrooms grossly undersized
- Cohorts cannot have appropriately co-located classrooms
- SWD, Learning Center and Support cannot be properly located among cohorts
- Grossly undersized Custodial Storage and Receiving areas
- Loading area conflicts with traffic and student safety
- Lack of clear entrances and adequate foyer areas
- Administration improperly located relative to entrances
- Reduced outdoor open space
- Recess areas chopped up and remote from cafeteria

Jonathan Levi Architects

OPTION 0

SITE PLAN
DRISCOLL SCHOOL, BROOKLINE

Option 0 view with roof
from Washington Street.

Option 0 view without roof
from Westbourne Terrace.

Option A.1 - 'Addition/Renovation'

This renovation with east addition delivers the called for 4 section educational program using the entirety of the exist 3 story building plus a 3 story addition and several 'bump-out' additions. The renovation selectively removes and relocates walls to address program adjacencies but uses existing structure and finishes to the extent possible and does not assume a full 'gut' renovation. A covered parking structure with tennis courts on its roof is located to the east of the addition with parking access from Westbourne Terrace. This option includes bump-outs and repartitioning of targeted areas within the existing building in order to achieve:

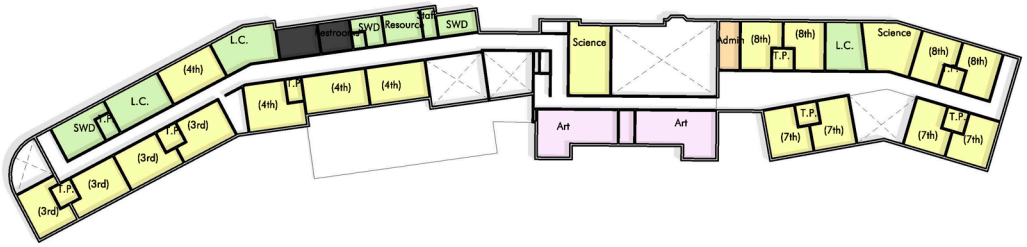
- The best compromise for co-location of cohort classrooms possible.
- Location of SWD, learning centers, project areas and other support areas as close as possible to their primary users.
- Creation of a new right-sized cafeteria/learning commons.
- Replacement of an existing temporary structure with the new 2 story lobby to create a much needed foyer and improved wayfinding.
- Right sizing of multi-purpose room.
- Combining of existing classrooms where possible to create larger spaces for music, art and science.
- Expansion of the administration areas in correct security-proximity to entrance points.
- Opening of walls to visually connect media center and multi-purpose space to public areas of the building for visible learning and project based learning objectives.
- Right sizing of custodial/receiving/storage and kitchen areas.

Option A.1 - site Plan

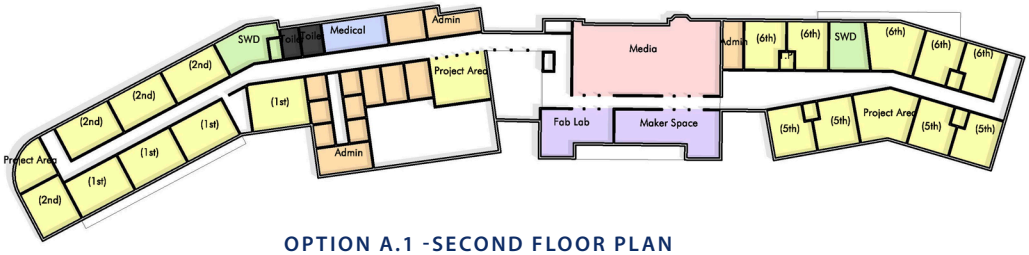
Jonathan Levi Architects

OPTION A.1

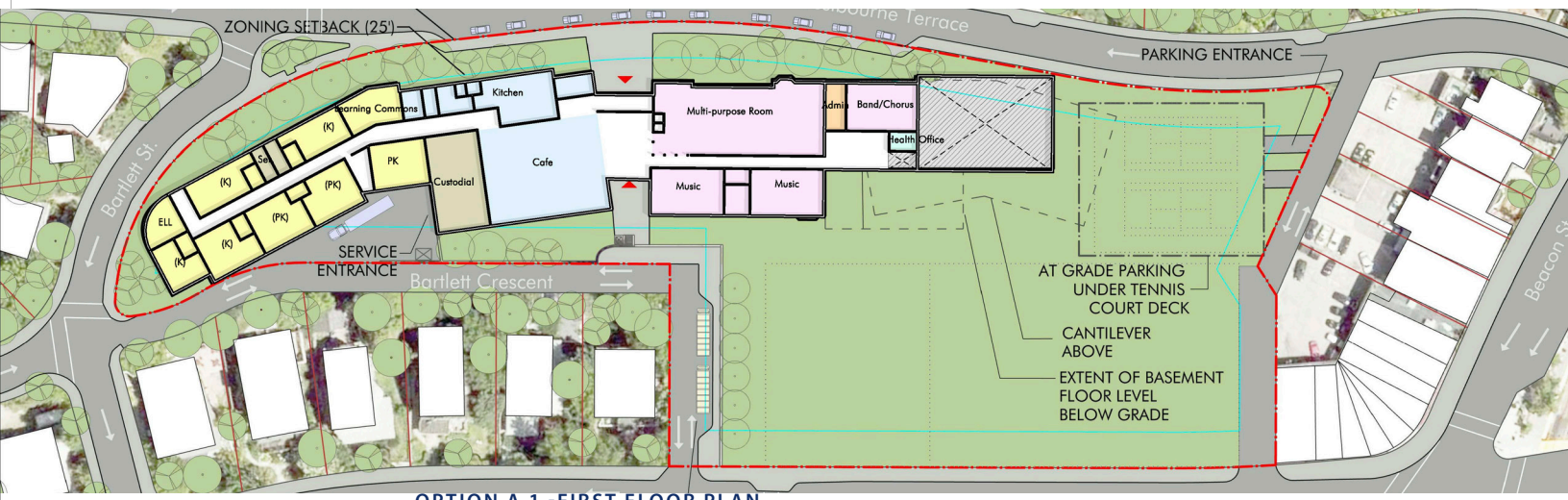
SITE PLAN
DRISCOLL SCHOOL, BROOKLINE



OPTION A.1 -THIRD FLOOR PLAN



OPTION A.1 -SECOND FLOOR PLAN



OPTION A.1 -FIRST FLOOR PLAN

OPTION A.1 -LOWER LEVEL PLAN

Option A.1 - view of addition from southeast open space/ field

Option A.1 - section sketch through cafeteria.

Option A.1 Design Rationale Narrative

This further developed version for renovating and adding to the existing Driscoll School building combines the previous 'code' and 'expanded' approaches. This resulted from the realization that the classrooms in the western portion of the school are close to adequate in size and, at the same time, many of the classrooms and spaces which are indeed unacceptably undersized, will need to be refashioned in any case – for exp., to create enough administration space, an appropriate gym and safe science classrooms. In general, proposed partition removals and relocations take into account preliminary structural survey information indicating the primary locations of bearning walls lining the corridors and non bearing walls between existing classrooms.

A first step in allocating the program to renovated spaces is to determine the rough outlines of the grade cohorts. Since a number of the western most ground floor classrooms are close to the correct size for PK and K and since it is desirable to keep those ages close to ground level for ease of outdoor access, these grades are kept where they are. The alternative, to locate those age groups in the new addition to the east, is not feasible as the ground floor of the addition will, necessarily, be taken up by the clear height of the new partially subgrade gymnasium. Even so, there are several PK and K classrooms, currently with bay type extensions which will need to be further enlarged with a one story 'bump out' addition.

Working with the asset of close-to-standard classrooms to the west, we are still faced with a dilemma concerning the numbers of spaces available in order to keep cohort groupings in reasonable proximity to one another. This is partially resolved by the addition of two selectivel three story additions; one to the west, providing additional full classrooms and project work spaces. And one to the north - enlarging an existing awkward corner area to accommodate co-located special education. The principle here, derived from the program, is that cohort groupings consist of contiguous classrooms along with their co-located project, swd, learning center and associated office spaces. Even with the incremental additions, because of the boiler room location and the confined boundaries of the western wing ground floor footprint (with one classroom addition) there are only two PK classrooms which can be accommodated rather than the three stated in the program. This may be acceptable due to the apparent flexibility in determining the number of necessary PK's.

The center of the complex, with its original wood frame floor construction, will bear the majority of the major renovation changes. Here the main problems are the lack of administration space, scrambled wayfinding and entrances, the small cafeteria and lack of transparency to community use spaces. Any Driscoll renovation will need to include enlargement of the cafeteria - which is too small even for the present population. A one story cafeteria addition is, however, unacceptable due to the fact that ceiling heights are already low and a room of the

size required would be oppressively cave-like. Therefore the cafeteria/commons addition is conceived as a skylit two story clear height space offering a central volume which will give identity and place-making to the whole of the linear ensemble of wings. The combined project space for the grades 3-5 cohort will be on a balcony overlooking the cafeteria. This balcony will also have clear height volume connecting up to the 3rd floor level. The roof of the new cafeteria/commons, accessible from the 3rd floor landing of the main stair, will be a large green roof outdoor classroom area.

Also overlooking the cafeteria will be the enlarged administration and medical suite capturing space within the addition as well as that formed from the repurposing of the existing duplicative north stair well. The administration area will now be in a visible location directly apprehensible from both upper and lower entrances.

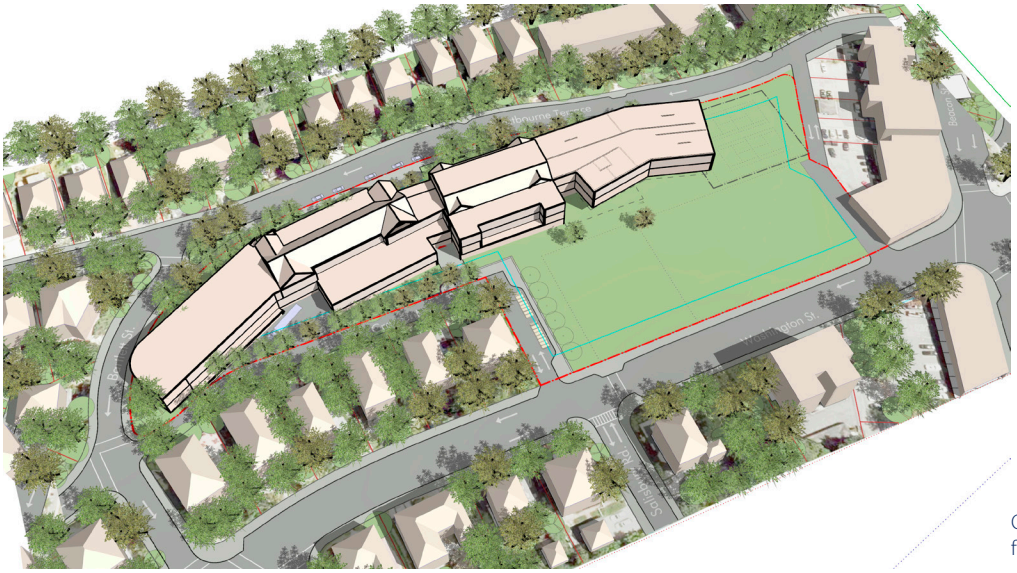
Adjacent to the cafeteria is an existing pre-engineered modular structure which will be demolished and replaced by a new three story entry volume. This will connect the two main building entry points; at the existing north face, level 2 and the new south parent drop off and athletic field entrance at level 1. The entry hall will house a correctly sized monumental stair which will be the new main circulation route connecting floors. This will replace the existing poorly located stairs while retaining the relatively recent elevator location. Existing non-bearing walls will be removed to the extent possible in order to create views and connections between the entries, project space, administration, cafeteria and media center.

The media center will be maintained in its present location but with new openings to facilitate functional relationships with the adjoining fabrication lab and maker space – to be fashioned from combining existing classrooms. The western most portion of this large open space will be floored over to create a 3-5 science classroom at level 3.

Downstairs, and also highly visible and well connected with new openings, will be the multi-purpose room. This is in its present location, but remodeled to gain additional area from the welter of surrounding chopped up spaces and with the addition of a new raised stage at its western end. Directly adjacent are two music classrooms created from combining existing classroom spaces. Unavoidably, in order to keep their adjacency to the multi-purpose room, the new music classrooms will have acoustically substandard ceiling heights. A third large ensemble music room with increased ceiling height is located in the addition.

The addition will be four levels in height with the lowest level approx.. 20 ft. below grade. An open stair hall with south facing glazing will accommodate the monumental stair and 2 stop elevator bringing students down to the level 'b' subgrade athletic suite including gym lobby, large gym, small gym, athletic storage, o.t./p.t. and locker rooms.

Option A.1 view with roof from Washington Street.



Option A.1 view without roof from Westbourne Terrace.

Level 1 of the addition, approximately at grade, is largely taken up by the upper space of the gym, but also includes the large music ensemble room and athletic office.

Levels 2 and 3 of the new addition will be comprised primarily of middle school classrooms. However, because of limited space in the existing building, there will also be four grade 5 classrooms. These will be 'orphaned' from the remainder of their cohort in the renovated existing portion of the complex. The typical middle school arrangement will include a science classroom at each floor and a single two story project space forming the center of the cohort cluster along with the requisite classrooms, SWD and learning center rooms.

Option F.1 'Modified Magnet'

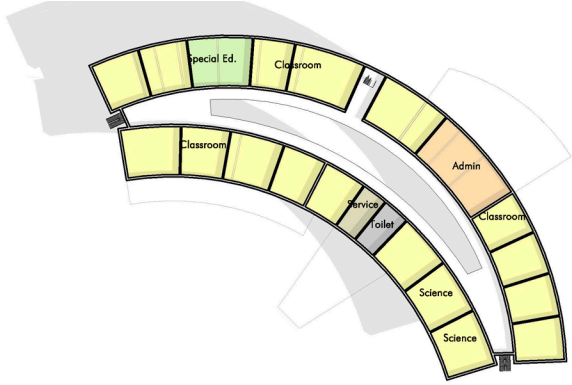
This 4 story new construction option brings all functions into visible community by arranging by them in a broad crescent, circling the central shared cafeteria/learning commons. Though flexibly assigned, cohorts would likely be arranged by floor-each with its own project collaboration space. In this modified version of the 'Magnet' alternative, in order to conservation useable playspace on site, the gym and assumed parking have been moved under the building while a 4th story is added. As can be seen from the Westbourne Tefface elevation diagram which juxtaposes new and existing building heights, the new construction will be significantly less massive than the existing while at the same time unlocking an increase in useable playspace. On the Washington St. front the curved mass of the building frames the foregrounded projecting media center.

Jonathan Levi Architects

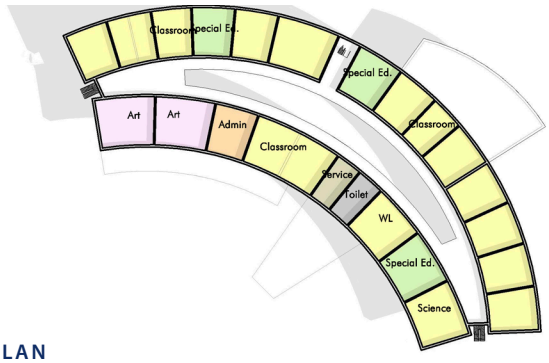
OPTION F.1

SITE PLAN
DRISCOLL SCHOOL, BROOKLINE

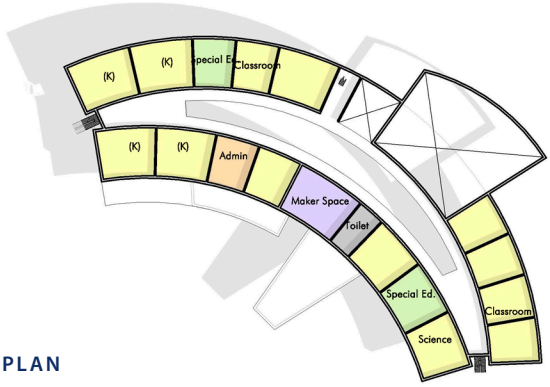
Option F.1 - Site Plan



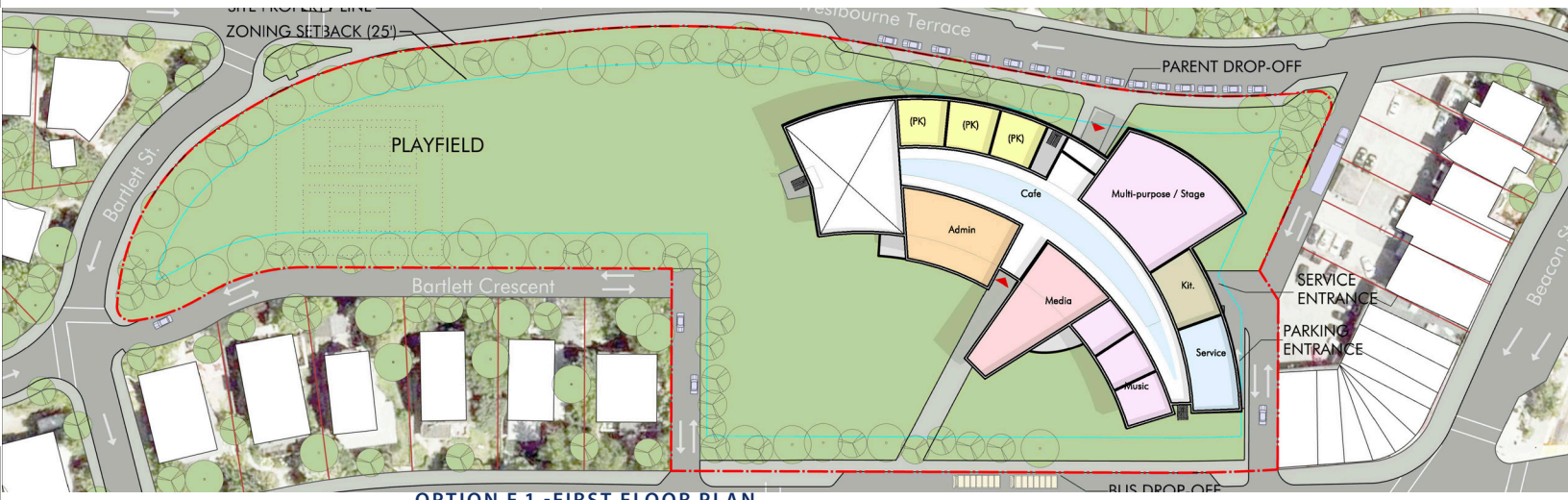
OPTION F.1 -FOURTH FLOOR PLAN



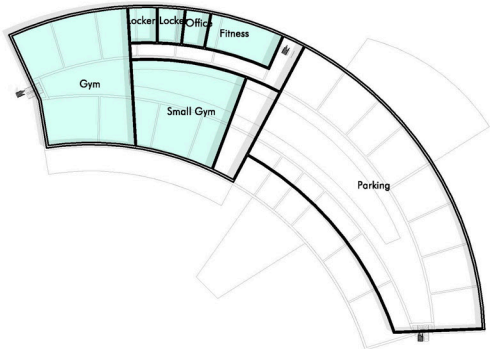
OPTION F.1 -THIRD FLOOR PLAN



OPTION F.1 SECOND FLOOR PLAN



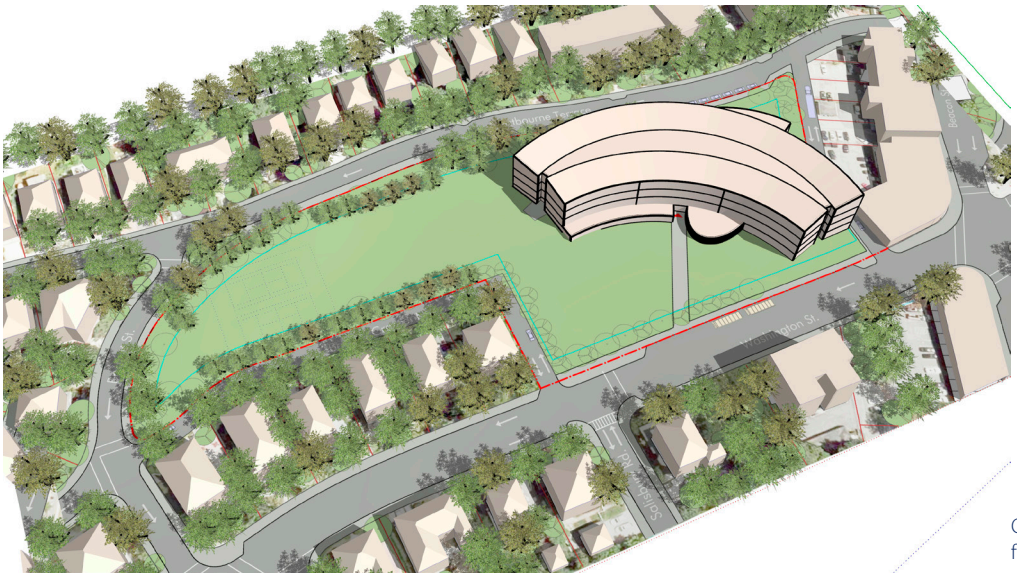
OPTION F.1 -FIRST FLOOR PLAN



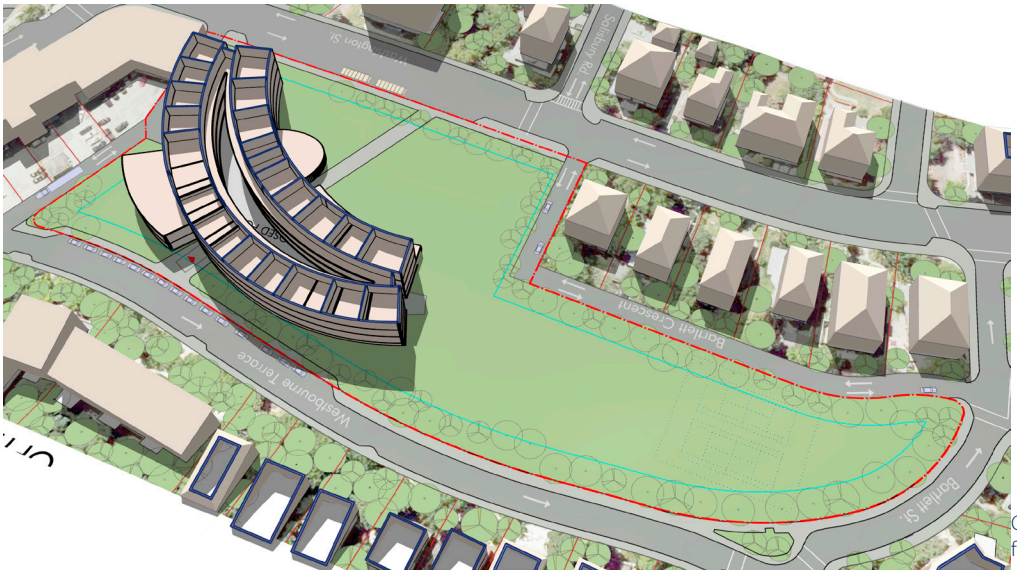
OPTION F.1 -LOWER LEVEL PLAN

Option F.1 - view of entry from Washington Street looking towards Beacon St..

Option F.1 - section sketch through atrium space at Cafeteria ..



Option F.1 view with roof from Washington Street.



Option F.1 view without roof from Westbourne Terrace.

Option H 'Modified Star'

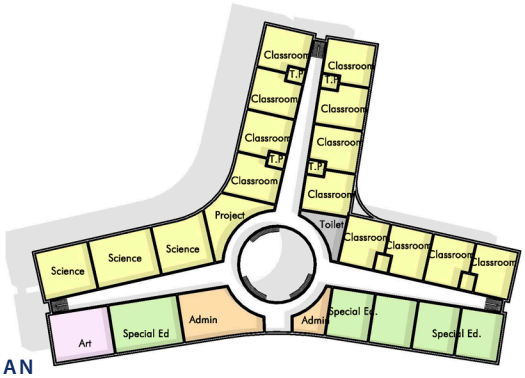
Similar to the 'Modified Magnet' the 4 story new construction 'Modified Star' uses below-building parking and garage to conserve site space. Here the shape of the building with its three wings, directly reflects the 3 cohorts, primary, elementary and middle schools – each with its own vertically connected position and identity on the site. Service access for this and Option F.1 is through utilization of the existing east commercial alley; thereby further reducing the use of site space for non-play functions.

Jonathan Levi Architects

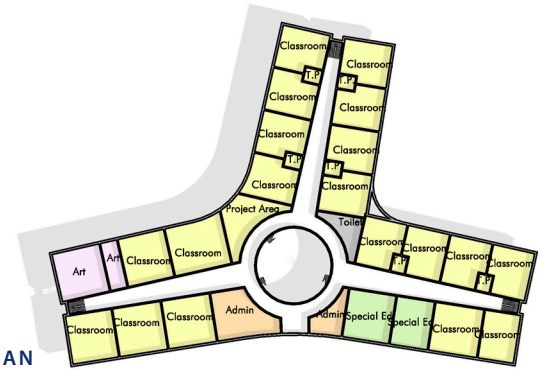
OPTION H

SITE PLAN
DRISCOLL SCHOOL, BROOKLINE

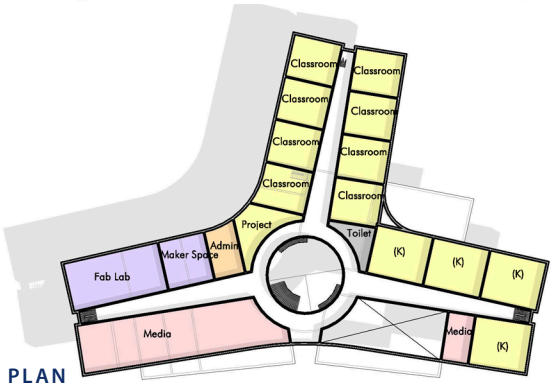
Option H - Site Plan



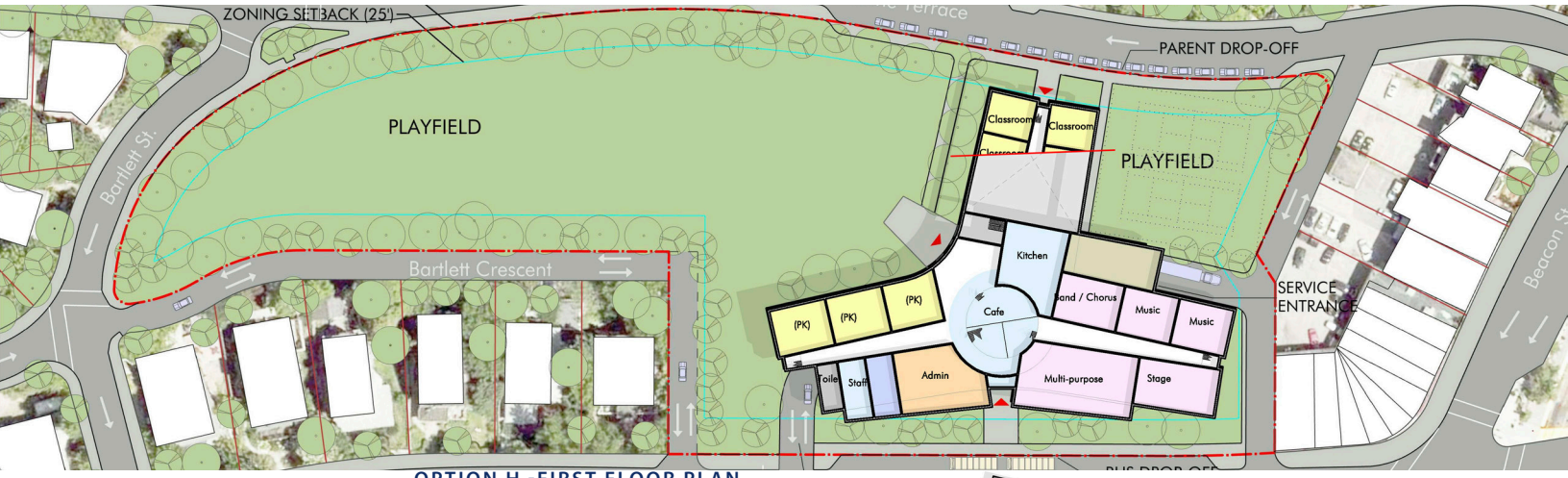
OPTION H - FOURTH FLOOR PLAN



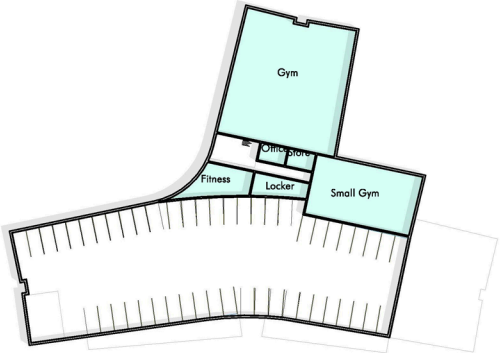
OPTION H - THIRD FLOOR PLAN



OPTION H - SECOND FLOOR PLAN



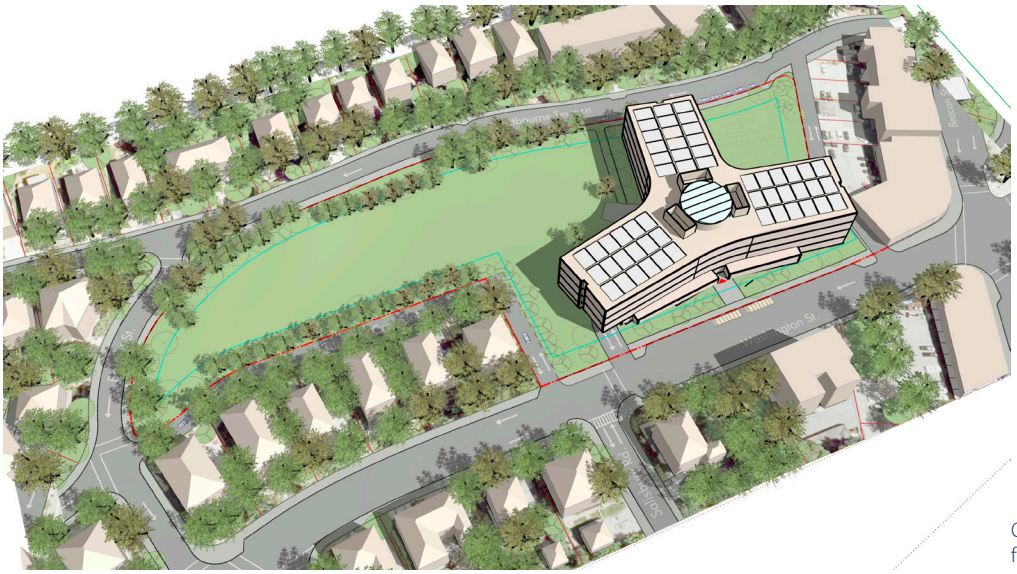
OPTION H -FIRST FLOOR PLAN



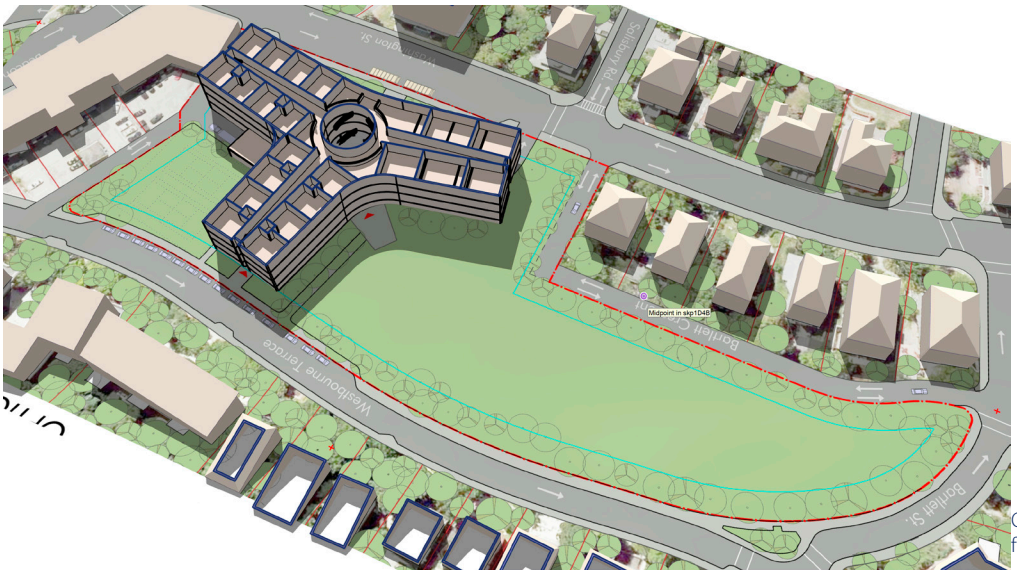
OPTION H -LOWER LEVEL PLAN

Option H - view of side entry from Westbourne Terrace looking across open space..

Option H - section sketch through atrium space at Cafeteria ..



Option H view with roof from Washington Street.



Option H view without roof from Westbourne Terrace.

2.3.2 Open Space

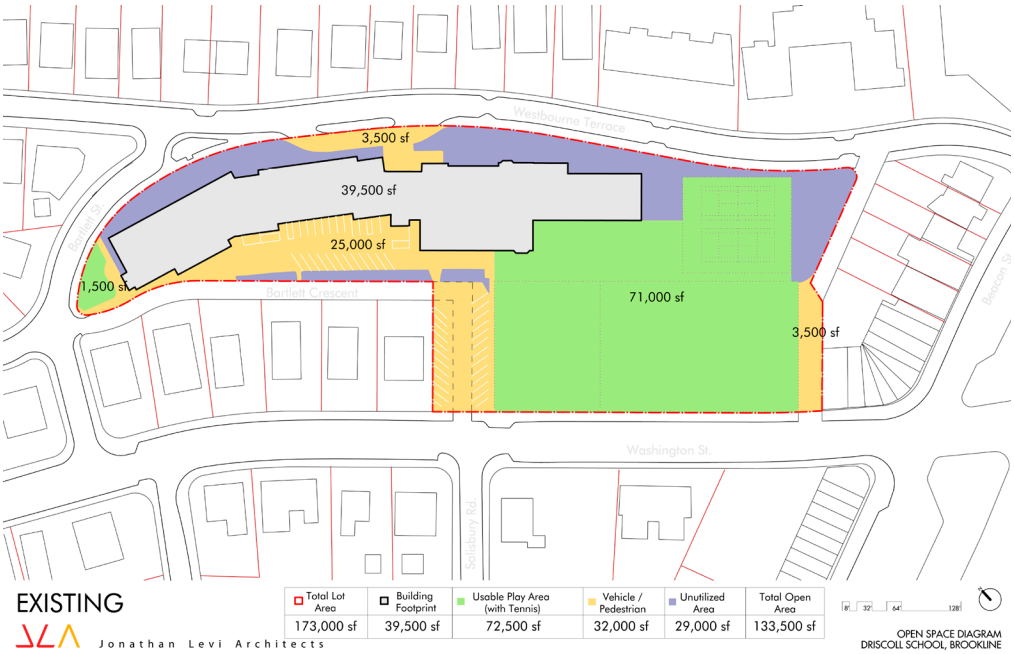
The open space resulting from the option H site plan is significantly larger than what is presently available on site, particularly as regards usable play area. This usable play area, stretching out to the west, would be consolidated into a new playfield much larger than the present one. The new organization place open space in the midst of the residential neighborhood, where it belongs, while shifting the bulk of the building's mass adjacent to the commercial center of Washington Square. The new open space also properly relates recess play areas to the cafeteria - creating a good flow of space back and forth between the interior and exterior where it is needed.

While previous work with the neighborhood on this site has indicated a preference for retaining the existing tennis courts, this area in the northeast quadrant of the site may alternatively be used as a separated play equipment zone. For the time being, a dimension supporting the placement of tennis courts is being reserved pending further consideration in an upcoming phase of work.

The new site plan properly separates sufficient parent drop-off on Westbourne Terrace from service vehicle movements off of the east alley and from bus drop off along Washington Street. Parking needs for the site can be accommodated in a subgrade garage underneath the footprint of the school for what is assumed to be approximately 50 cars. This number of cars on site will continue to be adjusted as discussions proceed with the Town and the neighborhood regarding the number of on street parking spaces available for both teachers and visitors.

The rights of passage at both the east and the west would be maintained in the new site plan. The storm drain which traverses the site would be relocated to swerve around the building to the south, reconnecting to the mid point of the service way to the east.

Open Space diagrams and table for comparison of existing to each option follows.



	LOT	BUILDING		OPEN SPACE			
Concept Alternative	**Total Lot Area**	Building GSF	**Building Footprint**	**Usable Play Area (with tennis)**	**Vehicle / Pedestrian**	**Unutilized Area**	**Total Open Area**
Existing	**173,000 SF**	97,000 SF	**39,500 SF**	**72,500 SF**	32,000 SF	29,000 SF	**133,500 SF**
A.1 Reno/Add-East	**173,000 SF**	155,500 SF	**50,000 SF**	**77,000 SF**	26,500 SF	19,500 SF	**123,000 SF**
F.1 Modified Magnet	**173,000 SF**	155,500 SF	**40,000 SF**	**109,000 SF**	16,500 SF	7,500 SF	**133,000 SF**
H Modified Star	**173,000 SF**	155,500 SF	**40,000 SF**	**106,500 SF**	19,000 SF	7,500 SF	**133,000 SF**
Lincoln	**187,308 SF**	87,500 SF	**44,369 SF**	**61,851 SF**	13,633 SF	67,455 SF	**142,939 SF**
Runkle	**132,858 SF**	104,800 SF	**52,609 SF**	**40,446 SF**	0 SF	39,802 SF	**80,248 SF**
Coolidge Corner	**292,723 SF**	200,000+ SF	**88,880 SF**	**143,211 SF**	6,982 SF	53,650 SF	**203,843 SF**

OPTION F.1

Jonathan Levi Architects

Total Lot Area	Building Footprint	Usable Play Area (with Tennis)	Vehicle / Pedestrian	Unutilized Area	Total Open Area
173,000 sf	40,000 sf	100,000 sf	15,500 sf	17,500 sf	133,000 sf

8' 32' 64' 128'

OPEN SPACE DIAGRAM
DRISCOLL SCHOOL, BROOKLINE

OPTION H

Jonathan Levi Architects

Total Lot Area	Building Footprint	Usable Play Area (with Tennis)	Vehicle / Pedestrian	Unutilized Area	Total Open Area
173,000 sf	40,000 sf	109,500 sf	19,000 sf	4,500 sf	133,000 sf

8' 32' 64' 128'

OPEN SPACE DIAGRAM
DRISCOLL SCHOOL, BROOKLINE

2.3.3 Comparison of Alternatives

The following are highlights from the Architect's point of view of comparisons between the three approaches:

- Though less costly, Option 0 does not reflect the educational program or meet the functional requirements of a municipal asset which is meant to efficiently serve the Town for the next 70 years.

- Cost is largely similar between the remaining options. H is potentially more favorable cost-wise than F.1. The addition/renovation cost is driven by numerous small project areas, higher contingencies and the construction of swing space.

- The addition/renovation entails greater risk to cost and schedule.

- Traffic solutions are similar among the options with the exception of conflicts between service and other functions in the addition/renovation.

- The new solutions will offer the best long-term maintenance and operation costs over the 70-year life.

- A.1 has limited open space, decreased from the current condition due to the new addition. The new options open up a 20% increase in useable playspace.

- The new options position the building in a more favorable relationship to the neighborhood opening views to open green space for the surrounding residences.

- New building options will be lower in height than the existing building and less massive in presence on Westbourne Terrace.

- The addition/renovation approach, while solving space quantity deficiencies does not allow for adjacencies and configurations that support the District's educational program.

- The existing building has a proper solar orientation but its envelope openings cannot be configured for optimal daylight harvesting.

- Preservation of existing building fabric is a sustainability plus, but needs to be balanced against increased long term operating and maintenance costs.

2.3.4 Evaluation Matrix

Please reference the following Evaluation Matrix completed with the School Building Committee on 11/15/18 and associated narrative.

DRISCOLL SCHOOL

Concept Options Evaluation Matrix

RATINGS: ○ Very Disadvantageous ◔ Disadvantageous ◑ Neutral ● Advantageous

	PROJECT EVALUATION CRITERIA	Option 0 Minimum Code Addition/ Renovation	Option A.1 Renovation with East Addition	Option F.1 'Modified Magnet' - New Construction	Option H 'Modified Star' - New Const.	Comments
	Project Cost					
1	Order of Magnitude Project Cost ($Million) without parking	$76-80	$96-101	$93-97	$93-97	
	Order of Magnitude Project Cost ($Million) with parking	$85-89	$105-110	$101-105	$101-105	50 structured spaces: 0 and A.1 above grade parking structure at approx. $180,000/space, F.1 and H below building parking at approx. $160,000/space
	Swing Space Cost	$4	$4	$0	$0	
	Teaching and Learning					
2	Educational Program Accommodation	○	◔	●	●	Reno. does not fit program sizes or adjacencies.
3	Flexibility-Fixed Classroom Count per Cohort	○	◔	◑	●	
4	STEM Enhancement-Visible Learning	○	◔	●	●	New affords planned connectivity.
	Project Viability Issues					
5	Schedule	○	○	◑	●	Multi proj. areas/phasing=add. construction time. Swing space req. additional time
6	Traffic	◔	◔	●	●	New allows untangling of drop off/bus/service. Reno. may need use of Bartlett Cresc.
7	Risk	○	○	◑	◑	Unforeseen conditions. Phasing conflicts
	Site					
8	Construction Impact to Education	○	○	◑	●	Swing space will be disruptive. Loss of gym, cafeteria, library. Reno. constr. near kids
9	Construction Impact to Neighbors	○	○	◑	◑	New construction separated from residences.
10	Open Space /Building Massing / Footprint	◔	○	●	●	Greater open space quant. and adjacencies for H
11	Community Use	○	◔	●	●	Clearer zoning of public use portions of building for new.
	Building Environment					
12	Flexibility-Building Systems	○	◔	●	●	
13	Security	○	◑	●	●	Long travel distances and sight lines for reno.
14	Natural Light and Views	◑	◑	●	●	
15	LEED / Sustainability	○	◔	●	●	New construction configured for sustainability. Existing roof incompatible with PV
	Long-Term Costs					
16	Long Term Maintenance and Repair Costs	○	◔	●	●	Unforeseen future issues with remaining 90 year old construction
17	Energy Costs	○	◔	●	●	Reno. building envelope inherently underperforming.
	Other					
18	Pedestrian and Vehicular circulation	○	○	●	●	Safety improved with newly separated circulation systems.
19	Disruption to Families	◔	◔	◑	◑	Phasing and limited access potential for reno. with impacted site.
	Total GSF	155,140	155,140	155,140	155,140	

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Driscoll School Expansion
Evaluation Matrix - Architect's Narrative
15 November 2018

For School Building Committee Use

Executive Summary:

The team's design efforts have culminated in one base code renovation option and three, educationally optimized, conceptual options for the renewal and expansion of the Driscoll School: 1) Option 0 'Code Minimum Renovation/Addition', 2) Option A.1 'Addition/Renovation', 3) Option F.1 'Modified Magnet' new construction and 4) Option H 'Modified Star' new construction. The new options seek to reflect the district's program, which is centered around project-based collaborative learning, by centralizing the relationships between classroom and support spaces so that community orientation and interconnectedness is inherently supported by the building's layout. The addition/renovation approach, constrained by the current linear arrangement, right-sizes spatial deficiencies to the extent possible through local additions, combinations of existing spaces, a central 2 story cafeteria/lobby and a new addition.

The following are highlights from the Architect's point of view of comparisons between the three approaches:

- Though less costly, Option 0 does not reflect the educational program or meet the functional requirements of a municipal asset which is meant to efficiently serve the Town for the next 70 years.

- Cost is largely similar between the remaining options. H is potentially more favorable cost-wise than F.1. The addition/renovation cost is driven by numerous small project areas, higher contingencies and the construction of swing space.

- The addition/renovation entails greater risk to cost and schedule.

- Traffic solutions are similar among the options with the exception of conflicts between service and other functions in the addition/renovation.

- The new solutions will offer the best long-term maintenance and operation costs over the 70-year life.

- A.1 has limited open space, decreased from the current condition due to the new addition. The new options open up a 20% increase in useable playspace.

- The new options position the building in a more favorable relationship to the neighborhood opening views to open green space for the surrounding residences.

- New building options will be lower in height than the existing building and less massive in presence on Westbourne Terrace.

- The addition/renovation approach, while solving space quantity deficiencies does not allow for adjacencies and configurations that support the District's educational program.

- The existing building has a proper solar orientation but its envelope openings cannot be configured for optimal daylight harvesting.

- Preservation of existing building fabric is a sustainability plus, but needs to be balanced against increased long term operating and maintenance costs.

Review of Concept Design Options:

1
<u>Option 0 - 'Code Minimum Addition/Renovation'</u>
This minimum renovation/addition project consists of a code and mechanical upgrade to all spaces within the existing building, retaining all existing wall locations, plus an addition to increase the overall area to match the required gross sf. While addressing gross sf, this option cannot reflect the educational program or meet the functional requirements of a municipal asset which is meant to efficiently serve the Town for the next 70 years. This is because of numerous deficiencies including:

- Undersized K and PK classrooms
- Only one PK classroom can be co-located with K
- Cafeteria, and Multipurpose spaces grossly undersized
- Administration grossly undersized – cannot grow without displacing classrooms
- Properly located Science, Music and Art classrooms grossly undersized
- Cohorts cannot have appropriately co-located classrooms
- SWD, Learning Center and Support cannot be properly located among cohorts
- Grossly undersized Custodial Storage and Receiving areas
- Loading area conflicts with traffic and student safety

- Lack of clear entrances and adequate foyer areas
- Administration improperly located relative to entrances
- Reduced outdoor open space
- Recess areas chopped up and remote from cafeteria

2
Option A.1 - 'Addition/Renovation'
This renovation with east addition delivers the called for 4 section educational program using the entirety of the exist 3 story building plus a 3 story addition and several 'bump-out' additions. The renovation selectively removes and relocates walls to address program adjacencies but uses existing structure and finishes to the extent possible and does not assume a full 'gut' renovation. A covered parking structure with tennis courts on its roof is located to the east of the addition with parking access from Westbourne Terrace. This option includes bump-outs and repartitioning of targeted areas within the existing building in order to achieve:

- The best compromise for co-location of cohort classrooms possible.
- Location of SWD, learning centers, project areas and other support areas as close as possible to their primary users.
- Creation of a new right-sized cafeteria/learning commons.
- Replacement of an existing temporary structure with the new 2 story lobby to create a much needed foyer and improved wayfinding.
- Right sizing of multi-purpose room.
- Combining of existing classrooms where possible to create larger spaces for music, art and science.
- Expansion of the administration areas in correct security-proximity to entrance points.
- Opening of walls to visually connect media center and multi-purpose space to public areas of the building for visible learning and project based learning objectives.
- Right sizing of custodial/receiving/storage and kitchen areas.

For comparison to the code minimum approach, see the code minimum deficiencies description below.

See also a more comprehensive description of Option A.1 with design rationale in the appendix below.

3
Option F.1-'Modified Magnet'

This 4 story new construction option brings all functions into visible community by arranging by them in a broad crescent, circling the central shared cafeteria/learning commons. Though flexibly assigned, cohorts would likely be arranged by floor-

each with its own project collaboration space. In this modified version of the 'Magnet' alternative, in order to conservation useable playspace on site, the gym and assumed parking have been moved under the building while a 4th story is added. As can be seen from the Westbourne Tefface elevation diagram which juxtaposes new and existing building heights, the new construction will be significantly less massive than the existing while at the same time unlocking an increase in useable playspace. On the Washington St. front the curved mass of the building frames the foregrounded projecting media center.

4
Option H-'Modified Star'

Similar to the 'Modified Magnet' the 4 story new construction 'Modified Star' uses below-building parking and garage to conserve site space. Here the shape of the building with its three wings, directly reflects the 3 cohorts, primary, elementary and middle schools – each with its own vertically connected position and identity on the site. Service access for this and Option F.1 is through utilization of the existing east commercial alley; thereby further reducing the use of site space for non-play functions.

Evaluation Matrix Architect's Narrative:

Project Viability Issues

Option 0 is the least costly option and carries a reduced risk factor from Option A.1. At this phase of work the differences in cost between the remaining three options are largely within the margin of error. Of the new alternatives, Option F.1 may be inherently somewhat costlier due to its single loaded balcony corridors. The addition/renovation carries the burden of the cost of swing space as well as larger contingencies. For the addition/renovation option there will be significant risk due to the reliance on necessarily limited information about potential hidden conditions which can cause additional uncontrolled costs during construction. The addition/renovation approach will also entail additional schedule time and schedule risk due to the above, to multiple small project areas each with their own requirements and to the construction of the temporary school. Traffic is considered somewhat disadvantageous for the add./reno. because service access will continue to be limited on the west end of the building.

Site

One major differentiator is the impact to teaching and learning during the period of construction. During the two+ years of construction, addition/renovation will require the relocation of the school into a temporary modular unit school on the

existing playfields. Typically such temporary schools do not include large single span common spaces such as cafeteria, gymnasia and multi-purpose rooms. For the new options, during construction, school operation will proceed uninterrupted. With differing footprints, there is a spectrum of benefits to open space; with Option H.1 providing the largest playable area, F.1 next and A.1 the least. Because of the addition, A.1 will have less open space than the existing condition. For the neighborhood, new construction yields the least impact to adjacent residences due to the remote location of the construction zone. In the final result, these options also produce the greatest benefit to neighbors with the school removed from the midst of the residential neighborhood and, in its place, an open green space. Because of the freedom of planning a new building, community use of the school can be more effectively zoned, with proper pairing of gym and multi-purpose room and full separation from academic areas.

Long Term Costs

Comparing addition/renovation to new construction it is apparent that the renovation, while addressing, to the extent possible, tightening the building envelope, will be inherently less efficient in terms of thermal resistance and leakage than a new building - which can be fully 'cocooned' and super insulated from under-slab to roof. This will result in increased energy costs of the life of the facility. Such a renovated structure will also reveal, with time, new maintenance challenges, as retained portions of the existing building, now close to 100 years old, continue to age and deteriorate.

Teaching and Learning

The new options, F.1 and H will be built from the ground up to directly reflect the needs of the educational program with proper adjacencies and configurations to support STEM enhanced, project-based 21st century teaching and learning. Option 0 diverges greatly from the educational program and will result in a largely dysfunctional plan due to the deficiencies enumerated above. The addition/renovation option A.1 while largely addressing the sizes of individual spaces is also constrained by the existing floor plate compartments (though less so the 0) and suffers from several areas of misfits for cohorts. For example, because of the number of classrooms and support spaces needed, 5th grade classrooms would need to be placed remotely from the 3rd and 4th grade into the addition. Of greater concern, perhaps, is the overall geometry of the existing school with an end-to-end linear arrangement of classroom wings resulting from the incremental addition of space over time and the necessary further exaggeration with a new sequential addition. This distended linear arrangement militates strongly against the formation of a shared learning community in all its attributes from teacher

collaboration to visible learning to student empowerment – all stated goals of the Town's educational program.

Building Environment

Notably, the existing building, lined up as it is to the south, is a good candidate for solar harvesting. However, the size and shape of its openings are not sufficient to do the job. Therefore, the addition/renovation will not be as efficient in terms of daylight collection as properly optimized new construction will be. This is significant, both for student achievement and for long term operating costs. It is true that conservation of an existing building is a sustainability plus. However, the downside is long term operating costs. For reasons related to the concentric geometry cited above, the new options will provide greater security through the readily observable transparent and interconnectedness of the learning commons and branching corridors. This is contrasted by the warren-like extended paths offered by the extreme portions of the existing building which can only be partially remediated through alterations.

Other

As mentioned elsewhere, pedestrian and vehicular circulation can be well addressed by any of the options. The exception being the location of the loading dock which will need to be located uncomfortably adjacent to the cafeteria recess space and also conflicts with traffic which backs up on Bartlett Crescent. The new approaches fully separate bus, parent and service traffic on separate sides of the building with separate frontages, Westbourne Terrace for parents, Washington St. for buses and the commercial alley for service, for each type of traffic. Disruption to families during construction is largely a matter of the dislocation and compromised facility space resulting from temporary swing space with any addition/renovation.

Appendix

Option A.1 Design Rationale Narrative

This further developed version for renovating and adding to the existing Driscoll School building combines the previous 'code' and 'expanded' approaches. This resulted from the realization that the classrooms in the western portion of the school are close to adequate in size and, at the same time, many of the classrooms and spaces which are indeed unacceptably undersized, will need to be

refashioned in any case – for exp., to create enough administration space, an appropriate gym and safe science classrooms. In general, proposed partition removals and relocations take into account preliminary structural survey information indicating the primary locations of bearning walls lining the corridors and non bearing walls between existing classrooms.

A first step in allocating the program to renovated spaces is to determine the rough outlines of the grade cohorts. Since a number of the western most ground floor classrooms are close to the correct size for PK and K and since it is desirable to keep those ages close to ground level for ease of outdoor access, these grades are kept where they are. The alternative, to locate those age groups in the new addition to the east, is not feasible as the ground floor of the addition will, necessarily, be taken up by the clear height of the new partially subgrade gymnasium. Even so, there are several PK and K classrooms, currently with bay type extensions which will need to be further enlarged with a one story 'bump out' addition.

Working with the asset of close-to-standard classrooms to the west, we are still faced with a dilemma concerning the numbers of spaces available in order to keep cohort groupings in reasonable proximity to one another. This is partially resolved by the addition of two selectivel three story additions; one to the west, providing additional full classrooms and project work spaces. And one to the north - enlarging an existing awkward corner area to accommodate co-located special education. The principle here, derived from the program, is that cohort groupings consist of contiguous classrooms along with their co-located project, swd, learning center and associated office spaces. Even with the incremental additions, because of the boiler room location and the confined boundaries of the western wing ground floor footprint (with one classroom addition) there are only two PK classrooms which can be accommodated rather than the three stated in the program. This may be acceptable due to the apparent flexibility in determining the number of necessary PK's.

The center of the complex, with its original wood frame floor construction, will bear the majority of the major renovation changes. Here the main problems are the lack of administration space, scrambled wayfinding and entrances, the small cafeteria and lack of transparency to community use spaces. Any Driscoll renovation will need to include enlargement of the cafeteria - which is too small even for the present population. A one story cafeteria addition is, however, unacceptable due to the fact that ceiling heights are already low and a room of the size required would be oppressively cave-like. Therefore the cafeteria/commons addition is conceived as a skylit two story clear height space offering a central volume which will give identity and place-making to the whole of the linear ensemble of wings. The combined project space for the grades 3-5 cohort will be on a balcony overlooking the cafeteria. This balcony will also have clear height volume connecting up to the 3rd floor level. The roof of the new cafeteria/commons,

accessible from the 3rd floor landing of the main stair, will be a large green roof outdoor classroom area.

Also overlooking the cafeteria will be the enlarged administration and medical suite capturing space within the addition as well as that formed from the repurposing of the existing duplicative north stair well. The administration area will now be in a visible location directly apprehensible from both upper and lower entrances.

Adjacent to the cafeteria is an existing pre-engineered modular structure which will be demolished and replaced by a new three story entry volume. This will connect the two main building entry points; at the existing north face, level 2 and the new south parent drop off and athletic field entrance at level 1. The entry hall will house a correctly sized monumental stair which will be the new main circulation route connecting floors. This will replace the existing poorly located stairs while retaining the relatively recent elevator location. Existing non-bearing walls will be removed to the extent possible in order to create views and connections between the entries, project space, administration, cafeteria and media center.

The media center will be maintained in its present location but with new openings to facilitate functional relationships with the adjoining fabrication lab and maker space – to be fashioned from combining existing classrooms. The western most portion of this large open space will be floored over to create a 3-5 science classroom at level 3.

Downstairs, and also highly visible and well connected with new openings, will be the multi-purpose room. This is in its present location, but remodeled to gain additional area from the welter of surrounding chopped up spaces and with the addition of a new raised stage at its western end. Directly adjacent are two music classrooms created from combining existing classroom spaces. Unavoidably, in order to keep their adjacency to the multi-purpose room, the new music classrooms will have acoustically substandard ceiling heights. A third large ensemble music room with increased ceiling height is located in the addition.

The addition will be four levels in height with the lowest level approx.. 20 ft. below grade. An open stair hall with south facing glazing will accommodate the monumental stair and 2 stop elevator bringing students down to the level ‘b’ subgrade athletic suite including gym lobby, large gym, small gym, athletic storage, o.t./p.t. and locker rooms. Level 1 of the addition, approximately at grade, is largely taken up by the upper space of the gym, but also includes the large music ensemble room and athletic office.

Levels 2 and 3 of the new addition will be comprised primarily of middle school classrooms. However, because of limited space in the existing building, there will also be four grade 5 classrooms. These will be ‘orphaned’ from the remainder of their cohort in the renovated existing portion of the complex. The typical middle

2.3.5 Structural Systems

Structural Systems Overview

The proposed new building will consist of four stories with a lower level below grade primarily for parking. The proposed building structure will be a structural steel frame with concrete floor slabs on composite steel deck. The roof will be steel roof deck except at areas where concrete is required for sound attenuation below rooftop mechanical equipment or for fire ratings. Lateral loads will be resisted by structural steel braced frames. Foundations will be cast-in-place reinforced concrete walls, slabs-on-grade, and spread footings.

Foundations

Based on information provided by McPhail Associates in the 27 November 2018 document titled "Preliminary Foundation Engineering Report", foundations for the project will be as follows:

Walls

Typical foundation walls will be 16-inch thick reinforced concrete with 8-inch wide shelves as required to support façade elements. Exterior foundation walls will extend down to a minimum of 4'-0" below finished exterior grade. A drainage system will be installed around the perimeter of the foundation to divert ground water away from the building. All foundation walls enclosing below-grade space shall be waterproofed on the exterior surface.

Slab-on-Grade

The lower level and first floor slab-on-grade will be a 5-inch thick slab-on-grade. A 15-mil vapor barrier and a 12-inch layer of crushed stone will be placed beneath the slab to provide an adequate substrate and to allow for an under-slab drainage system. An allowance shall be provided for depressions, and trenches, and other potential equipment requirements.

Footings

The foundations will be reinforced concrete spread footings and continuous wall footings bearing on compacted structural fill or undisturbed soil. The allowable bearing pressure will be per the recommendations of the geotechnical report which states a maximum uniform design force of 2 tons per square foot.

Pits

Elevator and other pits that may be required pits will consist of an 18-inch thick reinforced concrete base slab and 12-inch thick reinforced concrete pit walls. All pits shall receive waterproofing. Driscoll School (Options F.1, H) Feasibility Study

Foundation Requirements

Based on the geotechnical report the site is underline with fill and organics of significant thickness, up to 22 feet, which are unsuitable for building foundation support. New foundations and slabs-on-grade shall be supported on aggregate piers installed through the fill and organic layers. This method of construction is a form of ground improvement and permits the use of conventional foundations for building support once the ground improvements are complete.

Gravity Load System

Ground Floor

Slab-on-grade as described above.

Typical Floor Construction

Floor construction will be 3¼-inch lightweight concrete on 3-inch deep, 18-gage galvanized, composite steel deck for a total slab thickness of 6¼-inches. The floor slab will be reinforced with WWF 6x6-W4.0xW4.0 throughout. Beams and girders will be structural steel rolled shapes (typically W14, W16, & W18) made composite with the floor slabs via ¾-inch diameter, 5½-inch long welded steel shear studs. Columns will be structural steel rolled shapes (typically W12).

Typical Roof Construction

The roof will be 3-inch deep, 18 gage, galvanized steel roof deck. Roof beams and girders will be structural steel rolled shapes. Where it is preferred or necessary to place concrete on the roof, the construction will be similar to the typical floor construction described above. Hot-dipped galvanized steel dunnage will be provided on top of the roof if necessary to support mechanical equipment and for mechanical equipment screening.

Typical Façade Support

Continuous support of the building façade is expected to occur from each framed level above grade. This may likely consist of hung steel angle frames with all material outside the air and vapor barrier system to be hotdipped galvanized.

Lateral Load System

The lateral force resisting system will consist of concentrically braced steel frames in both primary structural directions. Structural steel tubes will be oriented diagonally in vertical planes between columns to provide resistance to wind and seismic forces. Final locations of the frames will be coordinated with the architectural layout as design progresses.

2.3.6 Utilities

General

It is assumed that existing utility service levels on either Westbourne Terrace or Washington Street will be more than adequate for the new school. A flow test will be performed in Schematic Design, to confirm sufficient flow for the fully sprinklered new building.

Water Service

An existing water main is present along both Westbourne Terrace and Washington Street on either side of the school. The existing building appears to be connected to the service along Westbourne Terrace.

Sewer Service

An existing sewer main is present along Westbourne Terrace and Washington Street Heath Street directly in front of the school. The existing school appears to be connected to the service along Westbourne Terrace.

Gas Service

A gas main is present along Westbourne Terrace and Washington Street Heath Street directly in front of the school. The existing school appears to be connected to the service along Washington Street.

Stormwater

The on-site drainage system appears to be a simple system comprised of catch basins and manholes which connect at various points to an existing drainage main just to the south of the existing school building which appear to connect out to the existing street drainage system on Beacon St.

Flood Plain

The site is not in a flood plain.

Potential Site Improvements

Water Service

The existing water services will be updated, providing separate domestic and fire flow services will be provided to the new school building.

Sewer Service

The existing sewer service will be replaced.

Gas Service

The existing gas service will be replaced.

Stormwater

The existing on-site drainage system does not appear to meet current stormwater management standards. Depending on the proposed site improvements the existing system will need to be upgraded to provide mitigation to reduce stormwater runoff, increase groundwater

infiltration, and increase stormwater discharge quality. These improvements could include above or below ground stormwater infiltration/detention systems, deep sump catch basins, and water quality structures.

2.3.7 Building Systems

Please reference the following reports prepared by Garcia Galuska Desousa:

- Fire Protection
- Plumbing
- HVAC
- Electrical
- Technology

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FIRE PROTECTION SYSTEMS

NARRATIVE REPORT

The following is the Fire Protection system narrative, which defines the scope of work and capacities of the Fire Protection system, as well as, the Basis of Design.

1. CODES

   A. All work installed under Section 210000 shall comply with the MA Building Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   A. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Fire Protection work and all items incidental thereto, including commissioning and testing.

3. GENERAL

   A. In accordance with the provisions of the Massachusetts Building Code, a school building of greater than 12,000 s.f. must be protected with an automatic sprinkler system.

4. DESCRIPTION

   A. The new building will be served by a new 8-inch fire service, double check valve assembly, wet alarm valve complete with electric bell, and fire department connection meeting local thread standards.

   B. System will be a combined standpipe/sprinkler system with control valve assemblies to limit the sprinkler area controlled to less than 52,000 s.f. as required by NFPA 13-2013.

   C. Control valve assemblies shall consist of a supervised shutoff valve, check valve, flow switch and test connection with drain. Standpipes meeting the requirements of NFPA 14-2013 shall be provided in the egress stairwells and in the Stage area.

   D. All areas of the building, including all finished and unfinished spaces, combustible concealed spaces, all electrical rooms and closets will be sprinklered.

   E. All sprinkler heads will be quick response, pendent in hung ceiling areas and upright in unfinished areas.

5. BASIS OF DESIGN

   A. The mechanical rooms, kitchen, science classrooms, and storage rooms are considered Ordinary Hazard Group 1; stage is considered Ordinary Hazard Group 2; all other areas are considered light hazard.

   B. Required Design Densities:

      Light Hazard Areas = 0.10 GPM over 1,500 s.f.
      Ordinary Hazard Group 1 = 0.15 GPM over 1,500 s.f.

Ordinary Hazard Group 2 = 0.20 GPM over 1,500 s.f.

C. Sprinkler spacing (max.):

Light Hazard Areas = 225 s.f.
Ordinary Hazard Areas = 130 s.f.

D. A flow test will be performed to confirm the Municipal water supply capacity.

6. DOUBLE CHECK VALVE ASSEMBLY

A. Double check valve assembly shall be MA State approved, U.L./F.M. approved, with iron body bronze mounted construction complete with supervised OS & Y gate valves and test cocks. Furnish two spare sets of gaskets and repair kits.

B. Double check valve detector assembly shall be of one of the following:

1. Watts Series 757-OSY
2. Wilkins 350A-OSY
3. Conbraco Series 4S-100
4. Or equal

7. PIPING

A. Sprinkler piping 1-1/2 in. and smaller shall be ASTM A-53, Schedule 40 black steel pipe. Sprinkler/standpipe piping 2 in. and larger shall be ASTM A-135, Schedule 10 black steel pipe.

8. FITTINGS

A. Fittings on fire service piping, 2 in. and larger, shall be Victaulic Fire Lock Ductile Iron Fittings conforming to ASTM A-536 with integral grooved shoulder and back stop lugs and grooved ends for use with Style 009-EZ or Style 005 couplings. Branch line fittings shall be welded or shall be Victaulic 920/920N Mechanical Tees. Schedule 10 pipe shall be roll grooved. Schedule 40 pipe, where used with mechanical couplings, shall be roll grooved and shall be threaded where used with screwed fittings. Fittings for threaded piping shall be malleable iron screwed sprinkler fittings.

9. JOINTS

A. Threaded pipe joints shall have an approved thread compound applied on male threads only. Teflon tape shall be used for threads on sprinkler heads. Joints on piping, 2 in. and larger, shall be made up with Victaulic, or equal, Fire Lock Style 005, rigid coupling of ductile iron and pressure responsive gasket system for wet sprinkler system as recommended by manufacturer.

10. SPRINKLERS

A. All sprinklers to be used on this project shall be Quick Response type. Sprinklers shall be manufactured by Tyco, Victaulic, Viking, or equal.

B. Furnish spare heads of each type installed located in a cabinet along with special sprinkler wrenches. The number of spares and location of cabinet shall be in complete accord with NFPA 13-2013.

C. Upright sprinkler heads in areas with no ceilings shall be Tyco Model "TY-FRB" Quick Response, upright natural brass finish heads. Include heavy duty sprinkler guards in all mechanical rooms and storage rooms.

D. Sidewall heads shall be Tyco Model "TY-FRB" Quick Response with white polyester head and escutcheon.

E. Pendent wet sprinkler heads shall be Tyco Model "TY-FRB" Quick Response recessed adjustable escutcheon, white polyester finish.

F. Concealed heads shall be Tyco Model "RFII" Quick Response concealed type, 1-1/2 inch adjustment white cover plate. In special areas, as may be noted on the Drawings, provide alternate cover plate finishes.

G. Use of flexible stainless steel hose with fittings for fire protection service that connect sprinklers to branch lines in suspended ceilings is acceptable. Flexible hoses shall be UL/FM approved and shall comply with NFPA 13 standards. Hose assemblies shall be type 304 stainless steel with minimum 1-inch true-bore internal hose diameter. Ceiling bracket shall be galvanized steel and include multi-port style self-securing integrated snap-on clip ends that attach directly to the ceiling with tamper resistant screws.

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PLUMBING SYSTEMS

NARRATIVE REPORT

The following is the Plumbing system narrative, which defines the scope of work and capacities of the Plumbing system as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for ***LEED v4*** where indicated on this narrative.

1. CODES

   A. All work installed under Section 220000 shall comply with the MA Building Code, MA Plumbing Code and all state, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   A. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Plumbing work and all items incidental thereto, including commissioning and testing.

3. GENERAL

   A. The Plumbing Systems that will serve the project are cold water, hot water, tempered water, sanitary waste and vent system, grease waste system, special waste system, storm drain system, and natural gas.

   B. The Building will be serviced by Municipal water and Municipal sewer system.

   C. All Plumbing in the building will conform to Accessibility Codes and to Water Conserving sections of the Plumbing Code.

4. DRAINAGE SYSTEM

   A. Soil, Waste, and Vent piping system is provided to connect to all fixtures and equipment. System runs from 10 feet outside building and terminates with stack vents through the roof.

   B. A separate Grease Waste System starting with connection to an exterior concrete grease interceptor running thru the kitchen and servery area fixtures and terminating with a vent terminal through the roof. Point of use grease interceptors are to be provided at designated kitchen fixtures. The grease interceptor is provided under Division 33 scope.

   C. Storm Drainage system is provided to drain all roofs with roof drains piped through the building to a point 10 feet outside the building.

   D. Drainage system piping will be service weight cast iron piping; hub and spigot with gaskets for below grade; no hub with gaskets, bands and clamps for above grade 2 in. and larger. Waste and vent piping 1-1/2 in. and smaller will be type 'L' copper.

E. A separate Special Waste System shall be provided starting with a connection to an interior limestone chip acid neutralizer, running thru the building to collect science classroom fixtures and terminating with vent terminals through the roof. Special Waste and Vent piping will be Schedule 40 electric heat fused polypropylene piping, fittings and traps, flame retardant above grade and non-flame retardant below ground.

5. WATER SYSTEM

A. New 4-inch domestic water service from the municipal water system will be provided. A meter and backflow preventer will be provided.

B. Cold water distribution main is provided. Non-freeze wall hydrants with integral back flow preventers are provided along the exterior of the building.

C. Water piping will be type 'L' copper with wrot copper sweat fittings, silver solder or press-fit system. All piping will be insulated with 1 in. thick high density fiberglass.

D. A dedicated non-potable water system will be provided to Science Classrooms. Water system will be protected with a reduced pressure backflow preventer.

E. Tepid (70 deg. F – 90 deg. F) water will be provided to the emergency shower/eyewash fixtures in Science Classrooms as required by code.

F. Domestic hot water will be provided with electric, point-of-use, instantaneous water heaters.

6. FIXTURES ***LEED v4***

A. Furnish and install all fixtures, including supports, connections, fittings, and any incidentals to make a complete installation.

B. Fixtures shall be the manufacturer's guaranteed label trademark indicating first quality. All acid resisting enameled ware shall bear the manufacturer's symbol signifying acid resisting material.

C. Vitreous china and acid resisting enameled fixtures, including stops, supplies and traps shall be of one manufacturer by Kohler, American Standard, or Eljer, or equal. Supports shall be Zurn, Smith, Josam, or equal. All fixtures shall be white. Faucets shall be Speakman, Chicago, or equal.

D. Fixtures shall be as scheduled on drawings.

1. Water Closet: High efficiency toilet, 1.28 gallon per flush, wall hung, vitreous china, siphon jet. Manually operated 1.28 gallon per flush-flush valve.

2. Urinal: High efficiency 0.13 gallon per flush urinal, wall hung, vitreous china. Manually operated 0.13 gallon per flush-flush valve.

3. Lavatory: Wall hung/countertop ADA lavatory with 0.35 GPM metering mixing faucet.

4. Sink: MAAB/ADA stainless steel countertop sink with gooseneck faucet and 0.5 GPM aerator.

5. Drinking Fountain: Barrier free hi-low wall mounted electric water cooler, stainless steel basin with bottle filling stations.

6. Janitor Sink: 24 x 24 x 10 Terrazo mop receptor Stern-Williams or equal.

7. Laboratory Sinks: Faucets with vacuum breakers and 0.74 GPM aerators.

7. DRAINS

A. Drains are cast iron, caulked outlets, nickaloy strainers, and in waterproofed areas and roofs shall have galvanized iron clamping rings with 6 lb. lead flashings to bond 9 in. in all directions. Drains shall be Smith, Zurn, Josam, or equal.

8. VALVES

A. Locate all valves so as to isolate all parts of the system. Shutoff valves 3 in. and smaller shall be ball valves, solder end or screwed, Apollo, or equal.

9. INSULATION

A. All water piping shall be insulated with snap-on fiberglass insulation Type ASJ-SSL, equal to Johns Manville Micro-Lok HP.

10. CLEANOUTS

A. Cleanouts shall be full size up to 4 in. threaded bronze plugs located as indicated on the drawings and/or where required in soil and waste pipes.

B. Cleanouts for Special Waste System shall be Zurn #Z9A-C04 polypropylene cleanout plug with Zurn #ZANB-1463-VP nickel bronze scoriated floor access cover.

11. ACCESS DOORS

A. Furnish access doors for access to all concealed parts of the plumbing system that require accessibility. Coordinate types and locations with the Architect.

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HVAC SYSTEMS

NARRATIVE REPORT

The following is the HVAC system narrative, which defines the scope of work and capacities of the HVAC system as well as the Basis of Design. The HVAC systems shall be designed and constructed for ***LEED for Schools v4*** where indicated on this narrative.

1. CODES

All work installed under Division 230000 shall comply with the State of Massachusetts Building Code and all local, IBC 2015, IECC 2015 and IMC 2015 with MA Amendments, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

The work of Division 230000 is described within the narrative report. The HVAC project scope of work shall consist of providing new HVAC equipment and systems as described here within. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

3. BASIS OF DESIGN: (MASS CODE)

Project weather and Code temperature values are listed herein based on weather data values as determined from ASHRAE weather data tables and the International Energy Conservation Code.

Outside: Winter 5 deg. F, Summer 91 deg. F DB 74 deg. F WB

Inside: 72 deg. F +/- 2 deg. F for heating, 75 deg. F +/- 2 deg. F (55% RH) for cooling for areas with air conditioning, 78 deg. F +/- 2 deg. F (<60% RH) for areas with displacement/dehumidification*(see note below). Unoccupied temperature setback will be provided (60 deg. F heating (adj.), 85 deg. F cooling/dehumidification (adj.).

Outside air is provided at the rate in accordance with ASHRAE guide 62.1-2013 and the International Mechanical Code as a minimum. All occupied areas will be designed to maintain 800 PPM carbon dioxide maximum.

4. SYSTEM DESCRIPTION

A. Heating and Air Conditioning System

It is proposed that new high efficiency Air Source Heat Recovery Variable Refrigerant Flow (VRF) systems be installed to serve the building Classroom, Media Center, Administration office areas, Multi-Purpose and Cafeteria areas of the building. Indoor VRF air handling units shall be connected with refrigeration piping to branch controllers and outdoor roof mounted air cooled VRF heat pump condensing units. This system allows for simultaneous heating or cooling capability year-round. It is estimated that (4) 30-ton outdoor roof mounted VRF air source heat recovery heat pump condensing units will be required to serve the indoor VRF air handling equipment.

New dedicated outdoor air (DOAS) rooftop air handling units with supply and return fan with VFDs, energy recovery wheels, air source heat pump heating and cooling section with modulating capacity control, supplemental electric heat and MERV 13 filtration will be provided to serve the ventilation requirements of the building. Supply air will be provided to areas of the building through new galvanized steel supply duct distribution. Return air will be drawn back to the units by a combination of ceiling and low wall return air registers located throughout the building and will be routed back to the air handling units by an insulated galvanized sheetmetal return air ductwork distribution system. VAV (variable air volume) terminal boxes shall be installed in the supply air distribution ductwork and will control the amount of ventilation provided to the classroom, Media Center, Cafeteria, Multi-Purpose and Administration office zones based on CO2 demand ventilation controls.

C. Classroom Heating and Ventilation *(General Classrooms, Science, Art & Music, SPED, & Technology Classrooms)*:
LEED for Schools Credit Ep2 & 4, Ec2 & 3, IEQp1 & 3, IEQc1, 2, 3, 4, 5, & 9

Spatial heating and air-conditioning for the Administration areas will be served by the proposed VRF system. It is estimated that each typical classroom would require (2) 12 MBH ductless ceiling mounted cassette type VRF units, and that larger Science, Technology, Art, and Music Classrooms would require approximately (2) 18 MBH ductless ceiling mounted cassette type units. The indoor VRF units in other areas shall be a combination of ceiling mounted cassette type, wall mounted ductless, floor mounted vertical style units, and ducted fan coil type unit with the style selected to provide the best performance and aesthetic for the space served. Supplemental electric radiant heating will be provided along perimeter of exterior walls.

Ventilation for Classroom areas shall be provided by dedicated outdoor air handling units. New air handling units shall be equipped with supply and return fan with VFDs, dual energy recovery wheels, direct expansion heat pump section for heating and cooling with modulating capacity control, and MERV 13 filtration shall be installed to provide code required ventilation air to classrooms. Supply air will be provided to the space through new insulated, galvanized steel supply duct distribution system and shall be connected to wall ceiling diffusers or VRF heat pump fan coil unit return ductwork located within the classrooms. Exhaust air will be drawn back to the units by ceiling exhaust air registers located within the classroom and will be routed back to the air handling unit by an insulated galvanized sheetmetal return air ductwork distribution system. Each classroom will be provided with a variable air volume terminal box and CO2 sensor for demand ventilation control.

It is estimated that the air handling equipment with the capacity of 30,000 CFM (76 tons cooling/ and 90 tons heating) will be required to serve the Classroom areas:

D. Gymnasium (Partial AC/Dehumidification):
LEED for Schools Credit Ep2 & 4, Ec2 & 3, IEQp1 & 3, IEQc1, 2, 3, 4, 5, & 9

The gymnasium will be served by an air handling unit of the recirculation design. The unit will be approximately 7,500 CFM and will include supply and return fans with VFDs, 23 Ton cooling/heating heat pump section with modulating capacity control, MERV 13 filtration, supplemental electric heating and carbon dioxide controls which will reduce outside air as allowed maintaining a maximum of 800 PPM. Supply air ventilation will be provided to the space through galvanized steel supply duct with high capacity ceiling mounted diffusers to project the air to the floor. As levels of carbon dioxide drop generally relating to a reduction in population a variable frequency drive located in each air-handling unit will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the air handling unit by a low wall return air register.

E. Administration Areas (Air Conditioned):
LEED for Schools Credit Ep2 & 4, Ec2 & 3, IEQp1 & 3, IEQc1, 2, 3, 4, 5, & 9

Spatial heating and air-conditioning for the Administration areas will be served by the proposed VRF system.

The air handling unit will have a capacity of approximately 3,000 CFM and will include supply and return fan with VFDs, 1MERV 13 filtration, 8 ton capacity heating/cooling heat pump section, supplemental electric heating and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space that will satisfy building code requirements based on population.

F. Media Center (Air Conditioned):
LEED for Schools Credit Ep2 & 4, Ec2 & 3, IEQp1 & 3, IEQc1, 2, 3, 4, 5, & 9

It is proposed that spatial heating and air-conditioning for zones will be provided by the proposed VRF system. For ventilation, the Media Center will be provided with an air-handling unit capable of providing 100% outside air and variable air volume operation. The air handling unit will be approximately 4,000 CFM and will include supply and return fan with VFDs, MERV 13 filtration, 9 ton capacity heating/ cooling heat pump section, supplemental electric heating, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space which will satisfy building code requirements based on population. Supplemental electric radiant heating will be provided along perimeter of exterior walls.

G. Cafeteria and Multi-Purpose (Air Conditioned):
LEED for Schools Credit Ep2 & 4, Ec2 & 3, IEQp1 & 3, IEQc1, 2, 3, 4, 5, & 9

The Cafeteria area will be served by an air-handling unit capable of providing 100% outside air. The units will be approximately 9,500 CFM and will include supply and return fan with VFDs, MERV 13 filtration, 30-ton heating/cooling heat pump section, and exhaust air energy recovery wheel. Supply air ventilation will be provided to each space through galvanized steel supply duct that will connect to floor level displacement diffuser distribution which will satisfy building code requirements based on population. In addition, carbon dioxide controls will be installed which will monitor the overall level of carbon dioxide at a threshold level of 800 ppm. As levels drop generally relating to a reduction in population the air-handling unit outside air damper will modulate to reduce airflow and ventilation while always maintaining a maximum of 800 ppm. Return air will be drawn back to the units by ceiling mounted return air registers. Supplemental electric radiant heating will be provided along perimeter of exterior walls.

H. Kitchen (Heating/Partial AC Dehumidification):
LEED for Schools Credit Ep2 & 4, Ec2 & 3, IEQp1 & 3, IEQc1, 2, 3, 4, 5, & 9

The kitchen areas shall be provided with a kitchen exhaust fan from a new kitchen exhaust air fan system. It is estimated that a kitchen exhaust fan system with a capacity of 5,000 CFM is required. The kitchen will be heated and provided with make-up air from a 4,500 CFM make-up air handling unit equipped with heat pump heating and partial cooling (dehumidification) control.

A variable volume kitchen exhaust hood control system consisting of kitchen exhaust stack temperature and smoke density sensors, supply and exhaust fan variable speed drives and associated controller will be provided by the kitchen equipment vendor. This system installation shall be field installed and coordinated with the ATC and Electrical contractors.

I. Lobby, Corridor, and Entry Way Heating:

A combination of VRF fan coil air handling units and supplemental electric radiant heating shall be provided to provide spatial heating to these areas. Corridors shall be ventilated from adjacent air handling unit systems.

J. Custodial Support Areas:

Custodial support areas will be heated and ventilated by a combination of VRF air handling units and supplemental electric radiation heating. Storage areas will be heated by radiation heating equipment. Horizontal type unit heaters will heat areas adjacent to the loading dock. All custodial closets will be exhausted by exhaust air fan systems.

K. Utility Areas:

Utility areas will be provided with exhaust air fan systems for ventilation and will typically be heated by horizontal type ceiling suspended electric unit heaters.

The main IDF room will be air conditioned by high efficiency ductless AC cooling units.

L. Testing, Adjusting, Balancing & Commissioning:

All new HVAC systems shall be tested, adjusted, balanced and commissioned as part of the project scope.

M. Automatic Temperature Controls – Building Energy Management System:

A new DDC (direct digital control) automatic temperature control and building energy management system shall be installed to control and monitor building HVAC systems. Energy metering shall be installed to monitor the energy usage of building HVAC systems and utilities (fuel, gas, water).

Lighting control and door access control system shall be integrated into the BMS system.

The control system shall be as manufactured by Johnson Controls (Metasys), Siemens (Apogee) or Delta Controls.

5. NET ZERO OPTION

For the Net Zero Option, the Variable Refrigerant Flow system shall be served by a ground source well field system consisting of approximately (38) thirty-eight closed loop 4-pipe 750 Ft. Deep wells. The wells shall be connected to manifold boxes, which in turn shall be routed to ground water supply and return header piping located in the mechanical room. Two (2) ground loop water pumps shall be provided with VFD drives to distribute ground source water from the well field to the heat pump equipment.

The ground source water shall be connected to a water to refrigerant high efficiency heat recovery heat pump units located in the mechanical room. It is estimated that four (4) water-refrigerant heat pump units with a capacity of 30 (thirty) tons heating/cooling capacity each shall be required to serve the VRF indoor air handling units.

The ground water to refrigerant heat pump units shall be connected with insulated refrigerant piping to the indoor VRF (variable refrigerant flow) units similar to the Base Option. Indoor unit quantities and sizes shall be similar to the Base Option.

Ground source water shall also be piped to the ventilation air handling units. Ventilation air handling units shall be ground water source heat pumps instead of water source heat pump units for this Net Zero Option. Units capacities shall be similar to the Base Option

6. TESTING REQUIREMENTS:

   A. The mechanical contractor shall provide testing of the following systems with the owner and owner's representative present:

      1. Net Zero Option – Ground-source Heat Pump system

      2. VRF (Variable Refrigerant Flow) System

      3. Air handling unit systems including all indoor and rooftop air handling systems and exhaust air systems

      4. Terminal heating and cooling devices

      5. Automatic temperature control and building energy management system

   B. Testing reports shall be submitted to the engineer for review and approval before providing to the owner.

7. OPERATION MANUALS AND MAINTENANCE MANUALS: When the project is completed, the mechanical contractor shall provide operation and maintenance manuals to the owner.

8. RECORD DRAWINGS AND CONTROL DOCUMENTS: When the project is completed, an as-built set of drawings, showing all mechanical system requirements from contract and addendum items will be provided to the owner.

9. COMMISSIONING: The project shall be commissioned per Section 018000 of the specifications.

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ELECTRICAL SYSTEMS

NARRATIVE REPORT

The following is the Electrical system narrative, which defines the scope of work and capacities of the Power and Lighting system as well as the Basis of Design. The electrical systems shall be designed and constructed for ***LEED for Schools v4*** where indicated on this narrative. This project shall conform to a Platinum award level and has a minimum target of a Silver award level. The project has a goal of Net Zero.

1. CODES

All work installed under Division 26 shall comply with the Massachusetts State Building Code, IBC 2015 and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

The work of Section 260000 is indicated in this narrative report. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Electrical work and all items incidental thereto, including commissioning and testing.

3. SEQUENCE OF OPERATIONS AND INTERACTIONS

A. Classroom and corridor lighting will be controlled via “addressable relays”, which is achieved through programming. The control of the relays shall be by automatic means such as an occupancy sensor in each classroom and corridors. The lighting controls will be part of the Building Management System.

B. Exterior lighting will be controlled by photocell “on” and “schedule” for “off” operation. The vehicle circulation area lighting will be controlled by “zones” and will have dimming-level control.

C. Emergency and exit lighting will be run through life safety panels to be on during normal power conditions as well as power outage conditions.

4. DESCRIPTION OF THE SYSTEMS

A. Electrical Distribution System:

1. New construction service ratings are designed for a demand load of 10 watts/s.f. The service capacity will be sized for 1600 amperes with 100% rating at 277/480 volt, 3ø, 4wire. New lighting and power panels will be provided to accommodate respective loads. The service capacity will be sized for 20% spare capacity. The service will be central to main building and feed other buildings. A single meter will be used for entire site so that future PV will serve all loads on site.

B. Interior Lighting System:

1. Classroom lighting fixtures consist of indirect LED luminaries with dimming drivers. The fixtures will be pre-wired for dimming control where natural daylight is available and also for multi-level switching. Office lighting fixtures will consist of similar fixtures to classrooms. Offices on the perimeter with windows shall have daylight dimming controls.

   In general lighting power density will be 40 percent less than IECC 2015. The power density reduction relates to ***LEED for Schools Credit EAC1.***

2. Lighting levels will be approximately 30 foot candles in classrooms and offices. The daylight dimming footcandle level will be in compliance with ***LEED for Schools IEQ 6.1.***

3. Gymnasium and multi-purpose lighting will be comprised of indirect LED fixtures with dimming drivers. The fixtures will be provided with protective wire guards. The light level will be designed for approximately 40 foot candles.

   Daylight dimming will be provided within 15 feet of skylights or glazing. Daylight dimming controls will be similar in operation to classrooms.

4. Corridor lighting will be comprised of linear indirect lighting using LED light source. The corridor light level will be designed for approximately 20 foot candles. Corridor lighting will be on a schedule through the BMS system control and only “on” during occupied hours. The corridor lighting will have two level control.

5. Cafeteria lighting will be LED fixtures with dimming drivers. The light levels will be designed for approximately 30 foot candles.

6. Kitchen and Servery lighting will consist of recessed 1 ft. x 4 ft. lensed and gasketed LED panels. Light levels will be approximately 50 foot candles.

7. Library lighting will consist of indirect fixtures with LED dimmable drivers. Light levels will be approximately 30 foot candles.

9. Each area will be locally switched and designed for multi-level controls. Each classroom, office space and toilet rooms will have an occupancy sensor to turn lights off when unoccupied. Daylight sensors will be installed in each room where natural light is available for dimming of light fixtures. The manual controls will allow user to dim each scene.

10. The entire school will be controlled with an automatic lighting control system using the BMS control system for schedule and programming of lights controls.

C. Emergency Lighting System:

1. An interior 300 kW natural gas fuelled indoor emergency generator will be provided. Emergency light fixtures and LED exit signs will be installed to serve all egress areas such as corridors, intervening spaces, toilets, stairs and exit discharge exterior doors. The administration area lighting will be connected to the emergency generator.

2. The generator will be sized to include life safety systems, VRF (heating for freeze protection) and communications systems.

D. Site Lighting System

1. Fixtures for area lighting will be pole-mounted cut-off 'LED' luminaries in the drop-off areas. The fixtures shall be per Town of Brookline standards. Pole heights will be below 12 ft. The exterior lighting will be connected to the automatic lighting control system for photocell on and timed off operation. The site lighting fixtures will be dark sky compliant. The illumination level is 0.5 foot candle minimum for parking areas in accordance with Illuminating Engineering Society.

2. Building perimeter fixtures will be wall mounted cut-off over exterior doors for exit discharge.

E. Wiring Devices:

1. Each classroom will have a minimum of (2) duplex receptacles per teaching wall and (2) double duplex receptacles on dedicated circuits at classroom computer workstations. The teacher's workstation will have a double duplex receptacle also on a dedicated circuit. Refer to drawings.

2. Office areas will generally have (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.

3. Corridors will have a cleaning receptacle at approximately 25 foot intervals.

4. Exterior weatherproof receptacles will be installed at exterior doors.

5. A system of computer grade panelboards with double neutrals and transient voltage surge suppressors will be provided for receptacle circuits.

F. Fire Alarm System:

1. A fire alarm and detection system will be provided with 60 battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms. The control panel shall be manufactured by Notifier.

2. Smoke detectors will be provided in open areas, corridors, stairwells and other egress ways.

3. The sprinkler system will be supervised for water flow and tampering with valves.

4. Speaker/strobes will be provided in egress ways, classrooms, assembly spaces, open areas and other large spaces. Strobe only units will be provided in single toilets and conference rooms. A mass notification system shall be provided integral with fire alarm system.

5. Manual pull stations will be provided at exit discharge doors.

6. The system will be remotely connected to automatically report alarms to fire department via wireless master box (32 zones).

G. Uninterruptible Power Supply (UPS):

1. One (1) 24kw, three (3) phase centralized UPS systems will be provided with battery back-up.

2. The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers, communication systems, etc. during a prolonged power outage.

3. The UPS systems will also be connected to the stand by generator.

H. Lightning Preventer System:

1. Lightning preventer devices will be provided to provide coverage for the entire building.

2. The lightning preventer equipment will include lightning preventers, conductors, conduits, fasteners, connectors, ground rods, etc.

5. NET ZERO OPTION – NON USE OF FOSSSIL FUELS

The following items are regarding the Net Zero Energy Design for the Electrical Systems without the use of fossil fuels.

The Electrical service will be increased in size to compensate for electric cooking and domestic hot water. The anticipated electrical load is approximately 150 KW. Presently, the service size 1,600 amps, 277/480 volt, 3 phase, 4 wire with 4,000 amp bussing to accommodate the PV System.

The additional service increase of approximately 181 amps will result in utilizing a service of 2,000 amps, 277/480 volt, 3 phase, 4 wire with 4,000 amp bussing to accommodate the PV system.

6. TESTING REQUIREMENTS

The Electrical Contractor shall provide testing of the following systems with the Owner and Owner's Representative present:

- Lighting and power panels for correct phase balance.
- Emergency generator.
- Lighting control system (interior and exterior).
- Fire alarm system.
- Security system.

Testing reports shall be submitted to the Engineer for review and approval before providing to the Owner.

7. OPERATION MANUALS AND MAINTENANCE MANUALS:

When the project is completed, the Electrical Contractor shall provide operation and maintenance manuals to the Owner.

8. RECORD DRAWINGS AND CONTROL DOCUMENTS:

When the project is completed, an as-built set of drawings, showing all lighting and power requirements from contract and addendum items, will be provided to the Owner.

9. COMMISSIONING

The project shall be commissioned per Section 018000 of the specifications.

10. RENEWABLE ENERGY PROVISIONS

Provisions for a renewable energy system will consist of largest capacity (restricted by roof area) grid connected photovoltaic PV system intended to reduce the facilities demand for electricity and reduce carbon emissions. The photovoltaic system will be installed at a future date. The project will be PV ready.

11. SITE UTILITIES

The Electric, Telephone and Cable TV utilities will be underground for each system provided.

12. CCTV

A Closed Circuit TV system will consist of computer servers with image software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end (MDF) room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders (SAN) will record all cameras and store this information for 45 days

at 30 images per second (virtual real time).

The location of the cameras is generally on exterior building perimeter. The exterior cameras are fixed type.

The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

13. INTRUSION SYSTEM

An intrusion system will consist of security panel, keypads, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter classroom with grade access will have dual tech sensors along the exterior wall and corridors, door contacts at each exterior door.

The system will include a digital communicator to summons the central station in the event of an alarm condition.

The intrusion system will be connected to the automated lighting control system to automatically turn on lighting upon an alarm.

14. CARD ACCESS

A card access system includes a card access controller, door controllers and proximity readers/keypads. Proximity readers will be located at various locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.

The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.

The system is modular and may be easily expanded to accommodate any additional devices.

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TECHNOLOGY SYSTEMS

NARRATIVE REPORT

The following is the Technology System narrative, which defines the scope of work and capacities of the Communications system infrastructure and Security system as well as the Basis of Design.

1. CODES

   A. All work installed under Section 270000 shall comply with the Massachusetts Building Code, IBC 2015, and all local, county, and federal codes, laws, statues, and authorities having jurisdiction.

2. DESIGN INTENT

   A. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Technology and Security work and all items incidental thereto, including commissioning and testing.

3. TECHNOLOGY

   A. The data system infrastructure will consist of fiber optic backbone cabling. Horizontal wiring will consist of Category 6A UTP Non-Plenum rated cabling for both data and telephone systems for gigabit connectivity. The telephone infrastructure will accommodate VOIP based voice systems. An IP telephone system will be used.

   B. Each classroom will have 2 data outlets for student computers. Two data with video and audio connections to a wall mounted touch screen monitor will be provided at teacher's station. A wall phone will be provided for communications with administration in each classroom. Wireless access points will be provided in all classrooms and other spaces with (2) CAT6A cables.

   C. A central paging system will be provided and integrated with the telephone system. The speakers shall be IP and manufactured by Valcom.

   D. A wireless GPS/LAN based master clock system will be provided with 120V wireless remote clocks that act as transceivers.

   E. The Main Distribution Frame (MDF) will contain all core network switching and IP voice switch. Intermediate Distribution Frames (IDFs) will serve each floor/wing of the school. A fiber optic backbone will be provided from each IDF to MDF. The backbone will be designed for 10 Gbps Ethernet.

4. TESTING REQUIREMENTS

A. The Technology and Security Contractors shall provide testing of the following systems with the Owner and Owner's representative present:

- Telephone and data cabling
- Fiber optic backbone cabling
- IP Paging system
- Wireless clock system
- A/V wiring for classrooms

Testing reports shall be submitted to the engineer for review and approval before providing to the Owner.

5. OPERATION MANUALS AND MAINTENANCE MANUALS:

A. When the project is completed, the Technology Contractor shall provide operation and maintenance manuals to the Owner.

6. RECORD DRAWINGS AND CONTROL DOCUMENTS:

A. When the project is completed, an as-built set of drawings, showing all lighting and power requirements from contract and addendum items, will be provided to the Owner.

7. COMMISSIONING

A. The project shall be commissioned per Commissioning Section of the specifications.

2.3.8 Total Project Budget
Please reference Section 1.2.3 Summary of Capital Budget Statement.

2.3.9 Permitting Requriements
Normal permitting is anticipated for the project, including:

- Hazmat Abatement Permit: 10 days standard
- Demolition Permit: Permit application to be filed after town meeting vote, with anticipated 1 year stay.
- Building Permit: 6 weeks from submission of permit set
- Gas Permit: 6 weeks from submission of permit set
- Electric Permit: 6 weeks from submission of permit set
- Plumbing: 6 weeks from submission of permit set
- Elevator Permit: 6 weeks from submission of permit set
- Food Service Permit: 6 weeks from substantial completion

2.3.10 Design and Construction Schedule
The project schedule for Option H – New Construction -
Following local appropriation voting, the Design Documents will be developed, leading to construction commencement in the early fall of 2020, with a student move-in date of September 2022. The existing school building will then be demolished and final site work will be completed by summer 2023.

school arrangement will include a science classroom at each floor and a single two story project space forming the center of the cohort cluster along with the requisite classrooms, SWD and learning center rooms.

2.4 Preferred Solution

2.4.1 Preferred Solution

The preferred option consists of a four-story structure, measured from the grade at Washington Street. The building would be an apparent three stories in height from Westbourne Terrace due to the site topography. There is an additional basement level below the Washington Street elevation which comprises an assumed 50 car garage as well as athletics suite with the 6100 square-foot gymnasium and associated athletic facilities accessed from a multistory lobby.

The main entrance is at Washington Street through a vestibule which is immediately adjacent to the main administration offices and welcome desk. The visitor would then be immediately presented with the panorama of the Learning Commons/Cafeteria and Media Center, both with broad views directly out to the level of the new playfield and recess areas. To the right of the entrance, conveniently situated for separated community access, is the two-story high multipurpose room which is grouped in a performance suite with the music spaces behind. Also on the first floor is the service wing of the building including kitchen and custodial receiving areas with direct access to a service court off of the shared service alley.

Students may also enter from parent drop-off at the North West corner of the building to the second floor lobby which is contiguous with the Learning Commons atrium. This entrance is at grade with Westbourne Terrace and can be conveniently observed by parents dropping off at curbside. The second floor of the building begins the typical arrangement of classrooms in the three wings with project space overlooking the learning Commons the center.

The building's overall massing will be minimized towards Westbourne Terrace with a narrow end elevation of one of the wings at a lower height than the imposing apartment buildings to the north. This height is also lower in the existing school school structure.

2.4.2 Preferred Solution Space Summary

Reference section 1.4 Initial Space Summary in the Preliminary Design Program.

2.4.3 Space Summary Variations

Reference the Space Summary included in section 1.4 Initial Space Summary in the Preliminary Design Program; no variations. noted

2.4.4 Sustainability Documents

Please reference the following preliminary LEED Scorecard.

LEED for Schools v4
Project Scorecard

Project Name: Driscoll School
Project Address: 64 Westbourne Terrace, Brookline, MA
Date Updated: November 27, 2018

Yes	?	No
54	23	33

Phase	Yes	?	No				
	1	0	0		**Integrative Process**		1
D	1			Credit 1	**Integrative Process**		1

	Yes	?	No				
	8	3	4		**Location & Transportation**		15
D			x	Credit 1	**LEED for Neighborhood Development Location**		15
D	1			Credit 2	**Sensitive Land Protection**		1
D			2	Credit 3	**High Priority Site**		2
D	2	2	1	Credit 4	**Surrounding Density and Diverse Uses**		5
D	3		1	Credit 5	**Access to Quality Transit**		4
D		1		Credit 6	**Bicycle Facilities**		1
D	1			Credit 7	**Reduced Parking Footprint**		1
D	1			Credit 8	**Green Vehicles**		1

	Yes	?	No				
	5	4	3		**Sustainable Sites**		12
C	Y			Prereq 1	**Construction Activity Pollution Prevention**		Required
D	Y			Prereq 2	**Environmental Site Assessment**		Required
D	1			Credit 1	**Site Assessment**		1
D		1	1	Credit 2	**Site Development - Protect or Restore Habitat**		2
D			1	Credit 3	**Open Space**		1
D		3		Credit 4	**Rainwater Management**		3
D	2			Credit 5	**Heat Island Reduction**		2
D	1			Credit 6	**Light Pollution Reduction**		1
D			1	Credit 7	**Site Master Plan**		1
D	1			Credit 8	**Joint Use of Facilities**		1

	Yes	?	No				
	4	1	7		**Water Efficiency**		12
D	Y			Prereq 1	**Outdoor Water Use Reduction**		Required
D	Y			Prereq 2	**Indoor Water Use Reduction**		Required
D	Y			Prereq 3	**Building-level Water Metering**		Required
D	1		1	Credit 1	**Outdoor Water Use Reduction**		2
D	2	1	4	Credit 2	**Indoor Water Use Reduction**		7
D			2	Credit 3	**Cooling Tower Water Use**		2
D	1			Credit 4	**Water Metering**		1

	Yes	?	No				
	14	6	11		**Energy & Atmosphere**		31
C	Y			Prereq 1	**Fundamental Commissioning and Verification**		Required
D	Y			Prereq 2	**Minimum Energy Performance**		Required
D	Y			Prereq 3	**Building-level Energy Metering**		Required
D	Y			Prereq 4	**Fundamental Refrigerant Management**		Required
C	3	2	1	Credit 1	**Enhanced Commissioning**		6
D	11		5	Credit 2	**Optimize Energy Performance**		
						6% Improvement in Energy Performance	1
						8% Improvement in Energy Performance	2
						10% Improvement in Energy Performance	3
						12% Improvement in Energy Performance	4
						14% Improvement in Energy Performance	5
						16% Improvement in Energy Performance	6
						18% Improvement in Energy Performance	7
						20% Improvement in Energy Performance	8
						22% Improvement in Energy Performance	9
						24% Improvement in Energy Performance	10
					x	26% Improvement in Energy Performance	11

					29% Improvement in Energy Performance	12
					32% Improvement in Energy Performance	13
					35% Improvement in Energy Performance	14
					38% Improvement in Energy Performance	15
					42% Improvement in Energy Performance	16
D		1		Credit 3	**Advanced Energy Metering**	1
C			2	Credit 4	**Demand Response**	2
D			3	Credit 5	**Renewable Energy Production**	
				Credit 2	1% Renewable Energy	1
				Credit 3	5% Renewable Energy	2
				Credit 4	10% Renewable Energy	3
D		1		Credit 6	**Enhanced Refrigerant Management**	1
C		2		Credit 7	**Green Power and Carbon Offsets**	
				Credit 7	50% Total Energy Addressed by Green Power, RECs +/or Offsets	1
				Credit 8	100% Total Energy Addressed by Green Power, RECs +/or Offsets	2

Yes	?	No				
6	1	6			**Materials & Resources**	13
D	Y			Prereq 1	**Storage & Collection of Recyclables**	Required
C	Y			Prereq 2	**Construction and Demolition Waste Management Planning**	Required
C	3		2	Credit 1	**Building Life-cycle Impact Reduction**	5
C	1		1	Credit 2	**Building Product Disclosure and Optimization**-Environmental Product	2
C			2	Credit 3	**Building Product Disclosure and Optimization**-Sourcing of Raw Matls.	2
C		1	1	Credit 4	**Building Product Disclosure and Optimization**-Material Ingredients	2
C	2			Credit 5	**Construction and Demolition Waste Management**	2

Yes	?	No				
8	6	2			**Indoor Environmental Quality**	16
D	Y			Prereq 1	**Minimum IAQ Performance**	Required
D	Y			Prereq 2	**Environmental Tobacco Smoke (ETS) Control**	Required
D	Y			Prereq 3	**Minimum Acoustical Performance**	Required
D	1	1		Credit 1	**Enhanced IAQ Strategies**	2
C	1	1	1	Credit 2	**Low-Emitting Materials**	
					Y Three of seven compliant categories	1
					M Five of seven compliant categories	2
					N Six of seven compliant categories	3
C	1			Credit 3	**Construction IAQ Management Plan**	1
C	2			Credit 4	**IAQ Assessment**	2
D	1			Credit 5	**Thermal Comfort**	1
D	1	1		Credit 6	**Interior Lighting**	2
D		3		Credit 7	**Daylight**	3
D	1			Credit 8	**Quality Views**	1
D			1	Credit 9	**Acoustic Performance**	1

Yes	?	No				
6	0	0			**Innovation**	6
D	1			Credit 1	**Innovation in Design: To be determined**	1
D	1			Credit 2	**Innovation in Design: To be determined**	1
D	1			Credit 3	**Innovation in Design: To be determined**	1
C	1			Credit 4	**Innovation in Design: To be determined**	1
C	1			Credit 5	**Innovation in Design: TBD Pilot**	1
C	1			Credit 6	**LEED Accredited Professional**	1

Yes	?	No				
2	2	0			**Regional Priority Credits** - earn up to 4 points	4
					Zip code: 02445	
		1		Credit 1	**Renewable Energy Production (2pt / 3%)**	1
		1		Credit 2	**High Priority Site (2 pts)**	1
	1			Credit 3	**Rainwater Management (2 pts)**	1
1				Credit 4	**Building Life-Cycle Impact Reduction (2pts)**	1
1				*Credit 5*	**Optimize Energy Performance (8pts)**	
	1			*Credit 6*	**Indoor Water Use Reduction (4 pts)**	

Yes	?	No		
54	23	33	**Project Totals (Certification Estimates)**	110

Certified: 40-49 points, **Silver:** 50-59 points, **Gold:** 60-79 points, **Platinum:** 80+ points

ROOM TYPE LEGEND

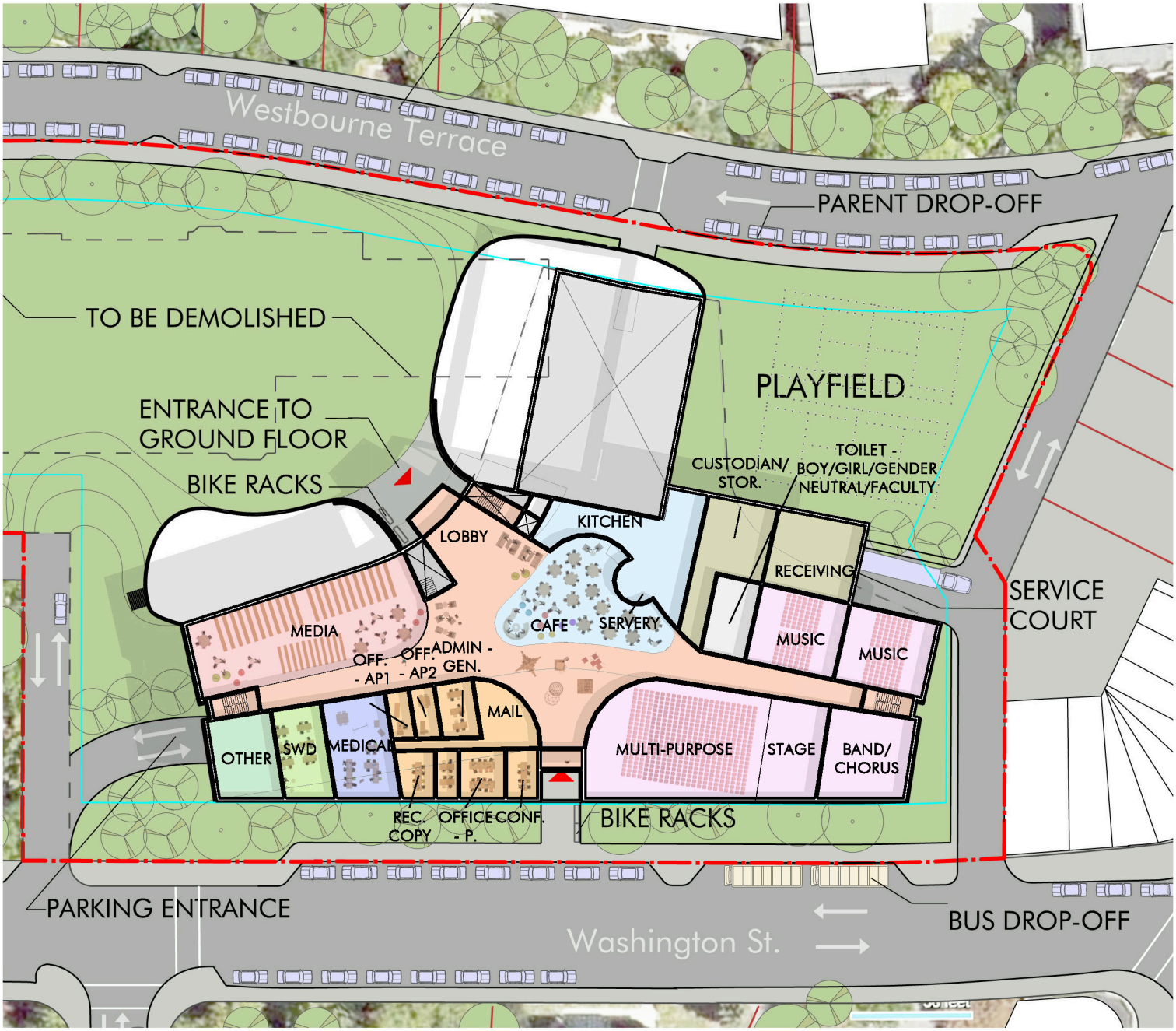
- 1 CORE ACADEMIC SPACES
- 2 SWD/RESOURCE/GUIDANCE
- 3 ART & MUSIC
- 4 VOCATIONS & TECHNOLOGY
- 5 HEALTH & PHYSICAL ED.
- 6 MEDIA/LIBRARY
- 7 DINING & FOOD SERVICE
- 8 MEDICAL
- 9 ADMIN. & GUIDANCE
- 10 CUSTODIAL & MAINTENANCE
- 11 OTHER
- 12 CIRCULATION
- 12 TOILET - BOY/GIRL/GENDER NEUTRAL/FACULTY

OPTION H - FLOOR PLAN - BASE LEVEL

1/64" = 1'-0"

ROOM TYPE LEGEND

- 1 CORE ACADEMIC SPACES
- 2 SWD/RESOURCE/GUIDANCE
- 3 ART & MUSIC
- 4 VOCATIONS & TECHNOLOGY
- 5 HEALTH & PHYSICAL ED.
- 6 MEDIA/LIBRARY
- 7 DINING & FOOD SERVICE
- 8 MEDICAL
- 9 ADMIN. & GUIDANCE
- 10 CUSTODIAL & MAINTENANCE
- 11 OTHER
- 12 CIRCULATION
- 12 TOILET - BOY/GIRL/GENDER NEUTRAL/FACULTY



OPTION H - FLOOR PLAN - FISRT LEVEL

1/64" = 1'-0"

ROOM TYPE LEGEND

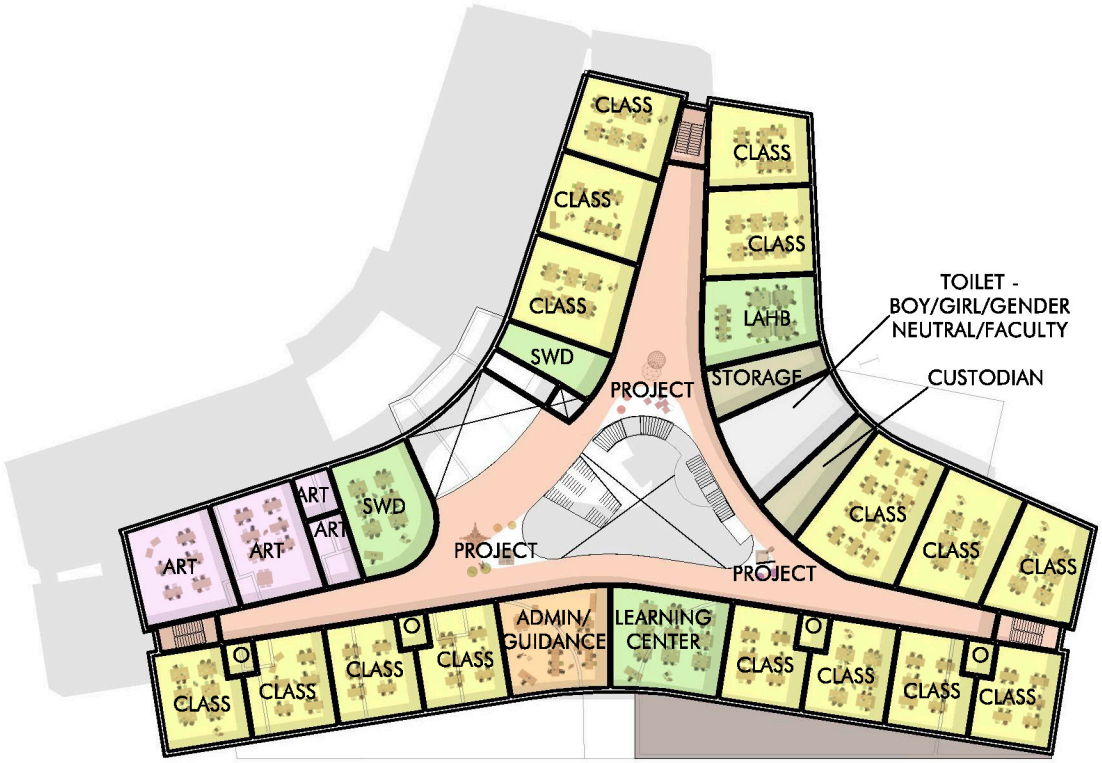
- 1 CORE ACADEMIC SPACES
- 2 SWD/RESOURCE/GUIDANCE
- 3 ART & MUSIC
- 4 VOCATIONS & TECHNOLOGY
- 5 HEALTH & PHYSICAL ED.
- 6 MEDIA/LIBRARY
- 7 DINING & FOOD SERVICE
- 8 MEDICAL
- 9 ADMIN. & GUIDANCE
- 10 CUSTODIAL & MAINTENANCE
- 11 OTHER
- 12 CIRCULATION
- 12 TOILET - BOY/GIRL/GENDER NEUTRAL/FACULTY

OPTION H - FLOOR PLAN - SECOND LEVEL

1/64" = 1'-0"

ROOM TYPE LEGEND

- 1 CORE ACADEMIC SPACES
- 2 SWD/RESOURCE/GUIDANCE
- 3 ART & MUSIC
- 4 VOCATIONS & TECHNOLOGY
- 5 HEALTH & PHYSICAL ED.
- 6 MEDIA/LIBRARY
- 7 DINING & FOOD SERVICE
- 8 MEDICAL
- 9 ADMIN. & GUIDANCE
- 10 CUSTODIAL & MAINTENANCE
- 11 OTHER
- 12 CIRCULATION
- 12 TOILET - BOY/GIRL/GENDER NEUTRAL/FACULTY

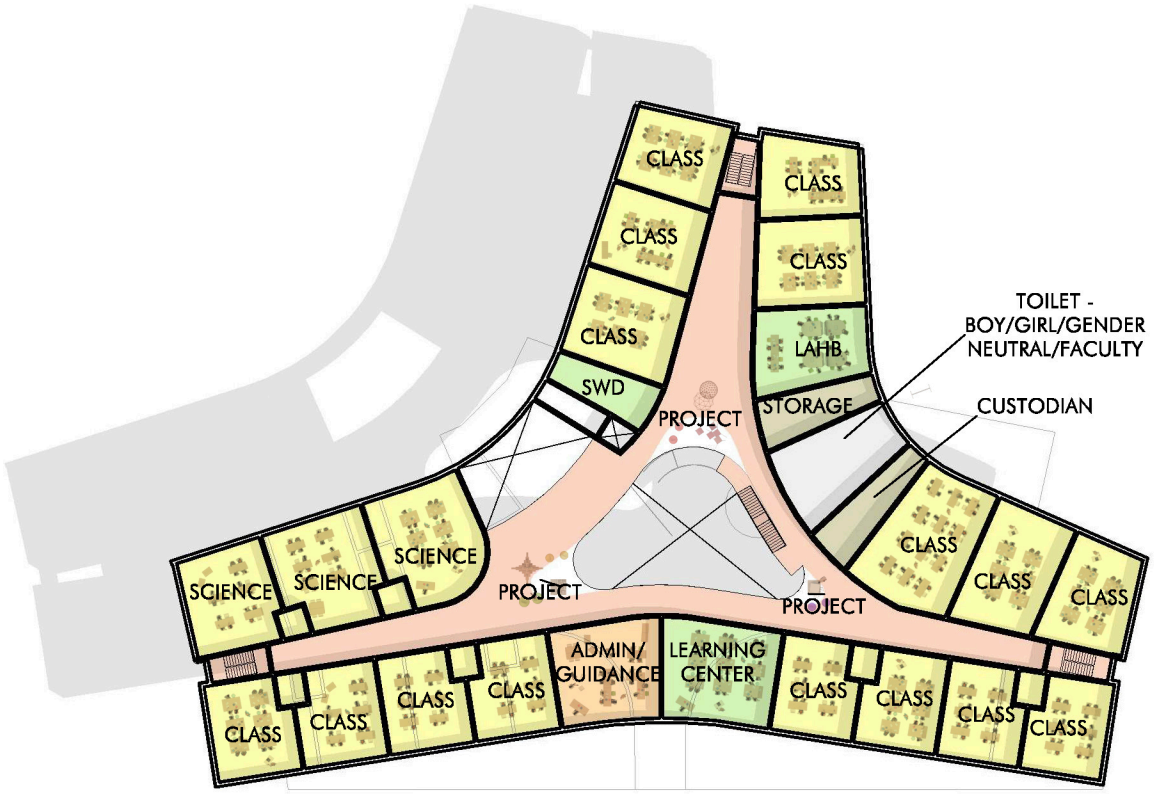


OPTION H - FLOOR PLAN - THIRD LEVEL

1/64" = 1'-0"

ROOM TYPE LEGEND

- 1 CORE ACADEMIC SPACES
- 2 SWD/RESOURCE/GUIDANCE
- 3 ART & MUSIC
- 4 VOCATIONS & TECHNOLOGY
- 5 HEALTH & PHYSICAL ED.
- 6 MEDIA/LIBRARY
- 7 DINING & FOOD SERVICE
- 8 MEDICAL
- 9 ADMIN. & GUIDANCE
- 10 CUSTODIAL & MAINTENANCE
- 11 OTHER
- 12 CIRCULATION
- 12 TOILET - BOY/GIRL/GENDER NEUTRAL/FACULTY



OPTION H - FLOOR PLAN - FOURTH LEVEL

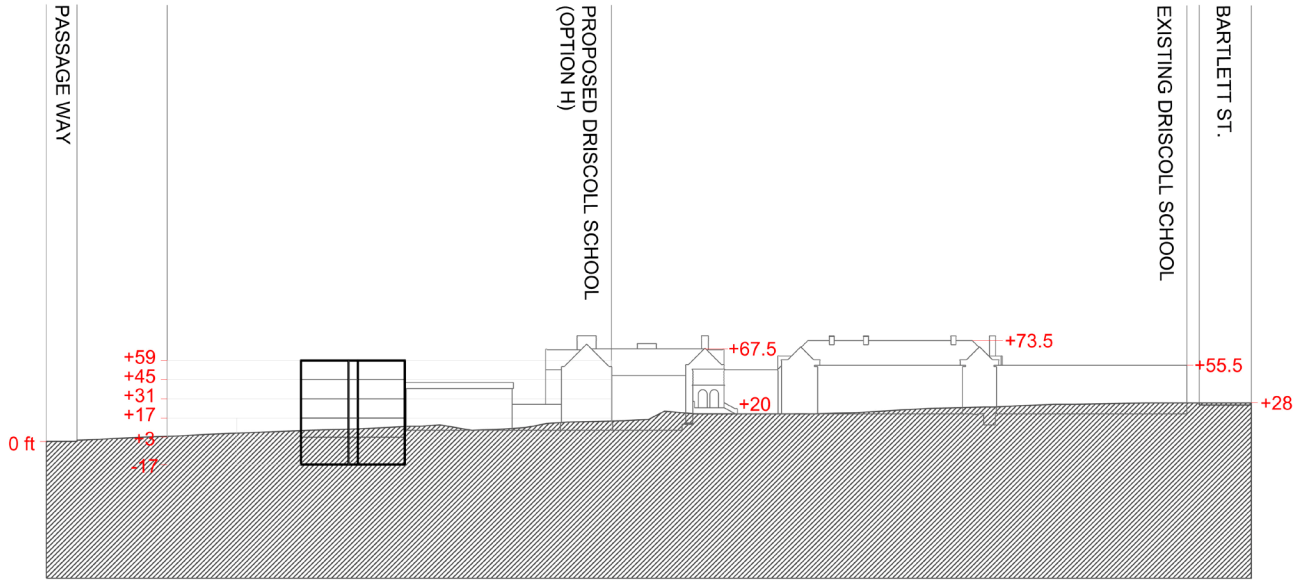
1/64" = 1'-0"

8' 32' 64' 128'

Jonathan Levi Architects

OPTION H

SITE PLAN
DRISCOLL SCHOOL, BROOKLINE



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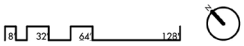
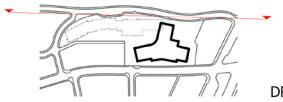
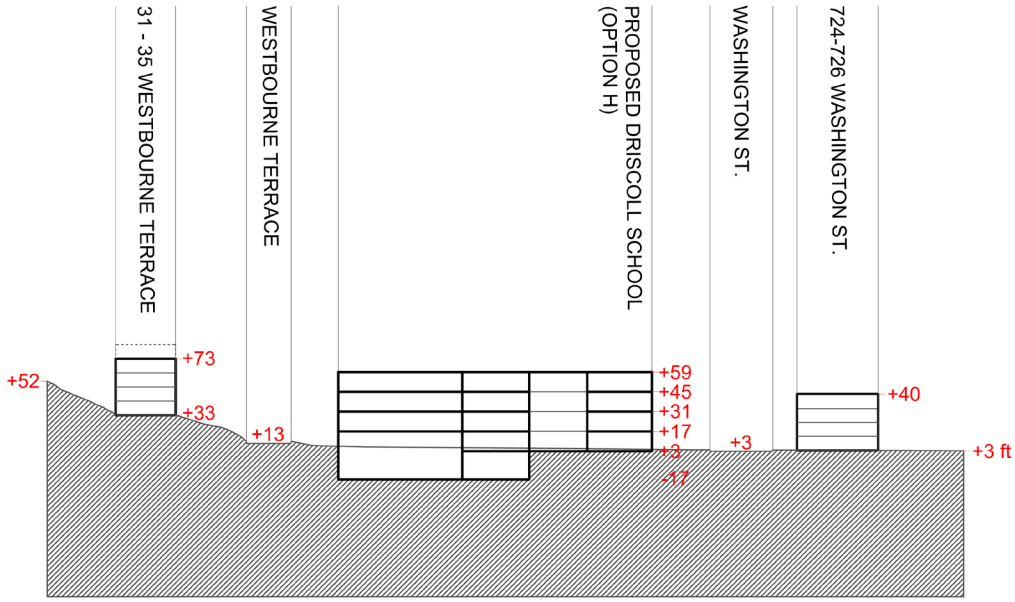




OPTION H

SITE ELEVATION
DRISCOLL SCHOOL, BROOKLINE



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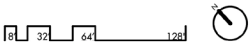

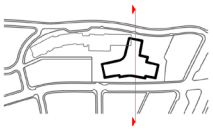

OPTION H

SITE ELEVATION
DRISCOLL SCHOOL, BROOKLINE

2.4.7 Budget

The project cost for the project is expected to be between $101-105M with 50 structured parking spaces below the bulding, and between $93-97M without the structured parking.

3.0 APPENDIX
3.1 Traffic
3.2 Geotech
3.3 Hazmat
3.4 Geoenvironmental

3.1 Traffic

3.2 GeoTech

3.3 Hazmat

3.4 Geoenvironmental