Preferred Schematic Report
Beverly Public Schools

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February 12, 2015

Report Prepared by:

Ai3 Architects, LLC
526 Boston Post Road
Wayland, MA 01778

Project Number: 1403.00

February 12, 2015

Report Prepared for:

Beverly School Building Committee
City of Beverly
502 Cabot Street
Beverly, MA 01915

Evaluation Team:

Architect:
Ai3 Architects, LLC
526 Boston Post Road
Wayland, MA 01778

Structural Engineer:
Engineers Design Group, Inc.
350 Main Street, Floor 2
Malden, MA 02148

Mechanical, Electrical, Plumbing & Fire Protection Engineers:
Griffith & Vary, Inc.
12 Kendrick Road
Wareham, MA 02571

Civil Engineer & Landscape Architect:
PARE Corporation
10 Lincoln Road, Suite 103
Foxboro, MA 02035

Technology Consultant:
Ai3 Architects, LLC
526 Boston Post Road
Wayland, MA 01778

Environmental Consultant:
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

Code Consultant:
Cosentini and Associates
One Kendall Square, Suite B2204
Cambridge, MA 02139

Accessibility Consultant:
Kessler McGuinness & Associates, LLC
1121 Washington Street
Newton, MA 02465

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Introduction

Overview of Process Taken Since Submittal of Preliminary Design Program

Subsequent to the submittal of the Preliminary Design Program, the Designer and the Owner's Project Manager have been working collaboratively with the Owner to further refine the Space Summary, review and update the Educational Program, and develop multiple building options for consideration by the School Building Committee. The City assembled key administration staff to attend weekly working group meetings, and the School Department assembled key administration, faculty, and staff from the Beverly Middle School and elementary schools for multiple discussions related to existing and proposed educational programs, building space adjacencies, and site development. The design team also conducted a charrette with the 5th grade students at Centerville Elementary School to specifically discuss libraries of the future.

The existing building (Memorial Building) and site conditions (Cabot Street site) were revisited in order to verify previous assumptions and reports. There were no surprises associated with this additional work, but it was helpful in assisting the cost estimators in establishing an accurate analysis of the costs associated with each option, particularly on the renovation/ addition options.

The Designer, Owner's Project Manager, and Owner collaborated on the development of the following four options:

- Option 1a: New 5-8 Middle School (Cabot Street Site)
- Option 1b: New 5-8 Middle School (Cabot Street Site) - Deleting the proposed new auditorium as requested by the MSBA
- Option 2a: Renovation / Addition 5-8 Middle School (Cabot Street Site) - Keep/Renovate existing Memorial Building and demolish existing gymnasium/lockers.
- Option 2b: Renovation / Addition 5-8 Middle School (Cabot Street Site) - Keep/Renovate existing auditorium/music and demolish remainder of the existing building.

In addition to the options listed above, the Designer, Owner's Project Manager, School Department, Working Group, and School Building Committee considered several variations of the new construction option.

Introduction

Summary of Updated Project Schedule

Since the submittal of the Preliminary Design Program (PDP), the project schedule has been further developed. The following are a few milestone dates for the project:

• Projected MSBA Board meeting to approve PSBA	September 30, 2015
• Projected City Council Vote to approve PSBA	October 19, 2015
• Anticipated start of "early construction packages" by CM	March 1, 2016
• Target Move-In date	June 1, 2018

A more detailed Updated Project Schedule can be found in this document under the Preferred Solution tab.

Introduction

Summary of Final Evaluation of Existing Conditions

The existing conditions were further reviewed, but there were no substantive changes to any of the original conclusions and observations at the existing Beverly Middle School. The existing gross square footage of the existing Memorial Building (Cabot Street Site) was previously reported at 54,000gsf. Following further review of the existing conditions and take-offs of the existing Memorial Building floor plans during the Preferred Schematic Report phase, the design team has identified the total gross square footage as approximately 103,000gsf.

Introduction

Summary of Final Evaluation of Alternatives

Subsequent to collaborative discussions with the MSBA, the City of Beverly elected to continue the pursuit of the previous "Option 1", proposing all new construction of a 5-8 middle school to be located on the existing Memorial building site on Cabot Street. Additionally, at the recommendation of the MSBA, the City introduced an Option 1B. Option 1B includes all new construction of a 5-8 middle school to be located on the existing Memorial Building site, with the only variation from Option 1 (now referred to as "Option 1A") being that Option 1B does not include a new auditorium within the proposed building program. As per the Preliminary Design Program proposal, the City elected to continue the study of two renovation addition options; both of which also include the creation of a 5-8 school on the Memorial Building site on Cabot Street. Option 2A proposes to renovate and expand the existing Memorial Building, and Option 2B proposes to demolish all parts of the existing Memorial School building except the auditorium; with such auditorium being incorporated into the proposed new school design. Therefore, the City proceeded into the Preferred Schematic phase with considerations of two all-new-construction options and two renovation/addition options; with all proposed options being for a 5-8 school located on the existing Memorial School building site.

OPTION 1A

Construction of an "all new" 233,264sf middle school for grades 5-8 located on the existing Memorial Building site on Cabot Street. The existing Memorial Building would be vacated prior to construction activities on the site and would be abated and demolished as part of an early phase or package; allowing for the expeditious start of new construction. The existing playfields on the site would remain in their current location; although renovation and some reconfiguration would be proposed. The project would be completed on an unoccupied site without the need to break new construction activities into multiple phases.

Abatement and demolition of existing Memorial Building – 4 months

Construction of new building and site – 24 months

Total duration – 28 months

The construction of an "all new" middle school for grades 5 through 8 provides many advantages over the renovation/addition option defined as Option 2A. The City and the School Department invested a significant amount of time creating a progressive, forward-thinking vision of a 5-8 middle school which focused on small-scale academic neighborhoods where relationships between the various program elements of the neighborhood are critical to the success of teaching and learning. This vision is fully incorporated into the proposed organization for Option 1A and can be provided to each grade level through the creation of similar small-scale learning neighborhoods. This Option 1A concept of a newly-created middle school for grades 5 through 8 received overwhelming support from the City, Committees, Boards, School Department, and the greater community. The discussion and evaluation of this option included advantages such as:

- Most efficient building footprint and envelope

- Best adjacencies of programmatic areas
- Better able to meet the goals of educational visioning and program
- Less costly
- Shorter construction timeframe
- Able to provide each grade level with an ideal learning environment
- Economical long-term operational costs
- Better educational layout for the building
- Better organization for connections between 5th and 6th grade students
- Better organization for sharing of key resources between all grade levels
- Less unknowns or unanticipated conditions during construction

OPTION 1B

Option 1B is identical to Option 1A, except that it involves the deletion of the auditorium. This option allows for one to consider the cost savings associated with the deletion of the auditorium. However, the City, Committees, Boards, School Department, and the greater community all feel that the auditorium is a vital educational and community resource which cannot be eliminated from the proposed middle school program. Even the existing Memorial Building, which currently stands on the proposed site and once served as one of two smaller middle schools in the City (it is 103,000gsf), includes a full-size auditorium with approximately 820 seats. Therefore, there was no support for this option.

OPTION 2A

Option 2A involves the re-use and renovation of as much of the existing Memorial Building as deemed practically possible; with significant new additional construction to provide for the necessary total space to meet the grades 5 through 8 building program. This approach ultimately resulted in the demolition of the approximately 15,000sf existing gymnasium, the renovation of the remaining 88,000sf Memorial Building, and the proposed addition of 165,339sf in order to meet the proposed total building program.

The existing Memorial Building is a sprawling two-story structure which does not make efficient use of the available site area. Its incorporation into an overall building plan results in a larger building footprint and larger overall building size than any of the other proposed options. It requires that one grade level (5th grade) be forced into the confines of the existing building footprint in lieu of having a more effective educational organization with the required adjacencies as identified in the educational program. It also requires that this grade level be separated from the other proposed grade levels, even though the educational program calls for specific relationships and adjacencies between grade levels.

The structural narrative identifies significant structural improvements that would have to be completed to the existing building and structure. These upgrades, combined with the comprehensive scope of renovations required for the existing building and the need to physically disengage new additions form the existing structure result in significant renovation costs to the existing building. Therefore, Option 2A provides no cost benefits when compared to other options.

The timeline for Option 2A is anticipated to be similar to Option 1A. Under Option 2A

the initial 4-month period proposed in Option 1A would be utilized for abatement and structural modification to the existing building, with an anticipated construction period of approximately 24 months thereafter.

As identified in the existing conditions report, the Memorial Building rests on concrete piles of unknown size and structure. It also includes a significant amount of hazardous materials in the form of asbestos floors, ceiling, and insulation. The project team believes that its renovation and reuse would certainly involve a number of "unknowns" and that this should be reflected in both the construction contingency and the preference (or not) of this option.

After careful consideration, it was determined by the City, Committees, Boards, and School Department that Option 2A offers no educational, financial, or strategic benefits and includes unknowns that might result in additional costs and/or delays. Therefore, there was no support for this option.

OPTION 2B

Option 2B involves the re-use and renovation of the existing Memorial Building auditorium and adjacent corridor space. It evolved from an understanding that it might not be financially or educationally beneficial to keep a significant portion of the existing Memorial Building, but that there might be some value in attempting to keep and renovate the existing auditorium. The option proposes to keep and renovate 20,000sf of the existing 103,000sf Memorial Building (primarily the auditorium) and to add 215,264sf of new construction in order to meet the proposed total building program.

This option can be organized to create all of the desired organizational and efficiency benefits of the desired Option 1A, as the existing auditorium happens to be in a very similar location on the site as the newly proposed (new construction) auditorium in Option 1A and therefore can be part of an Option 2B which has a layout and organization very similar to Option 1A.

Ultimately, the discussion and evaluation of this option came down to whether it resulted in a cost savings, and if so whether that cost savings came at the risk of encountering unknown conditions in the renovation of the existing auditorium. The structural narrative identifies significant structural improvements that would have to be completed to the auditorium and its un-braced masonry structure. These upgrades, combined with the comprehensive scope of renovations required for the auditorium and the need to physically disengage it from new additions, result in significant renovation costs to the existing auditorium. Additionally, the project team believes that its renovation and reuse could certainly involve a number of encountered "unknowns" and that this should be reflected in both the construction contingency and the preference (or not) of this option.

After careful consideration, it was determined by the City, Committees, Boards, and School Department that Option 2B does not result in any cost savings and offers no educational, financial, or strategic benefits which make it a better choice than Option 1A. Additionally, all parties agreed that Option 2B includes unknowns that might result in additional costs and/or delays. Therefore, there was no support for this option.

Introduction

Summary of District's Preferred Solution

There are many attributes of Option 1A (construction of an all-new building on the existing Cabot Street site) that ultimately made it an easy selection as the preferred schematic option for the Building Committee, School Committee, and the City. It is the only option that fully meets the goals of the proposed educational program and vision, and is simultaneously the least expensive option with the least amount of risk.

During the Preliminary Design Program phase, the Building Committee, School Committee, and the City selected the Cabot Street site as the only viable location for a proposed middle school for grades 5 through 8. At that time, all parties felt the only remaining analysis was to determine if such school should be an all-new-construction building or a renovation and expansion of the existing Memorial building on the Cabot Street site. The existing Memorial Building is relatively small (54,000sf) compared to the necessary square feet for a total building program of approximately 233,000sf. A proposed renovation and expansion would involve primarily expansion, and not renovation; therefore, the Building Committee, School Committee, and City proposed the following questions when considering renovation/expansion options:

- Does a renovation/expansion option allow for the incorporation of the existing Memorial building into a viable building plan which meets all of the goals and objectives of the educational program?
- Does a renovation/expansion option create an efficient building footprint which allows for the effective and efficient use of the remaining site area?
- Does a renovation/expansion option create an efficient building envelope?
- Does a renovation/expansion option result in a cost savings?
- Does a renovation/expansion option result in a shorter construction schedule?
- Does a renovation/expansion option result in more/less risks to the project schedule or budget?

After reviewing the two proposed renovation/expansion options, 2A and 2B, it was determined that neither of the renovation/expansion options offered any benefits based on the questions posed above.

Option 2A

- Compromises the educational goals and objectives by forcing one grade level to fit into the existing Memorial building configuration and be separated from remaining academic teams
- Results in a less efficient building footprint that absorbs more of the available site area and compromises site amenities like playfields
- Results in a less efficient building envelope
- Does not provide any cost savings and in, in fact, is more expensive

- Does not reduce the proposed construction or project schedule
- Results in the potential for more risks

Option 2B

- Does not provide any cost savings and in, in fact, is more expensive
- Does not reduce the proposed construction or project schedule
- Results in the potential for more risks

At the request of the MSBA, an Option 1B was considered, designed, and estimated. This option was an all-new construction option identical to Option 1A, except that it did not include an auditorium within the program. Although the cost comparison data for deleting the auditorium was valuable and generated thoughtful discussion, the City, Building Committee, and School Committee all feel that the auditorium is a vital educational and community resource which cannot be eliminated from the proposed middle school program. Even the existing Memorial building, which currently stands on the proposed site and once served as one of two smaller middle schools in the City (it is 55,000gsf), includes a full-size auditorium with approximately 700 seats. Therefore, Option 2B did not receive any support other than recognition that it was equal to Option 1A if not for the absence of the auditorium.

Option 1A, consisting of an all-new 5th through 8th grade middle school which includes an auditorium, was the unanimous choice by the Committees, Boards, and community members. The following is a summary of its identified attributes:

- Efficient and compact building footprint and envelope
- Ideal adjacencies of programmatic areas and overall educational layout
- Meets the goals and objectives of educational visioning and program
- The least expensive option
- Meets the proposed project timeline
- No/less disruption to students and staff
- Less unknowns or unanticipated conditions during construction (less risk)
- Best site layout for the school and the community

Introduction

MSBA Preliminary Design Program Review and District Response

January 13, 2015

Massachusetts School Building Authority (MSBA)
40 Broad Street
Suite 500
Boston, MA 02109

ATTN: Sarah Blache, Project Coordinator

Re: Proposed Beverly Middle School
MSBA - Preliminary Design Program Review

Dear Ms. Blache:

In response to the MSBA's December 23, 2014 letter to Mayor Michael P. Cahill in reference to the MSBA's review of the Beverly Middle School Module 3 Feasibility Study Preliminary Design Program (PDP) submission and the associated MSBA review comments, the District has conducted numerous review meetings for purposes of responding to the individual review comments, revising the initial space summary and gathering additional documentation for clarification on the requested topics and proposed educational spaces.

We have included the District's response document along with Attachments A thru E which include the requested additional information. We have also included a revised space summary dated January 7, 2015.

Sincerely,

Ai3 Architects, LLC

Troy L Randall, AIA, LEED AP
Principal

cc: The Honorable Michael P. Cahill, Mayor, City of Beverly
Paul Guanci, President, Beverly City Council
Paul Manzo, President, Beverly School Committee
Bryant Ayles, Director of Municipal Finance, City of Beverly
Denise Deshamps, Economic Development Planner, City of Beverly
Dr. Stephen Hiersche, Superintendent of Schools, Beverly Public Schools
Matt Poska, Principal, Beverly Middle School
Thomas Ellis, OPM, Heery
Mark Lyons, OPM, Heery
Al Calcagno, OPM, Heery
L. Scott Dunlap, Principal, Ai3 Architects, LLC

526 Boston Post Road Wayland, MA 01778 P 508.358.0790 F 508.358.0791 www.ai3architects.com

Attachment 'A' - Module 3 Preliminary Design Program Review Comments

District: City of Beverly
School: Briscoe Middle School
Submittal Due Date: December 18, 2014
Submittal Received Date: November 25, 2014
Review Date: December 2 - 11, 2014
Reviewed by: C. Finch

MSBA REVIEW COMMENTS:

The following comments[1] on the Preliminary Design Program submittal are issued pursuant to a review of the project submittal document for renovation / replacement of the Briscoe Middle School presented as a part of the Feasibility Study submission in accordance with the MSBA Module 3 Guidelines, as produced by Ai3 Architects, LLC and its consultants. Certain supplemental components from the Owner's Project Manager (OPM), Heery International, Inc., are included.

3.1 **Preliminary Design Program** submittal completion **taught**

- OPM certification of completeness and conformity – *Complete*.
- Table of Contents - *Complete*.
- Introduction - *Complete - Refer to comments shown in italics*.
- Educational Program - *Complete - Refer to comments shown in italics*.
- Initial Space Summary - *Complete - Refer to comments shown in italics*.
- Evaluation of Existing Conditions - *Complete- Refer to comments shown in italics*.
- Site Development Requirements - *Complete - Refer to comments shown in italics*.
- Preliminary Evaluation of Alternatives - *Complete - Refer to comments shown in italics.*
- Local Actions and Approvals Certification(s) - *Complete*.
- Appendix - *Complete*.

3.1.1 Introduction

- Narrative summary of the Capital Budget Statement and Target Budget for the proposed project - *The narrative provided indicates that the development of the capital budget statement is underway and that the City of Beverly is "committed to providing the necessary resources to fund the Beverly Middle School Project." However, the City's target budget has not been identified. In an effort to understand that the options presented fall within the District's anticipated budget, please provide a target budget for the potential Project.*

[1] The written comments provided by the MSBA are solely for purposes of determining whether the submittal documents, analysis process, proposed planning concept and any other design documents submitted for MSBA review appear consistent with the MSBA's guidelines and requirements, and are not for the purpose of determining whether the proposed design and its process may meet any legal requirements imposed by federal, state or local law, including, but not limited to, zoning ordinances and by-laws, environmental regulations, building codes, sanitary codes, safety codes and public procurement laws, or for the purpose of determining whether the proposed design and process meet any applicable professional standard of care or any other standard of care. Project designers are obligated to implement detailed planning and technical review procedures to effect coordination of design criteria, buildability, and technical adequacy of project concepts. Each city, town, and regional school district shall be solely responsible for ensuring that its project development concepts comply with all applicable provisions of federal, state, and local laws. The MSBA recommends that each city, town, and regional school district have its legal counsel review its development process and subsequent bid documents to ensure that it is in compliance with all provisions of federal, state, and local laws, prior to bidding. The MSBA shall not be responsible for any legal fees or costs of any kind that may be incurred by a city, town, or regional school district in relation to MSBA requirements or the preparation and review of the project's planning process or plans and specifications.

Response: The City of Beverly has reviewed the Comparative Cost Analysis of Options and identified a target budget of $120 million at this time. The City of Beverly remains committed to develop and fund a cost effective project that achieves its educational vision and is consistent with the educational program for a new Beverly Middle School.

- Overview of the process taken that concludes with the submittal of the Preliminary Design Program - *Not provided. Please provide a brief summary of the various tasks, community meetings and milestones which have led up to the submission of the Preliminary Design Program.*

  Response: Prior to the start of the Feasibility Study, the City of Beverly conducted an extensive evaluation of its middle school educational program. The process included several public meetings and resulted in the School Committee voting to support a Grades 5-8 configuration for the middle school educational program. A more complete description of this process is contained in the Statement of Interest (SOI). At the beginning of the Feasibility Study, the Project Team simultaneously reviewed the existing conditions of the City of Beverly school facilities, conducted educational visioning sessions, and worked closely with school administration and faculty to develop an educational program for the new Beverly Middle School. This educational program serves as the foundation for developing and evaluating a number of alternative solutions. Five School Building Committee meetings and a joint City Council/School Committee meeting were held over the six months that the Preliminary Design Program was developed and completed. All the meetings were public meetings and the joint City Council/School Committee meeting was televised. The process concluded on November 18, 2014 with the School Building Committee voting to approve and authorize the OPM to submit the Preliminary Design Program to the MSBA.

3.1.2 Educational Program

Summary and description of the existing educational program and/or new educational vision and specifications, process, etc., Teaching Philosophy Statement (including description of the following):

- Grade and school configuration - *It is noted throughout the submission that the District has vetted and documented its support for the reconfiguration of the Middle School to serve grades 5-8. Please identify the local process, any necessary votes, and other requirements that the District would need in order to reconfigure the Middle School to the 5-8 grade structure. In addition to any local requirements, under separate cover, the MSBA will provide a Module 3 Grade Configuration and Districting Approval Template which documents the School Committee vote to approve and authorize the proposed change to the existing grade configuration (please include the certification on District letterhead and a certified copy of the School Committee meeting minutes with the Preferred Schematic Report). Also, provide a description of how the District plans to transition students and teachers into the new educational program and grade configuration including key milestones, public outreach, professional development, and how vacated spaces in elementary schools will be used.*

  Response: Please reference the following attachments:
  "Attachment A: Grade Configuration Meetings"
  "Attachment B: Minutes on Grades 5-8 Configuration"
  "Attachment C: Strategic Planning - Adhoc Committee"

- Class size policies - *Please provide the current student-teacher ratio, particularly for the Middle School, and the District's desired student-teacher ratio.*
  Response: At present, class sizes in Briscoe Middle School average 26 in the 6th and 7th grades. The present 8th grade is less than 25 per class but that is due to it being a small class. In general, class sizes, with the exception of K-2, are capped at 30. At the present time, only the high school has classes that large. The School District desires to maintain class size at the present level. Reference "Attachment D – Contract Between the Teachers' Association and the Beverly School Committee (September 1, 2014 through August 31, 2017)"

- Lunch programs (District kitchen, full service kitchens, warming kitchens, etc.) - *Please provide further explanation through narrative and/or diagrams as to how the dining area will be subdivided, and how multiple dining areas will not complicate food distribution while maintaining flexibility for future use.*
  Response: Conceptually, the goal is to provide two dining areas, one for the grades 5/6 academy and one for the grades 7/8 academy. This will allow the District to break a very large student population of 1,400 middle school pupils into two groups of approximately 700 pupils. The two dining areas will allow for fewer total lunch periods and make it easier to schedule the building, and also allow for the incorporation of more academic offerings as a result of less interference from multiple dining periods. A first floor dining space would include an attached full service kitchen that would allow preparation of food for both dining areas. Each of the dining areas will included heated and chilled serving areas to allow for salad bars, sandwich stations, etc. One of the dining areas will be located on an upper floor, but will have an adjacent elevator utilized for the transportation of food. It will also include a small satellite warming kitchen that will include the heated and chilled serving components described herein as well as the necessary support services. All meal selections will be available in both dining areas.

  The division and separation of the dining area into two distinct areas achieves several important educational goals that go well beyond the need to break down the large student population and to reduce the overall number of dining periods. The educational programming process resulted in a strong belief that the space dedicated to student dining can be much more "useable" throughout the day if it is more closely linked to the academic neighborhoods. It is not being viewed as a "noisy" space that will be used only during the middle of the day for lunch and should therefore be separated from the remainder of the academic program areas, but instead is being viewed as an "active" multi-purpose area which can be used for dining, presentations, student projects, large group breakout, and various other educational uses that require direct proximity to the academic neighborhoods. Each of the dining areas would include the appropriate acoustics to insure that they provide appropriate space for students to work on group projects and to conduct student and guest presentations. There was also a strong desire to insure that the location of these dining areas provides indoor/outdoor integration to a secured outdoor area (courtyard), such that activities related to the space could easily spill outdoors when appropriate, and the dining spaces would be

filled with natural lighting from outdoors. This connectivity will provide access for students before and after school as well as during lunch. It also allows more direct access for students within the academic neighborhoods to be able to conduct their projects utilizing outdoor resources, such as a garden, both as a learning space and a space to create a portion of the fresh vegetables for the lunch program.

During the school year, Beverly food service assists other school programs such as the collaborative. In the summer, there is a robust summer meals program for the children of Beverly. Both of these programs require dining areas that can serve satellite programs.

- Transportation policies - *Not provided. Please provide an overview of the District's current method for student transportation. Also, please indicate potential changes to the current policy; particularly should the project result in a grade reconfiguration and potential alternate site.*
  Response: At present, Beverly has three tiers of transportation with the school system. The Elementary School runs first, the High School runs second, and the Middle School third. This three-tiered practice would continue in the future, with no required changes in transportation policies. Although adding the 5th grade to the Middle School would result in a larger quantity of students within the Middle School transportation tier, there is no concern regarding capacity. The future capacity of the Middle School run (with 5th grade added) would be approximately equal to the current High School run. This suggests that there is adequate capacity to transport the new configuration. Attached is the transportation policy. All transportation procedures and policies are found on the Beverly Public Schools website under Parents and Transportation or the following link:

  http://www.beverlyschools.org/district/index.php?option=com_content&task=view&id=76&Itemid=95

- Functional and spatial relationships and adjacencies - *In an effort to better understand the District's proposed "neighborhood teams", please provide a diagrammatic layout showing desired spaces and how each space will be utilized.*
  Response:

  Academic Team Rooms - Maker/Builder Space - Neighborhood Commons

  There are three spaces identified within the educational space summary that combine to create the "Maker/Builder space", which is also referred to as the "Neighborhood Commons" in the educational program. These three spaces include:

Academic Team Room	465sf
Integrated Academic Production Lab	500sf
STEAM Academic Support	50sf

The Maker/Builder space serves many purposes within the educational program. It supports the academic neighborhood or team, it promotes STEAM integration, it integrates vocational technology into the academic neighborhood, and it provides for

the expansion of the traditional classroom for purposes of providing hands-on, real world opportunities to integrate student projects into the curriculum. It is not a specific space intended to accommodate students outside the academic neighborhood, but instead represents an expansion of the neighborhood classrooms, where opportunities to apply learned knowledge are restrained by the size, configuration, function, and amenities of the traditional classroom. The boundaries between the traditionally programmed classrooms and the Maker/Builder space are intended to be blurred in a way that makes it a functional extension of the classroom space.

The combination of the three spaces in the program (to create one collective space) is intended to be somewhat reflective of the ongoing functions within this space, while simultaneously trying to force it to fit into what is a rather traditional space template that cannot fully acknowledge the multiple functions of the Maker/Builder space. It supports the academic team, provides opportunities for a piece of vocational education, and also helps to integrate STEAM and the arts into the academic neighborhood.

The objective of the Maker/Builder space is to create a flexible learning environment within the heart of each academic neighborhood or team. The space will provide hands-on, creative ways to encourage students to design, experiment, build, and invent as they deeply engage in science, engineering, art, and tinkering. The Maker/Builder space is not solely a science lab, workshop, computer lab, or art room, but it will contain elements found in all of these familiar spaces. It will be designed to accommodate a wide range of activities, tools, and materials. Diversity and cross-pollination of activities are critical to the design, making and exploration process, and they are critical in setting Maker/Builder spaces and STEAM labs apart from single-use spaces. The goal is to provide learning experiences within each individual academic neighborhood through direct experience with materials. These Maker/Builder spaces are not traditional “vocational shops” with wood and metal equipment and tools; as these large, loud, and specialized amenities are no longer necessary to provide the students with the desired experiences. New digital fabrication devices such as 3D printers and physical computing expand the opportunities with new ways to make things. For the first time ever, student inventions may be printed, fabricated, recorded, and programmed with interactivity. The proposed range of activities in the space will include:

- 3D and 2D printing
- Cardboard construction
- Prototyping
- Project planning and design
- Model making
- Physics practical applications
- Painting and graphic arts
- Small scale manual woodworking
- Digital Media

- Robotics
- Digital fabrication
- Building mechanical and kinetic machines and devices
- Textiles and sewing
- Media production and filming

The space will be utilized for multiple teaching strategies, including, but not limited to:

1. **Exploratory**: Exploratory projects will occur early in a typical school year and be co-taught along with the assistance of an art teacher, vocational teacher, or media specialist. These classes will focus on skill building, allowing students to acquire basic skills within a given domain that they will later apply to cross-discipline or multi-disciplinary projects. In these instances, the Maker/Builder space will allow students to acquire basic exploratory skills within the confines of their academic neighborhood.
2. **Applied:** More involved and complex cross-discipline projects which may involve a single or multiple basic exploratory skills in the creation of a project which applies to one or more academic disciplines. These classes will be co-taught in an environment which will likely include some students working in the lab (Maker/Builder) space and some students working in the classroom, with the ability to move seamlessly between the two areas.
3. **Portfolio:** Long-term, more ambitious projects based more specifically on decisions and selections made by the student builder, but themed through academic subjects. Students would have multiple opportunities over the course of a quarter or semester to work in periodic increments at completing their portfolio project.

Under a co-teaching model and supported by an aide, three spaces will be utilized simultaneously to allow students with varying learning styles and pace to develop skills in a more customized and fluid environment. A group of students with a single block, or a combination of co-taught periods, would be able to utilize two classrooms and the Maker/Builder space for a long enough period of time to allow for completion of both academic and hand-on instruction.

The Maker/Builder space will also serve as the neighborhood commons, although this is not its primary purpose and would not justify its existence. As the neighborhood commons, it will provide a common place of ownership by the entire academic neighborhood. The educational visioning and educational programming documents identify a strong need for students to have ownership of this small-scale neighborhood area. This ownership includes personalization, display of work, and a gathering space for the academic neighborhood. Students will be allowed to come into this supervised area prior to first class commencement in an effort to allow them to work and socialize in small groups, or independently, without being herded into a large, impersonal holding

area like the gymnasium. The Beverly Middle School includes a number of early-arrival students and the experience created for these students prior to the actual start of the school day is critical to the success of the educational environment.

The Maker/Builder space will also serve as a break-out space for independent and group study. The educational visioning and educational programming identified successful examples of students being allowed to work outside the confines of the classroom. Teachers currently allow students to work in corridors outside the classroom with visual observation. Many students thrive on the ability to be allowed outside the confines of the classroom, and having the adjacent Maker/Builder space available for this use will prove a valuable asset.

The space will remain as flexible as possible, with furniture that can be moved and re-configured with relative ease. Some built-in elements will be required in order to provide critical components such as storage, water, and voice/video/data. However, the goal is to avoid over-designing specific elements into the space, as the most successful spaces are those that contain fewer built-in limitations. Areas for display, work, and both group and independent study will be available but be flexible.

The 50sf STEAM academic support space identified in the program is specifically included to allow the art instructor to maintain storage of materials and access to water/sinks within each Maker/Builder space. This will allow the instructor to co-teach seamlessly within the neighborhood without transporting product or losing access to wet areas.

Reference "Attachment E – Neighborhood Sketch" for a diagrammatic layout.

- Security and visual access requirements - *Please confirm that first responding emergency representatives will be consulted in the planning process and associated requirements will be incorporated into the project.*
  Response: This is confirmation that the persons responsible for implementation of the District's emergency procedures, and responding emergency medical, fire protection, and police agency representatives, will be consulted in the planning process and any associated requirements will be included in the project design.

  Also, per the MSBA submission requirements, the Design Team will also provide verification that the following safety and security related issues have been reviewed and are in accordance with the District's procedures as noted above:

  - Main Entrance Design – Describe District protocol for visitor entry and check-in related to the current design for visitors to remain in the vestibule versus a side sub-vestibule;
  - Classroom Lockset Hardware - Confirm hardware functions are compatible with the District's protocols related to lockdown;

- Classroom / Instructional Spaces Visibility - Confirm that the inclusion of sidelights at entrance locations is compatible with the District's current standards related to visibility from corridors and whether any related vision control option measures are to be incorporated.
- Alternative Entry Locations - Confirm that the project includes site and building signage, as may be required by District's emergency procedures, to identify locations where first responders may more directly reach a person needing medical attention; Knox Boxes; and provisions for building plans to be delivered to local fire and response agencies.

3.1.3 Initial Space Summary

- Completed MSBA space summary spreadsheet - *Refer to detailed comments in Attachment B. Please provide a space summary documenting the Memorial Building facility.*
  Response: See attached existing space summary labeled "Memorial Building – Existing Space Summary 1.7.15".

- Narrative description of reasons for all variances (if any) between proposed net and gross areas as compared to MSBA guidelines - *Not provided. Please provide a list of the proposed variations from MSBA guidelines and a narrative describing the rationale for the proposed variances.*
  Response:
  Core Academic Spaces:
  The variation of the proposed core academic spaces from the MSBA guidelines occurs as a result of two factors:

  1. The outcome of the numerous educational visioning workshops and educational programming meetings conducted with the large cross-section of educational leaders, facilitators, and administrators within the City during the Feasibility Study process and ultimately resulted in the proposed space summary. The variation within the program category is specifically related to the inclusion of the "Academic Team Room" neighborhood commons area and Teacher Collaboration Room within "Academy" (grade level). The rationale for these spaces is detailed within the previous response within this document, entitled "Academic Team Rooms - Maker/Builder Space - Neighborhood Commons".

  2. The "Health Classroom" has been moved into the Core Academic Spaces category, at the MSBA's request.

  Special Education:
  The quantity and sizes of the individual spaces identified in the proposed space program support the specialized education programs such as; Learning Center, Therapeutic Learning Center, Opportunity program, ATTAIN program, Language Based program, Strategies based Instructional Program, and Student Support Program as detailed within the educational program and educational vision. The District understands that they will need to seek and receive DESE approval for the proposed Special Education program. This will be completed at the appropriate time.

Health and Physical Education:
Reference the detailed response provided within the proposed space summary comments further in this document.

Auditorium/Drama:
The inclusion of the auditorium within the proposed educational program is a variation which caused the MSBA guidelines to be exceeded. However, the City, Committees, Boards, School Department, and the greater community all feel that the auditorium is a vital educational and community resource which cannot be eliminated from the proposed middle school program. The City had two middle schools that served the District for decades; and both of these middle schools included a full-size auditorium. Even the existing Memorial Building, which as one of the smaller middle schools in the City (it is 103,000gsf), included a full-size auditorium with approximately 700 seats. The Briscoe Middle School includes an auditorium with over 1,200 seats. The integral use of the auditorium within the educational program is grounded in decades of actual educational practice which results in a very high utilization rate of the auditorium by the Beverly Public Schools and the City of Beverly.

The Beverly Public Schools understands that the MSBA has developed a guideline which suggests that a "cafetorium" can provide the necessary educational space within a middle school environment; and although it is not our intent to debate the merits of a cafetorium within all educational environments, there are very specific reasons why this approach does not satisfy the goals of the Beverly educational program.

1. One of the fundamental principles of the educational program includes a belief that the dining space must be closely integrated into the academic neighborhoods such that it provides many multi-use opportunities to support education well beyond simply a "cafeteria". The traditional dining space within most schools is one of the most underutilized areas, while opportunities for students to spread out and develop large-scale projects in close proximity to their academic classrooms are not available. The educational programming process resulted in a strong belief that the space dedicated to student dining can be much more "useable" throughout the day if it is more closely linked to the academic neighborhoods. It is not being viewed as a "noisy" space that will be used only during the middle of the day for lunch and should therefore be separated from the remainder of the academic program areas, but instead is being viewed as an "active" multi-purpose area which can be used for dining, presentations, student projects, large group breakout, and various other educational uses that require direct proximity to the academic neighborhoods. Each of the dining areas would include the appropriate acoustics to insure that they provide appropriate space for students to work on group projects and to conduct student and guest presentations. There was also a strong desire to insure

that the location of these dining areas provides indoor/outdoor integration to a secured outdoor area (courtyard), such that activities related to the space could easily spill outdoors when appropriate, and the dining spaces would be filled with natural lighting from outdoors. This connectivity will provide access for students before and after school as well as during lunch. It also allows more direct access for students within the academic neighborhoods to be able to conduct their projects utilizing outdoor resources such as a garden and use it as a learning space and a space to create a portion of the fresh vegetables for the lunch program.

This proposed use and function of the dining space would be compromised if it were to be created as a "cafetorium" where the design function becomes driven by seating arrangement, sightlines, and the introduction of a stage as the primary focal point.

2. Another primary goal of the educational program was to break down the scale of the dining areas (split into at least two dining areas) to avoid the negative consequences of attempting to address the needs of a 1,400 pupil population within a single contiguous dining area. Under this approach, one of the two dining areas would not receive a stage, would require a duplicate stage, would not have a full size stage, or would involve organizational compromise in order to share a stage with the other dining area.

3. The Beverly Public Schools has a tremendous opportunity to continue to take advantage of free educational resources (both staff and equipment) that are offered to the District from outside of the School Department as a result of strong community, business, and cable access relationships. The elimination of a "true" auditorium as a performance and presentation space within the middle school educational environment would compromise these relationships and the opportunities provided to students and staff. These school/community/business relationships have developed over decades based on an enormous amount of work by educators, and their loss would greatly impact many current and future educational opportunities.

4. Although we understand that the MSBA cannot participate in community opportunities, an auditorium within the Beverly Middle School has become a highly utilized community resource over many decades and members of the community cannot comprehend losing such a resource as a result of a new school project.

The proposed auditorium space will be moved to the "Other" category. The District understands that the MSBA space standards do not include auditoriums for middle schools and that this space, whether newly constructed or part of a renovation, would

be non-reimbursable. However, the District has outlined several reasons why this space is critical to the success of the uniquely large student population at the Beverly Middle School. Its incorporation into the project satisfies many important educational and community goals, and the District requests that it be included in the project despite its non-reimbursable status. Additionally, the District requests that the MSBA consider two important and related factors in its evaluation of this space: (1) The MSBA guidelines and space standards do acknowledge the need for and acceptance of an appropriate performance stage. The guidelines attach this stage to the cafeteria; however, the District is assuming that the attachment of the stage to the non-reimbursable auditorium does not make such stage non-reimbursable. The District is assuming that the stage space allowed within the MSBA guidelines can be located as per the District's educational program and goals, and be fully reimbursable; and (2) The District requests that only that space directly attributable to the square footage of the auditorium be designated as non-reimbursable, as the net and gross square footage of the auditorium would be very similar and the space summary grossing factor of 1.5 would not be applicable to the auditorium space.

Other:
The Dental Clinic is presently housed at the existing Briscoe Middle School building and is a Beverly Health Department program that has been in existence since 1916. The Dental Clinic currently provides services to student's District-wide. The current facility is inadequate, lacks office space, and is inefficiently laid out.

3.1.4 Evaluation of Existing Conditions

- Existing historically significant features (if applicable) and any related effect on the project design and/or schedule - *The MSBA notes that the District reported that neither the existing Middle School or Memorial Buildings are listed as historic with either the State or the National Register of Historic Places. Please confirm if the District will be submitting a Project Notification Form to the Massachusetts Historical Commission, and that this action is in conformance with Massachusetts General Law 950, CRM 71.00.*
  Response: Upon approval of the Preferred Schematic Design and Report option and during the Schematic Design Phase, a project notification form will be submitted to MS Historic Commission (MHC). The Owner's Project Manager will reflect these activities and milestones in the updated Project Schedule as part of the Preferred Schematic Design and Report submission.

- Preliminary evaluation of significant structural, environmental, geotechnical, or other physical conditions that may impact the cost and evaluations of alternatives - *A geotechnical report has not been completed at the existing Middle School site. The geotechnical report for the Memorial Building site describes the need for an extensive concrete filled pier (CFP) foundation system to mitigate the effects of subsurface conditions associated with a potential project. To fully understand the potential cost impact of this system, please provide an overview of the preliminary costs associated with the CFP system and how this cost would compare to foundation costs at other potential site options.*
  Response: The cost of the CFP system is approximately $2.8 million. There are no other

site options for the new middle school within the City of Beverly, but if another site did (hypothetically) exist, it would likely contain very similar soils conditions, as the same conditions are inherent throughout the City. The costs of the CFP system was included within the cost estimates provided in the PDP and are being developed in more detail for the Preferred Schematic estimates.

The full cost for the CFP system should not be considered a "premium", as most projects include some form of structural fill, soil removal and replacement, and/or subsurface improvements under the building slab. Such improvements will not be required on the proposed site as a result of the use of the CFP system.

In order to reduce the potential costs of the foundation system, two other alternatives are currently being considered for the project:

Geo-Concrete Columns (GCCs)

GCCs consist of concrete columns installed through the existing fill and clay and extend into the underlying sand or to the top of rock. GCCs are installed by means of a steel pile with a 15- to 18-inch diameter tip (mandrel) equipped with a pumping port and an air pressure relief valve. First, the mandrel is placed on a pile of concrete of stone on the ground and is driven while pumping concrete by means of a concrete pump attached to the top of the mandrel. Once the bottom depth is reached, the mandrel is raised and lowered several times while pumping concrete so as to create an enlarged bulb at the bottom of the GCC. Finally, the mandrel is extracted while pumping concrete leaving a 15- to 18-inch column of concrete in place. Where the GCCs are installed from the ground surface, the earthwork contractor should cut the excess length of GCCs within the first four hours of installation before the concrete hardens. A layer of granular material is provided as a break between the bottom of the footings and the top of the GCCs.

Pre-consolidation

Pre-consolidation is a process where compressible soils are surcharged prior to construction to induce consolidation settlement (pre-construction settlement). The surcharge is typically achieved by piling soil on top of the compressible soil and leaving it in place for a predetermined duration while monitoring the settlement. The magnitude of the pre-construction settlement is a function of the magnitude of the surcharge and the duration of the surcharge. Additionally, the use of wick drains would be considered to help reduce the surcharge duration. The intent of the process is to induce settlement in the compressible soil under the weight of the soil surcharge so that after the surcharge is removed and the proposed footings are constructed, the footings experience only a fraction of the settlement they would have otherwise experienced. Typical soil surcharge heights vary between a few feet up to 20 feet. Surcharge

durations range from 6 months to 18 months, and up to 24 months where the clay deposits are thick.

- Environmental site assessments minimally consisting of a Phase I: Initial Site Investigation - *The Phase I Initial Site Assessment for the Memorial School indicates that there are two existing underground fuel oil storage tanks at the site. If the proposed project is to require the removal of the tanks, please document the scope associated with the removal, and note that all costs associated with the removal of underground fuel storage tanks as well as any necessary soil remediation, are categorically ineligible for MSBA reimbursement.*
  Response: The contractor awarded the bid for the work will be required to have a license to remove and legally dispose of the tanks. The tanks will be pumped out removing any remaining liquid by a licensed hauler, excavated, and removed from the ground and transported to a State approved disposal facility. Soils around the tank will be tested following its removal to determine if any soil remediation is necessary. The work associated with the tank removal, particularly the soil testing and any follow-up soil remediation (if necessary), shall be overseen by a Licensed Site Professional, or other qualified environmental professional. Paperwork documenting the removal process and soil testing will be required along with direct coordination with the Beverly Fire Department. Based on the comments above, it is understood that the costs associated with the removal of underground fuel storage tanks, as well as any necessary soil remediation, are categorically ineligible for MSBA reimbursement. The bid documents will be written to include an allowance for soil removal associated with the soil remediation.

- Assessment of the facility for the presence of hazardous materials - *It should be noted that all costs associated with the removal of asbestos containing floor and ceiling tiles are categorically ineligible for MSBA reimbursement.*
  No response required.

3.1.5 Site Development Requirements

- Narrative describing project requirements related to site development to be considered during the preliminary and final evaluation of alternatives - *The report indicates that the existing Middle School site is unable to support the current or proposed educational program. The educational program states that "The current middle school population of approximately 1,000 students results in severe overcrowding of both the building and site." Please provide additional information through graphics and narratives illustrating the site constraints at the existing Middle School site and why it would be unable to support the proposed program.*
  Response: The size and shape of the site are important factors in its constraints for the proposed program. Additionally, the buildable area of the site is significantly reduced due to the existing bus storage facility actively used on the site. Please refer to the attached “Existing Conditions and Site Plan” which depicts details about the property. The site is bordered by Sohier Road and Colon Street to the west and south as well as residential development to the north and east. This creates an irregular shape lot towards the southwest corner. Parking at the site is currently limited and requires that most of the visitors and staff park on the streets and in the surrounding neighborhood, creating safety concerns for pedestrian access and undesirable overflow into the

neighborhoods. Additionally, storm water infiltration practices might be limited due to potential existing site contamination noted in the Phase 1 Site Assessment. Expansion of the program at this facility would create a more constrained condition that would limit this site's desirability as an alternative for a new and/or renovated school.

- Existing site plan(s) including the following features:
  - Wetlands and/or flood restrictions - *The Memorial Building site evaluation indicates that an environmental review may determine that a vernal pool exists on the site. Please confirm that the appropriate steps are being taken to determine the presence of existing vernal pools and will be completed prior to the District selecting its preferred solution.*

Response: A preliminary environmental review of the Memorial Building site was recently conducted which included review of the existing wetlands and the potential for vernal pools. During this review, it appeared that the existing wetland system does not contain a vernal pool. Additionally, according to the MassGIS online data mapping, it does not indicate any potential or certified vernal pools on this site as defined by the Natural Heritage and Endangered Species Program. More extensive investigation will be undertaken in the next phase of design.

3.1.6 Preliminary Evaluation of Alternatives

- The Preliminary Evaluation of Alternatives should include a detailed analysis of compliance with District objectives for each of the following:
  - Analysis of school district student school assignment practices and available space in other schools in the District - *Not provided. See note below regarding the submission of the May 2011 report by Beverly Public School's Strategic Planning Committee Facilities Usage Ad Hoc Subgroup.*

    Response: Reference "Attachment C".

  - Tuition agreement with adjacent school districts - *Not provided. Please provide a description of any tuition agreements or educational collaboratives that the District may participate in.*

    Response: Beverly does not have tuition agreements with adjacent school districts with the exception of Essex Technical High School. In addition to membership at Essex Technical High School, Beverly is a member of the Northshore Education Consortium.

    As a result of a Beverly School Committee decision to close the McKeown Elementary School as an elementary school beginning in 2008, the Beverly Public Schools and the Northshore Education Consortium (NEC) formed a partnership to share that facility to serve similar populations. Beverly will provide rental space to NEC's Northshore Academy. The Academy serves a middle/high school student population. This partnership is referred to as the Northshore Academy at McKeown School.

  - Rental or acquisition of existing buildings - *Not provided. Please indicate if there are any available facilities within the District that may help to alleviate existing constraints.*

    Response: Redistricting of the Elementary Schools happens periodically in order

to balance the schools. At present, there are no extra spaces to support an increase in student population. At the Elementary level, there are no extra classrooms; in fact computer labs and science classrooms have been utilized as classroom or special needs space. The McKeown School is presently occupied by the Northshore Education Consortium. Beverly is a member of the Consortium.

The curriculum will reflect the Massachusetts Curriculum Frameworks and well-researched best practices. Students here are often chronically truant and unable to participate in public schools due to overwhelming emotional and behavioral concerns. They require outreach and individualized attention in small, structured environments where the academics are tailored to address their specific needs. The overarching goal will be to develop a small structured community where students can build on their strengths, feel safe and secure in a small setting, and be provided access to counseling, academic tutoring, and vocational opportunities so they can be successful learners.

NEC pays rent to the School District for use of this space.

There are no existing buildings available for rent or acquisition in Beverly to help alleviate the space issues or replace a building of Briscoe's limitations and vintage. Due to the future Middle School, there is a need to relocate programs. McKeown School will be the site of all Pre-School classes beginning in September 2015. This will provide a more cohesive and efficient program than is presently provided at multiple sites. The program is also expanding the number of students served which will be able to be supported at McKeown. There are no other available options to help ease existing constraints.

- Base repair option that is limited to minimum work to meet current code requirements - *The overview and preliminary cost analysis for the base repair option indicates that the MSBA would not reimburse for this option. However, it should be noted that if the District determines that a base repair option is the most cost effective and educationally appropriate solution for the conditions documented in the District's Statement of Interest, the MSBA would participate in reimbursement of such an option.*
  No response required.

List of three distinct alternatives (including at least one renovation and/or addition option) are recommended for further development and evaluation. - *The submittal indicates that the following alternatives are recommended for further evaluation:*

- *Option 1: New construction on the Memorial Building Site*
- *Option 2: Renovation and addition to the existing Memorial Building*
- *Option 2b: Renovation and addition to the existing Memorial Building, reusing less of the existing building.*

The MSBA notes that of the nine preliminary alternatives considered, all of the

alternatives proposed include an auditorium. Please note that the MSBA's guidelines include space for a stage as part of the cafetorium only in the middle school program. The MSBA does not participate in the construction or renovation of auditoriums in middle school projects and, therefore, if accepted as part of this project, the costs associated with the design and construction of an auditorium would be the sole responsibility of the District. Further, the MSBA requires that at least one alternative to build a new middle school that does not include an auditorium be included in the final evaluation of alternatives.

Response: As per the MSBA requests, the District will develop an Option 1B which does not include an auditorium. However, the District's educational program includes very specific goals for the student dining area that requires that it be:

1. Broken down in scale (split into at least two dining areas) to avoid the negative consequences of attempting to address the needs of a 1,400 pupil population within a single contiguous dining area.
2. Fully integrated into the academic neighborhoods such that it provides many multi-use opportunities to support education well beyond simply a "cafeteria".
3. Located directly adjacent to a large outdoor courtyard to promote indoor/outdoor activities and the abundance of natural daylight.

As a result of these goals, the District feels that attempting to attach a stage to the proposed dining areas would not result in a functional and efficient use of space and, therefore, under the proposed Option 1B, the stage area will be attached to the gymnasium space.

Additional Comments:

- *Please provide a copy of the May 2011 report by Beverly Public School's Strategic Planning Committee Facilities Usage Ad Hoc Subgroup which, as stated in the PDP introduction, reviewed the grades 5-8 middle school configuration and the current state of facilities within the District.*

  Response: See attached "Attachment A", "Attachment B", and "Attachment C".

- *The Memorial Building currently houses School District Administration and Superintendent's Office, a pre-kindergarten facility, a Police Unit, the Building Commissioner and Inspectional Services, as well as a state-approved remedial Recovery High School for young people with substance abuse issues. Please provide further information regarding the potential relocation of these programs including any local, state, or DESE approvals that may be required.*

  Response: The School Department will be moving the offices and programs from the Memorial Building to the McKeown School. This includes all Pre-kindergarten programs and the School District Administrative Offices including the Superintendent's Office. There is enough room at McKeown for the foreseeable future. Recovery High School will move to the Northshore Education Consortium buildings on Sohier Road in Beverly.

They are expanding to a second building that will house the Academy programs presently housed in McKeown. That campus will also house Recovery High School. The Northshore Education Consortium has been working on all approvals they need.

Attachment 'B' - Module 3 PDP Initial Space Summary Review

District: City of Beverly
School: Briscoe Middle School
Submittal Due Date: November 25, 2014
Submittal Received Date: November 25, 2014
Review Date: December 2 - 11, 2014
Reviewed by: C. Forde, C. Finch

The Massachusetts School Building Authority (the "MSBA") has completed its review of the proposed initial space summary included with the Preliminary Design Program as produced by Ai3 Architects, LLC and its consultants. This review involved evaluating the extent to which the Beverly Middle School's proposed space summary conforms to the MSBA guidelines and regulations.

The MSBA considers it critical that the Districts and their Designers aggressively pursue design strategies to achieve compliance with the MSBA guidelines for all proposed projects in the new program and strive to meet the gross square footage allowed per student and the core classroom space standards, as outlined in the guidelines. The MSBA also considers its stance on core classroom space critical to its mission of supporting the construction of successful school projects throughout the Commonwealth that meet current and future educational demands. The MSBA does not want to see this critical component of education suffer at the expense of larger or grander spaces that are not directly involved in the education of students.

The MSBA review is based on the Middle School guidelines for a design enrollment of 1,395 students for new construction to give the District an understanding of the MSBA's position relative to MSBA guidelines. It should be noted that the MSBA and the District have mutually agreed to a study design enrollment of no more than 1,395 students serving grades 5-8 or 1,040 students serving grades 6-8. Should the feasibility study result in a 6-8 grade configuration, or an addition/renovation option, additional review will be required.

The MSBA review comments are as follows:

- **Core Academic**
  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 51,930 net square feet (nsf) which exceeds the MSBA guidelines by 1,860 nsf.
  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 67,540 net square feet (nsf) which exceeds the MSBA guidelines by 2,230 nsf. *-The MSBA notes the additional square footage in this category is attributed to:*
    - *Academic team rooms - The MSBA recognizes this space as the "neighborhood commons" or "maker/builder spaces" as indicated in the educational program. Prior to accepting the additional square footage, the MSBA needs to better understand how the proposed spaces are utilized as part of the Educational Program. Please provide information on scheduling, teaching methodology, and specific features that this area*

would require.
Response: Please reference the detailed response provided in the "Functional and Spatial Relationships and Adjacencies" section of this document.

- *Teacher Collaboration rooms - Please provide a description as to how the proposed grade level Teacher Collaboration areas are to be scheduled and used.*
Response:

Teacher Collaboration Rooms

Teacher collaboration rooms will be occupied by teachers during their planning periods, and will also provide meeting spaces for teachers to collaborate on lesson plans and cross-discipline activities. They will provide an opportunity for teachers to work professionally outside of the classroom in a location that gives them visibility to students who are working and socializing outside the classroom. They are intended to have the passive benefit of providing additional teacher oversight of student-occupied areas. They provide the traditional benefits of work/planning space, but also are specifically intended to put this work and planning on display to students (visually) who are circulating or working within the immediate area.

- **Special Education**
  - **6-8 Middle School (1,040 students) -** The District is proposing to provide a total of 11,660 net square feet (nsf) which exceeds the MSBA guidelines by 590 nsf. Please note that the Special Education program is subject to approval by the Department of Elementary and Secondary Education (DESE). The District should provide the information required with the Schematic Design Submittal. Formal approval of the District's proposed Special Education program by the DESE is a prerequisite for executing a Project Funding Agreement with the MSBA.
  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 15,850 net square feet (nsf) which exceeds the MSBA guidelines by 750 nsf. Please note that the Special Education program is subject to approval by the Department of Elementary and Secondary Education (DESE). The District should provide the information required with the Schematic Design Submittal. Formal approval of the District's proposed Special Education program by the DESE is a prerequisite for executing a Project Funding Agreement with the MSBA.
    No response required.
- **Art and Music/ Voc-Tech**
  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a combined total of 13,525 nsf which exceeds the MSBA guidelines by 2,125 nsf.

- **5-8 Middle School (1,395 students)** - The District is proposing to provide a combined total of 16,150 nsf which meets the MSBA guidelines. - *The MSBA accepts the proposed space in this category; however, please provide a description of the proposed STEAM Academic support spaces, and how they differ from the Small Inclusion rooms as carried in the special education category. Additionally, please describe how the proposed Integrated Academic Production Labs are utilized as part of the Educational Program and how they relate to the Academic Team Rooms carried in the Core Academic category. If these spaces are analogous, relocate this space to the Core Academic category. Please provide information on scheduling, teaching methodology, and specific features that this area would require.*
  Response: In addition to the information below, please refer to the detailed response provided earlier in this document related to the "Academic Production Labs" and STEAM academic support spaces.

  Small Inclusion Rooms

  Small inclusion rooms allow students who would traditionally have to be pulled out of their academic neighborhoods to receive supplemental educational services without having to leave their respective neighborhoods. In many instances, these rooms will allow for full integration and inclusion, where a student who requires assistance is provided with such in an inclusion room directly adjacent to, and visible from, the classroom. The educational program identifies the efficiency associated with bringing these services to the student (in lieu of requiring the student to leave his or her neighborhood) and the benefits of allowing the student to feel included as part of his or her academic team. These rooms also allow students with relatively minor needs to be involved in a traditional co-teaching environment without the aid of a special education instructor, where one of the co-teachers within the team is providing periodic support services at a varied pace. In addition to serving students who need additional assistance, these rooms will provide space for students who are demonstrating advanced progress to be awarded an opportunity for advanced, and sometimes independent, study in a smaller, visually supervised environment.

- **Health and Physical Education**

  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 15,950 nsf which exceeds the MSBA guidelines by 7,550 nsf.

  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 16,250 nsf which exceeds the MSBA guidelines by 7,850 nsf. - *The MSBA notes the additional square footage in this category is attributed to:*
    - *Gymnasium - The District indicates that an additional 6,000 nsf gymnasium is proposed to satisfy its educational program of separating the grade 5/6 and 7/8 cohorts. Prior to accepting this variation, the MSBA will require the District's anticipated utilization rates and scheduling methodology for the proposed four teaching stations.*
      Response:

Health and Physical Education

Below are the proposed program offerings and their respective required spaces and sections. Note that the proposed program includes four (4) teaching stations for grades 5 through 8. In some instances, program offerings require only one-half (½) of a teaching station, and in some instances, a program offering requires two (2) teaching stations. The summary below incorporates this to establish the equivalent number of teaching stations and their weekly utilization rate.

GRADES 5 AND 6

	Avg Class Size	Sections	Stations	Stations per Week
Physical Education 1	23	10	2	20

Offerings within the Physical Education 1 coursework require a 5,000sf full court for the applicable manipulative. This equates to two (2) teaching stations.

Physical Education 1b	12	15	1	15

Offerings within the Physical Education 1b coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

Physical Education 2	12	5	1	5

Offerings within the Physical Education 2 coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

	Avg Class Size	Sections	Stations	Stations per Week
ASD Adaptive PE (Movement) (Autism Spectrum Disorder)	4	8	1	8

Offerings within the ASD Movement coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

ASD Adaptive PE (Floor) (Autism Spectrum Disorder)	2	8	½	4

Offerings within the ASD Floor coursework require 1,250sf for the applicable manipulative. This equates to one-half (1/2) of a teaching station.

Health / Fitness Applications	12	24	¼	6

Offerings within the Health / Fitness Applications are part of the non-classroom component of health education and are conducted only one (1) semester per year. They require 1,250sf for the applicable

manipulative. This equates to one-half (½) of a teaching station for one-half (½) year and is therefore entered as one-quarter (¼) of a teaching station.

5th and 6th Grade Summary

The above offerings result in the use of 58 teaching stations per week, with the 6 period schedule allowing for the use of 60 available teaching stations per week (2 teaching stations x 30 periods per week). This equates to over 95% utilization of the 5th and 6th grade H&PE stations. The District's ASD population various yearly, and in the event that the ASD population is lower in any given year and any of the above required 12 stations are available, it would be the desire of the District to utilize these stations for OT/PT. Most OT/PT services will be delivered in dedicated teaching spaces outside of the programmed 2 H&PE teaching stations. However, as per the educational program, it is the goal of the District to take advantage of any available gymnasium teaching stations to deliver varied OT/PT services periodically within the mainstream (gymnasium) environment. This strategy will result in almost 100% utilization of the available H&PE space. The educational program identified the desire for at least 4 sections of availability per week within the gymnasium space. This may be possible in some years, dependent on student population.

GRADES 7 AND 8

	Avg Class Size	Sections	Stations	Stations per Week
Physical Education 3	23	15	2	30

Offerings within the Physical Education 3 coursework require a 5,000sf full court for the applicable manipulative. This equates to two (2) teaching stations.

	Avg Class Size	Sections	Stations	Stations per Week
Physical Education 3b	12	10	1	10

Offerings within the Physical Education 3b coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

Physical Education 4	12	5	1	5

Offerings within the Physical Education 4 coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

ASD Adaptive PE	4	12	½	6

(Autism Spectrum Disorder)

Offerings within the ASD Adaptive PE coursework require 1,250sf for the applicable manipulative. This equates to one (1) teaching station.

Health / Fitness Applications	12	15	¼	4

Offerings within the Health / Fitness Applications are part of the non-classroom component of health

education and are conducted only one (1) semester per year. They require 1,250sf for the applicable manipulative. This equates to one-half (½) of a teaching station for one-half (½) year and is therefore entered as one-quarter (¼) of a teaching station.

7th and 8th Grade Summary

The above offerings result in the use of 55 teaching stations per week, with the 6 period schedule allowing for the use of 60 available teaching stations per week (2 teaching stations x 30 periods per week). This equates to over 90% utilization of the 7th and 8th grade H&PE stations. As per the educational program, it would be the desire of the District to utilize the five remaining sections for OT/PT. Many OT/PT services will be delivered in dedicated teaching spaces outside of the programmed 2 H&PE teaching stations. However, as per the educational program, it is the goal of the District to take advantage of any available gymnasium teaching stations to deliver varied OT/PT services periodically within the mainstream (gymnasium) environment. This strategy will result in 100% utilization of the available H&PE space.

- *Health Classroom - The Health Classroom space is similar in function to a typical classroom and should be carried within the core academic category. Please include this space in the Core Academic category in the space summary.*
  Response: The District has adjusted the program location within the proposed space summary document as requested by the MSBA. The Health classroom has been moved to the Core Academic category. Reference the attached revised space summary.

- **Media Center**
  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 6,360 nsf which meets the MSBA guidelines.
  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 8,401 nsf which meets the MSBA guidelines. - *No further action required.*
    No response required.

- **Dining and Food Service**
  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 17,846 nsf which exceeds the MSBA guidelines by 5,200 nsf.
  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 21,572 nsf which includes a 5,700 nsf auditorium and exceeds the MSBA guidelines by 5,700 nsf. - *Please relocate the proposed auditorium space to the "Other" category. The MSBA expects that new spaces or substantially renovated existing spaces be compliant with MSBA space standards. MSBA space standards do not include auditoriums for middle schools. Any work in existing spaces that are currently non-reimbursable by current MSBA standards will not be eligible for MSBA funding.*

Response: The proposed auditorium space will be moved to the "Other" category. The District understands that the MSBA space standards do not include auditoriums for middle schools and that this space, whether newly constructed or part of a renovation, would be non-reimbursable. However, the District has outlined several reasons why this space is critical to the success of the uniquely large student population at the Beverly Middle School. Its incorporation into the project satisfies many important educational and community goals, and the District requests that it be included in the project despite its non-reimbursable status. Additionally, the District requests that the MSBA consider two important and related factors in its evaluation of this space: (1) The MSBA guidelines and space standards do acknowledge the need for and acceptance of an appropriate performance stage. The guidelines attach this stage to the cafeteria; however, the District is assuming that the attachment of the stage to the non-reimbursable auditorium does not make such stage non-reimbursable. The District is assuming that the stage space allowed within the MSBA guidelines can be located as per the District's educational program and goals, and be fully reimbursable; and (2) The District requests that only that space directly attributable to the square footage of the auditorium be designated as non-reimbursable, as the net and gross square footage of the auditorium would be very similar and the space summary grossing factor of 1.5 would not be applicable to the auditorium space.

- **Medical**
  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 810 nsf which meets the MSBA guidelines.
  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 910 nsf which meets the MSBA guidelines. - *No further action required.*
    No response required.
- **Administration and Guidance**
  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 4,290 nsf which meets the MSBA guidelines.
  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 4,796 nsf which meets the MSBA guidelines. - *As noted above, please describe the difference between the Teacher Collaboration Space (Core Academic) and the Teacher's Workroom and the educational use of both spaces.*
    Response: Please reference the detailed response provided in the "Functional and Spatial Relationships and Adjacencies" and "Core Academic" sections of this document.
- **Custodial and Maintenance**

- **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 2,515 nsf which meets the MSBA guidelines.

- **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 2,870 nsf which meets the MSBA guidelines. - *No further action required.*
  No response required.

- **Other**

  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 1,170 nsf which exceeds the MSBA guidelines by 1,170 nsf.

  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 1,170 nsf for a space associated with a Dental Clinic - *The MSBA notes that the existing Middle School building has a dental clinic consisting of 627 nsf, however the preliminary design program submittal does not document the function of this space or its relationship to the educational program of the middle school. Please provide a detailed narrative describing* the program and its proposed utilization in order for the MSBA to consider *supporting a facility that includes this space. Please note that if accepted as part of this project, the MSBA will consider this space ineligible for reimbursement.*
    Response: The Dental Clinic is presently housed at the existing Briscoe Middle School building and is a Beverly Health Department program that has been in existence since 1916. The Dental Clinic currently provides services to student's District-wide. The current facility is inadequate, lacks office space, and is inefficiently laid out.

- **Total Building Net Floor Area**

  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 126,056 nsf which exceeds the MSBA guidelines by 18,495 nsf.

  - **5-8 Middle School (1,395 students)** - The **District is proposing to** provide a total of 155,509 nsf which exceeds the MSBA guidelines by 17,702 nsf. - *Refer to comments above.*
    No response required.

- **Total Building Gross Floor Area**

  - **6-8 Middle School (1,040 students)** - The District is proposing to provide a total of 195,387 gsf which exceeds the MSBA guidelines by 28,987 gsf.

  - **5-8 Middle School (1,395 students)** - The District is proposing to provide a total of 251,925 gsf which exceeds the MSBA guidelines by 28,725 gsf. - *The MSBA notes that an allowable gross square footage will result once an agreeable net square footage is determined. The allowable gross square footage will be determined by the agreed upon net square footage multiplied by a grossing factor of 1.5.*

Response: At the request of the MSBA, the District has modified the standard middle school space summary excel spreadsheet to reflect a grossing factor of 1.5 in lieu of the formula calculated grossing factor of 1.62 (based on a student population of 1,395). As a result, the total building gross floor area has been reduced from the previous submission. Reference the attached revised proposed space summary document.

The proposed program is sufficient to proceed with development and comparison of alternatives to identify a preferred alternative provided MSBA comments have been addressed. The space summary shall be refined per MSBA comments and as needed for each alternative and differences from the initial space summary identified. Once an alternative is recommended, the MSBA will review the associated space summary to evaluate conformance with the MSBA guidelines, deviations relating to proposed renovations if applicable, and programmatic needs that may vary from the guidelines.

Beverly Public Schools
502 Cabot Street
Beverly, Massachusetts 01915

New Briscoe Middle School
Grade Configuration Meetings

Audience: Beverly Public School Parents/ Beverly Community

Target Audience: Present Pre-Kindergarten and Kindergarten Parents who will be the first groups/students housed in the new Briscoe Middle School.

Scheduled Meetings: You can attend any one of the meetings that meet your schedule.

1/30/14	Hannah Elementary School	7:00 – 9:00 PM
2/6/14	Ayers Ryal Side Elementary School	7:00 – 9:00 PM
2/7/14	Centerville Elementary School	9:00 – 11:00 AM
2/11/14	North Beverly Elementary School	6:00 – 8:00 PM
2/13/14	Cove Elementary School	6:30 – 8:30 PM

Meeting Agenda

1) Overview: Dr. Albert F. Argenziano, Interim Superintendent
   - Purpose of Meeting
   - Reasons for New Briscoe
   - Educational Specifications

School Panel

2) Grade Configuration 5-8 or 6-8

Panel
- Principal of School
- Adjustment Counselor of School
- Middle School Principal (Matt Poska)
- Early Childhood, Special Education (Stacy Bucyk)
  - Quality of Instruction
  - Quality of Programs
  - Utilization of Space
  - Social Emotional Issues
  - Site Visitations

3) Mayor Michael Cahill – City Focus on New Briscoe Middle School
4) School Committee Task Force – Co-Chairs
   Annemarie Cesa / Kris Silverstein
   A) Research Based, Information Gathered to date.
   B) Discussion centered around visits to School Districts with Grade 5-8 configuration
5) Public Input / Question / Answer Session

Briscoe Middle School

7 Sohier Road
Beverly, Massachusetts 01915
Telephone (978) 921-6103
Fax (978) 927-7781

Mr. Matthew P. Poska, Principal
Mr. Terrence Conant, Assistant Principal
Mrs. Amy Gerade, Assistant Principal

"Our aspirations are our possibilities."
-Robert Browning

Questions for MS Visits

1. How do you separate the grade levels from each other? Do they have common space?
2. Are teams still in place and how are they configured? What licenses do they have? How did you work with staff/union to address?
3. What academic benefits were noticed due to this grade configuration?
4. What does your schedule look like? Do you have 'safety nets' built into the schedule?
5. What impact does this grade configuration have on Special Education Programming? Are there space issues in the building because of this configuration? What SPED Programs are in the building? Are you able to offer small group interventions? How are you able to facilitate team meetings?
6. Were you able to keep more students in district because of this set up?
7. Are there concerns with bussing with a Grade 5-8 configuration?
8. What feedback have you received from staff regarding this configuration? Parents?

"The mission of the Beverly Public Schools is to maximize academic achievement and personal growth of every student."

Notice of Non-Discrimination
All educational and non-academic programs, activities and employment opportunities at Beverly Public Schools are offered without regard to race, color, sex, religion, ancestry, national origin, sexual orientation, disability, and any other class or characteristic protected by law.

BEVERLY PUBLIC SCHOOLS
502 Cabot Street
Beverly, Massachusetts
01915
Telephone (978) 921-6100
Fax (978) 922-6597
www.beverlyschools.org

Albert F. Argenziano, Ed.D.
Interim Superintendent of Schools

Mayor Cahill - - - Visits to Elementary School Schedule

Wednesday, January 29, 2014

School	Time
Cove Elementary School	12:00 PM
Centerville Elementary School	12:30 PM
North Beverly Elementary School	1:00 PM
Hannah Elementary School	1:30 PM
Ayers Ryal Side Elementary School	2:00 PM
McKeown Elementary School	2:30 PM

The mission of the Beverly Public Schools is to maximize academic achievement and personal growth of every student.

DRAFT

Briscoe Middle School - Educational Specifications			
General/Specific Educations Spaces	**Square Foot Allotment**	**Total Square Feet**	
14 Grade 5 Classrooms	900 sq. ft. each	12,600	
14 Grade 6 Classrooms	900 sq. ft. each	12,600	
14 Grade 7 Classrooms	900 sq. ft. each	12,600	
14 Grade 8 Classrooms	900 sq. ft. each	12,600	
8 Science Laboratories	1,000 sq. ft. each	8,000	
4 Technology Laboratories	1,000 sq. ft. each	4,000	
2 Reading/Writing Laboratories	1,000 sq. ft. each	2,000	
Cafetorium (W/stage)	8,000 sq. ft.	8,000	
Media Center	8,000 sq. ft.	8,000	
Gymnasium/ w/3 sm. Offices	10,000 sq. ft.	10,000	
Kitchen / Storage Areas / Freezers	10,000 sq. ft.	10,000	
2 Music Suite / 3 Practice Areas / Storage	4,200 sq. ft. per	8,400	
2 Art Suites / Storage	3,000 sq. ft. per	6,000	
Health Suite / 4 sm. Areas			
storage, office, rest area (M/F)	2,000 sq. ft.	2,000	
12 Special Education Spaces	800 sq. ft. per	9,600	
Offices - Main Office	1,200 sq. ft.	1,200	
3 Administration Offices	400 sq. ft. per	1,200	
3 Guidance / sq. ft.	400 sq. ft. per	1,200	
Teacher Work Spaces			
4 X 600 sq. ft.	600 sq. ft.per	2,400	
Storage Areas per Grade			
2000 sq. ft. per grade	2,000 sq. ft.per	8,000	
Corridors / Bathrooms	40,000 sq. ft.	40,000	
Locker Rooms / Male / Female			
3,000 per x 2	3,000 sq. ft. per	6,000	
Stage Storage	1,000 sq. ft.	1,000	
		187,400	
		$440.00 per sq. ft.	
20,000 sq. ft. X $440.00 per			
		$82,456,000	
$8,800,000			
		$45,350,800 (55%)	
$4,840,000 (55%)			
		$37,105,200 (45%)	
$3,960,000 (45%)			

QUESTION ASKED BY SCHOOL COMMITTEE MEMBER

TEACHERS – GRADE 5	PRESENCE LICENSE
AYERS:	
Erin Glencross	1 - 6
Alexandria Murray	1 - 6
Lauren Seabrook	1 - 6
CENTERVILLE:	
Jill Aylward	1 - 6
Danielle Hopkins	1 - 6
Kristopher Melanson	1 - 6
COVE:	
Stacie Dunleavy	1 - 6
Kara MacLean	1 - 6
Christine Noviello	1 - 6
Peggy Russo	1 - 6
Hannah:	
Tanya O'Malley	1 - 6
Stephen Sutherland	1 - 6
North Beverly:	
Kurt Anderson	1 - 6
Stacie Hall	1 - 6
Elizabeth Young	1 - 6

Beverly School Committee
Committee of the Whole
Wednesday, February 26, 2014 at 7:30 pm
Memorial Building, Room 164

Members Present: David Manzi, Paul Manzo, Kris Silverstein, Annemarie Cesa, Matt Kavanagh, Lorinda Visnick, Mayor Michael P. Cahill

Also Present: Interim Superintendent Albert F. Argenziano, Administrator of Pupil Personnel Services Stacy Bucyk, Director of Finance and Operations Jean Sherburne, Superintendent Elect Dr. Steven Hiersche

Call to Order: Paul Manzo called the meeting to order at 7:30 pm.

AGENDA

Pledge of Allegiance
David Manzi led those present in the Pledge of Allegiance.

Approval of the Minutes:
A motion was made by Matt Kavanagh to approve the minutes from the January 29, 2014 Committee of the Whole meeting with edits. The motion was seconded by Paul Manzo and approved by a vote of 7-0.

Middle School Grade Configuration
Paul Manzo opened discussion by the committee about the real need to replace Briscoe Middle School. The building is almost 100 years old and the systems are degrading. Many years of discussion and research has suggested the 5-8 model. The district will get state assistance to do the build out. Together as a group the committee has investigated the options, the timeline, and presented the 5-8 model to the community. The fundamental question asked is; "Is there an academic difference between the 5-8 model vs. the 6-8 model?" The committee visited all five elementary schools and held public forums as part of the process before voting. Building the new middle school is the first piece in a long vision of a district space plan.

Matt Kavanagh: Thanked all who participated in researching the different middle school models. The concerns that have been brought forward are whether there is an educational value to the 5-8 model. Mr. Kavanagh believes that it's not the model itself, but the execution of the plan. The other concern is whether or not 5th graders are socially/emotionally ready for the middle school environment. He believes that it will come down to preparation. Mr. Kavanagh stated that the 5-8 model will open up more opportunities for 5th grade students. There will be some flexibility in terms of the 5/6 and 7/8 model in that if the 5/6 model doesn't work we could still go to self contained classrooms at the 5th grade level. If we embark on the 5-8 model it will be incumbent on the committee to do it well.

Lorinda Visnick: Found that most Ward 6 voters are in favor of the 5-8 model. Ms. Visnick read quotes from her constituents: "I was very impressed with the amount of real work and research that was done to find the best solution." "I was initially against but things that swayed me were the opportunities to have a stronger community with 4 years and stronger academics for 5th graders." "I think your group did a great job researching and I loved the presentation." "I think that 5th grade by mid-year is ready to move. I think

the class that will benefit most is the 6th grade." "The YMCA's Youth Collaborative Board data shows that the youth programs struggle at the middle school. I think there will be better opportunity to engage children from the 5-8 model in positive after school activities." "I don't think we should base decisions around the thought that "it's too scary to take a bus"." Ms. Visnick stated that the one concern she heard from a Ward 6 resident was, "The thing that makes me cringe is the thought of 5th and 8th graders on the bus." Ms. Visnick reported that she had done much research on the top 20 schools vs the bottom 20 schools. There are many different types of criteria used to set those rankings and it is difficult to pin point what really makes the difference. Both the top and bottom schools had all different configurations. Therefore she believes that the grade model does not affect the academic outcome of the students. Given constraints of the district and research findings, she is in support of the 5-8 model.

David Manzi: Mr. Manzi stated that he was in support of the 5-8 model as well. Over the 9 years he's been on the school committee they have discussed many configurations. He said that he often sees grade 6 as the odd man out and he believes that the environment created with a 5-8 model will benefit all grades. This model also addresses the space issues district wide. He has not heard any negative reasons for not moving forward. Mr. Manzi stated that he is fully in favor of the 5-8 model.

Kris Silverstein: Ms. Silverstein stated that she has tried to research this issue form every angle possible. The feedback from her constituents was 50/50. She believes that upon reviewing all research, the pros overcome the cons. She stated that she also views 6th grade as the odd man out. She believes in the 5-8 model as long as some issues are addressed; Substantially separate 5/6 & 7/8 grades, make sure that attention is paid to busing, team teaching model is researched, people who sit on the building committee need to make sure there is adequate building administration as well as robust guidance and adjustment counselors, separate lunchrooms, consider recess schedules as well as careful transition plans for students. Ms. Silverstein stated that she is concerned about the loss of revenues from the McKeown rent, transportation of those out of district students who attend McKeown, out placed tuition costs as well as thoughts about the EEC program. She stated that she is in favor of the 5-8 model and has not heard any compelling information otherwise.

Annemarie Cesa: Ms. Cesa stated that she was on a committee 21 years ago that looked at the 5-8 model. Over the years the school committee has looked at many different configurations. There is a compelling need for space in the elementary level schools. The preschool revenues are down and the district needs to find them a permanent building. In terms of the SPED students, this model also allows for space to produce additional programs for these students in district. The 5-8 model allows for full day kindergarten as well as providing more opportunities for middle school parental involvement. Ms. Cesa said that she believes this is an opportunity for the district as well as the students.

Mayor Cahill: Mayor Cahill thanked the school committee for their research and thoughtfulness about this project. He read the following public statement:

Public statement concerning Beverly's middle school grade configuration
– Mayor Michael P. Cahill – February 26, 2014

Tonight marks an important and exciting step forward on our path towards building and opening a new middle school that will serve our community's children, families, and taxpayers for decades to come. Tonight, we will vote on whether to build a grades 5-8 middle school or a grades 6-8 middle school. Starting with the recommendations of the former School Committee's grade configuration study committee from two years ago, we have researched the experiences of other Massachusetts school districts that have embraced a 5-8 middle school, and we have engaged our community in a rich, meaningful dialogue over the last month.

I entered this process with a sense that our school district's pre-kindergarten through grade eight space and instructional needs might be best served through construction of a 5-8 middle school. Further, I

sensed that financial and time implications favor that option as well. I also entered this process with concerns – those being that we need to determine both the social/emotional soundness and the educational strengths and benefits for our children of a 5-8 middle school. If something significant were to impact my thinking negatively about the 5-8 model on either of these fronts, then I would feel compelled to dig deeper and find a better solution.

Instead, as this process has unfolded, thanks in large part to the outstanding research done by my colleagues on the School Committee, our own Beverly Public Schools educational professionals, and the many educators and parents we've heard from in districts that have 5-8 middle schools, I have gained a much greater understanding and comfort level with the 5-8 middle school model.

As we have learned, there are several key ingredients to creating a safe, developmentally appropriate and strong learning environment in a 5-8 middle school. These include:

- Organizing the school into two separate schools under one roof – a grades 5/6 lower school and a grades 7/8 upper school
- Building physical space that facilitates keeping grades 5/6 and 7/8 substantially separate
- Ability to offer foreign language and other opportunities to fifth and sixth graders
- Providing a robust offering of enrichment and out of school time activities, offered separately to lower and upper school students
- Offering strong transition programs and supports to each rising/incoming fifth grade class
- The ability to tailor fifth grade offerings to students' needs including a range of self-contained fifth grade classes up to two and three teacher teams
- A commitment from our elected officials and educators to protect and support all our middle school students in settings where they will inevitably interact such as on school buses and during some transitional periods, and to keep our lower and upper school students separate when possible

Many great ideas, questions, and concerns have been raised, discussed, and thought through as a result of this community dialogue. To all who have offered input, please know that we listen and we value and respect you. For reasons I will summarize now, I will vote to build a grades 5-8 middle school.

As stated, we have significant space constraints and needs throughout our district from pre-Kindergarten through grade eight in both regular and special education. If we build a 5-8 middle school and house our pre-kindergarten programs in the McKeown School, then we can address our pre-k through grade eight needs with one school construction project – a project that will take at least 3-4 years from now to complete. If we choose to build a 6-8 middle school, we will still need to address our elementary school needs – likely with three elementary school addition projects. That will take years longer to achieve at greater cost with significant impact on our children in at least two ways – 1) those projects would likely include construction activity while children are in the buildings, and 2) current elementary school crowding issues would exist for several years longer. With construction of a new 5-8 middle school, a more cost effective way to address our space needs, we will have more resources to deliver innovative academic programs and expert instruction while encouraging healthy social/emotional development for all our students from pre-kindergarten through grade eight.

In the coming years, while the new middle school is being designed and built, we will work diligently to answer all questions and prepare for a middle school experience that addresses our collective hopes and concerns. To those who have participated in the five school forums and have expressed questions and concerns about the 5-8 middle school model, please join with us to further explore the issues you have raised. We can work through these issues and make our new middle school a place where our children thrive and grow in the most positive ways. I look forward to working with you and the rest of our school community, as well as educators in those districts that have 5-8 middle schools to do this right and deliver the best education possible for all our children. I ask my School Committee colleagues to join me in voting to build a new grades 5-8 middle school.

Paul Manzo: Mr. Manzo stated that he shares much of his colleague's sentiments. He said he is very appreciative of those who spent time researching the different middle school models. Throughout the process he was looking for a red flag that told him this would not work. Mr. Manzo is confident that the administrators and teachers will make this model successful. He stated that he would be voting for the 5-8 model based on the additional opportunities it offers students and the space issues it addresses for the district.

Annemarie Cesa made a motion to agree to construct the new Beverly middle school to be a 5-8 grade configuration model. The motion was seconded by Kris Silverstein and approved by a roll call vote of 7-0:

Roll Call:	Kris Silverstein	Yes
	Lorinda Visnick	Yes
	Mayor Cahill	Yes
	Annemarie Cesa	Yes
	Matt Kavanagh	Yes
	David Manzi	Yes
	Paul Manzo	Yes

The committee called a recess from 8:05 – 8:10

2014-2015 Budget

Dr. Argenziano presented the 2014-2015 proposed budget plan. He reminded the committee that on December 18th they were presented with district budget requests that totaled approximately $4.4 million. This has been reduced to $2.2 million and he would like to reduce it further to $1.9 million. The $1.9 million would include all mandated positions and salary increases inclusive of steps. Annemarie Cesa had previously inquired about how many positions had been added since the budget was last approved. Dr. Argenziano presented a list of the 43 positions that have been added. 32 positions had been added by previous Superintendent Dr. Galinski and 11 had been added by Dr. Argenziano. At the last Leadership meeting he asked the principals to look the list over and see if there was anything that could be used to offset current budget requests. Dr. Argenziano said he would have their feedback for the March meeting. The committee inquired about the term "soft money" and he stated that means the funds are coming from either revolving accounts or grants. Mayor Cahill inquired about the salary figure of $65,849 that is used throughout the budget proposal. Dr. Argenziano stated that this is a midpoint salary. Mayor Cahill asked about the staffing of nurses and the role of nurse leader. There is a great need in all schools for nursing services district wide. The nurse leader position was previously only 2.5 days and any issue that would arise was not worth the potential risk and so the committee approved the increase of the nurse leader to a full time position this year. Kris Silverstein stated that one of the issues with nurse staffing is that when we don't have enough nurses, we need to get a substitute and this tends to be very costly.

The committee asked about Technology Support Salaries of $49,365.00 and the "Loss of Grant Funding". Director of Finance and Operations Jean Sherburne stated that she had been using grant money to fund these positions, but it is a stretch in terms of the grant guidelines. Therefore, while the grants funds are still coming in, the Technology Support Salaries need to be paid out of the budget instead.

The committee discussed the Utilities increase estimate of $33,000. Annemarie Cesa said she would be concerned if we depended on Revolving Accounts to pay this. Kris Silverstein inquired about whether or not there has been any savings realized since starting the composting and recycling programs in the schools. Lorinda Visnick explained that the cost of JRM and the cost of compost pick up creates a net zero effect. The real savings will be in the reduction of trash, therefore paying for fewer pounds to be sent to the incinerator.

Annemarie Cesa discussed the Human Resource needs of the schools. She inquired about whether or not a position could be merged with the city. Jean Sherburne stated that City Hall has taken up some of the HR responsibility, but their HR needs vary greatly and it is difficult to merge the two.

Mayor Cahill inquired about the positions that were added to the budget. Dr. Argenziano stated they are mandated and statutory positions. Paul Manzo said that it also includes positions added during the year to maintain level service. Some of these positions were paid with soft money and now need to be added into the budget.

Lorinda Visnick inquired about the Technology Plan that was removed from the purposed 2014-2015 budget. Dr. Argenziano stated he is proposing doing the Technology Plan through a City Wide Bond. He stated that in speaking with other districts, it has been suggested that the Technology Plan be presented and done immediately and all at once. Ms. Visnick stated she believes we need to fully investigate other funds such as grants that may be available for technology. Mayor Cahill said the he will be starting a new Grant Funds Task Force and will present the needs of the school district Technology Plan. He said one of the goals of the Grants Task Force is to investigate how to resource grants better,

Kris Silverstein requested an estimate of enrollments and staffing district wide as well as future projections for the next meeting.

Consider Execution Session
Matt Kavanagh made a motion to enter in Executive Session to discuss strategy with respect to collective bargaining with union and non-union personnel and not to return to open session. The motion was seconded by David Manzi and approved by a roll call vote of 7-0.

Roll Call:	Annemarie Cesa	Yes
	Matt Kavanagh	Yes
	Mayor Cahill	Yes
	David Manzi	Yes
	Kris Silverstein	Yes
	Lorinda Visnick	Yes
	Paul Manzo	Yes

Lorinda Visnick made a motion to adjourn. The motion was seconded by David Manzi. ***So Voted 7-0.*** The meeting adjourned at 9:20 pm.

Respectfully submitted,

Annemarie Cesa
Secretary

School Committee
Beverly Public Schools

502 Cabot Street
Beverly MA, 01915

Annemarie Cesa, President
Maria T. Decker, Vice–President
Paul A. Manzo, Secretary
William F. Scanlon, Mayor
David Manzi
Karen Fogarty
Kristin Silverstein

Strategic Planning Committee - Ad Hoc Committee on Facilities Planning
Report Summary – Joint School Committee/City Council Meeting
November 15, 2011

Members:
Maria Decker, Chair; Matt Poska; Sue Charochak; James Coffey; George Binns; Heike Gibson

Task:

Create school and grade model configurations for preK through grade 8 that best utilized space available, while maximizing educational opportunities for students, and minimizing operating costs. The SPC Facilities group began meeting bi-weekly in September 2010; an initial report was presented in February 2011, with the final report of recommendations delivered in June 2011.

Process:

The SPC Facilities Group conducted a select literature review (see attached references), reviewed substantial district historic and projected enrollment data, reviewed architectural plans of district school buildings to determine number of rooms in addition to regular classrooms, held extensive discussions on members' values regarding the emerging issues, and reviewed models of both peer communities, and those to which we strive to be more like. In addition, district budget survey data was reviewed and interviews were held with members of district administration, school building architects, and the city Commissioner of Public Services. In an effort to provide engaging and equitable opportunities to enhance and sustain learning, and to prepare students for higher education and the 21st century workforce, the SPC Facilities subgroup presents the following recommendation for middle school education.

Areas of Focus:

- Incorporate best educational practices at all levels.
- Maximize existing space.
- Create 21st century facilities with the ability and flexibility to house technological infrastructure and advances.
- Appreciate trends in grade and school configurations.
- Expand academic, co-curricular, and extra-curricular offerings for students.
- Allow for growth in full-day kindergarten.
- Smooth out class size inequities at elementary level, and student teacher ratio between elementary and secondary levels.
- Retain and/or increase revenue opportunities.
- Allow for growth in preK education.
- Expand in-house Special Education programs.

1

- Examine to what extent building capacities and projected enrollment limit or allow different grade configuration scenarios.

Findings:

The experience of grade level structures currently in operation both across the country and in neighboring districts shows that grade and school configurations indicate a myriad of grade spans. Decisions are influenced by a community's history, values, facilities, budget considerations, and educational philosophy. Grade span configurations vary greatly and range widely. Sometimes, within the same district, grade level patterns vary almost as much as they do across districts.

Models Explored:

Seven different school/grade configuration models were explored in depth, accounting for school size, class size, number of classrooms, transportation, educational groupings, and curriculum alignment. Projected student enrollment is based on NESDEC estimates from December 2010.

Results:

Most models explored did not work logistically – too few classrooms forcing the need to purchase/rent modular classrooms, great loss of rental revenue, duplication of services (nursing, library/media specialists, special education therapies and related programs), wasted space, teacher certification issues, redistricting, more transitions, curriculum losses, need to purchase non-consumables, transportation costs, loss of neighborhood schools, cafeteria lunch scheduling and more.

Executive Summary:

The research and data collected for this report support the following conclusions:

1. Beverly must renovate/expand its middle school. The current facility (Briscoe) cannot support educational objectives and 21st century learning and is failing structurally and systemically. This strong, beautiful building has served our community well, yet is in great need of costly long and short-term repairs and renovations, as well as increased space for special education programs and support services for all students. None of the systems in the building meets today's code.

2. Schools with larger grade spans can strengthen a school system's vertical articulation of the curriculum and provide more opportunity for positive interactions between students of different ages both academically and in co-curricular activities. Literature suggests a grade 5-8 middle school will also lend itself to increased parental involvement at a time when parents are beginning to step back but assistance is crucial.

3. The more students of like grade in a building, the more opportunities for activities which contribute to curriculum consistency. A configuration with more students per grade in each building may minimize unhealthy competition and perceived inequities among the elementary schools, and allow for elimination of trivial comparisons and distinctions. More students per grade in the same school also results in a more cost efficient design.

4. Small learning communities are particularly good at improving the academic achievement for students who have not done well in traditional settings. Small learning communities have a higher graduation rate, promote greater student involvement in co-curricular activities, and experience improved student behavior. The small learning community philosophy can be attained from a school within a school model, such as a Lower Middle School (grades 5 & 6) and an Upper Middle School (grades 7 & 8) housed in a shared building.

5. Increasing the number of transitions between schools leads to a decrease in student achievement during those transition years. Conversely, with fewer transitions, children fare better academically and behaviorally. The more grade levels that each school services, the better the students perform. The longer a student stays in a given school, the better the student performs.

6. Children who do not come to school ready to learn are destined to struggle throughout their educational experience, and are more likely to fail. Attendance at full day kindergarten is positively associated with increased learning in reading and math during the kindergarten year.

Rationale/Benefits:

The rationale for the recommended middle school model is based on the following benefits:

- Developmentally appropriate age groupings allows for social/emotional growth and curriculum growth. Statewide curriculum framework is written in these age groupings and allows for increased vertical articulation of curriculum, professional development, and common planning time. Teacher certification reflects these age groups. Students in grade 5 have more in common, socially and emotionally, with 6th graders than 4th graders.

- Benefits of longer time in one middle school building builds community and family involvement with PTO. Fundraising for traditional trips (6th grade Nature's Classroom and 8th grade NYC) can occur over a two-year period.

- Enhanced extra and co-curricular activities for 5th grade students.

- Increased opportunities for cross-curricular lessons and enhanced differentiated instruction.

- Increased educational opportunities for students in grade 5 through exposure to expressive arts, technology, and foreign language, and daily instruction in science and social studies.

- With four grades, the larger middle school is more cost effective, while the smaller school aspect (lower and upper divisions) allows for academic, social, and behavioral benefits. The upper/lower configuration allows for improved social/emotional support for adolescent students; it enables them to be in daily contact with adults who know the pre-teen/teenaged student well, take an interest in them, and provide them with both academic and emotional support. This model provides a balance between a nurturing environment and academic rigor.

- McKeown is retained for revenue and the ability to keep some of our children's education currently provided through Consortium programs, in the community, decreasing busing costs, and time spent in transportation.

- Expansion of in-house Special Education programs at both the middle and elementary levels allows for return of out-of-district placements, reducing Special Education costs and providing appropriate education for Beverly students in Beverly Schools.

- Science rooms currently used as elementary classrooms will be returned to their intended purpose.

- Capstone projects at 6th and 8th grade year end align with district standards based grading and service learning initiatives.

Recommendation:

The proposed long-term solution is based on where we as a district want to go, with a solid foundation in educational principles. The school committee and administration support the implementation of a single, grade 5-8 middle school at expanded and updated Memorial Middle School, subdivided into a Lower Middle School of 2-person teams for grades 5 and 6, and an Upper Middle School of 4-person teams for grades 7 and 8.

Note: This recommendation and summary report are excerpted from a larger, long-term study on school facilities configurations.

BEVERLY PUBLIC SCHOOLS

FY09 BUDGET
PUBLIC HEARING DRAFT

Override
Yes

May 12, 2008

Beverly School Committee
Annemarie Cesa, President
Maria Decker, Vice President
Paul Manzo, Secretary
Karen Fogarty
James Latter
David Manzi
William Scanlon, Mayor

Superintendent of Schools
Dr. James Hayes

Elementary Class Size and Staffing Issues

Projected enrollments for our six elementary schools are shown in the chart below. Throughout the budget development cycle and even into the summer, enrollment projections are periodically updated and monitored by the administration. Significant changes in student enrollments may affect staffing at any point during that period.

Projected 2008-2009 Enrollments
April 25, 2008

School	1	2	3	4	5	Half P	FD P	Half K	FD K	District		Total
Ayers	60	65	64	64	70	30	22	16	33		0	424
Centerville	55	60	60	55	67	0	0	6	37	BD (2)	19	359
Cove	81	44	70	63	53	90	8	7	41		0	457
Hannah	60	60	60	60	60	0	0	10	27	SLD (2)	17	354
McKeown	50	49	49	42	36	0	0	9	38	AIM(P), AIM (I)	9	282
North Beverly	55	44	63	50	42	0	0	9	32	Cogn (2), DD	29	324
Total	361	322	366	334	328	120	30	57	208		74	2,200

When the enrollment for each grade is divided by the number of teachers in that grade, the result is an average class size. For the past several years, the School Committee has set as maximum guidelines 25 students in grades 1 and 2 and 30 students in grades 3 through 5. Kindergarten enrollments are capped at 20 students to meet accreditation requirements. Maintaining accredited kindergarten programs is a necessary requirement to receive kindergarten grant funding. Preschool and district level programs have class sizes that are determined by state Special Education requirements.

Projected Average Class Sizes 2008-2009

School	1	2	3	4	5	Half P	FD P	Half K	FD K
Ayers Ryal Side	20.0	21.7	21.3	21.3	23.3	10.0	11.0	12.5	16.5
Centerville	18.3	20.0	30.0	27.5	22.3	0.0	0.0	0.0	18.5
Cove	20.3	22.0	23.3	21.0	26.5	15.0	8.0	7.0	20.5
Hannah	20.0	20.0	30.0	30.0	30.0	0.0	0.0	19.0	13.5
McKeown	25.0	24.5	24.5	21.0	18.0	0.0	0.0	0.0	19.0
North Beverly	18.3	22.0	21.0	25.0	21.0	0.0	0.0	0.0	16.0
District	20.1	21.5	24.4	23.9	23.4	13.3	10.0	14.3	17.3

As enrollments vary over the years, the number of teachers for a particular grade in a school can increase or decrease as administrators seek the proper class sizes. It is not unusual for one grade to need an additional teacher and another grade to need one less teacher; thus no increase in staffing would be required for that school. Such is the case in this scenario for both Cove and North Beverly schools.

Agreement

BETWEEN THE

Beverly Teachers Association

AND

Beverly School Committee

Unit A

September 1, 2014 – August 31, 2017

ARTICLE IV - COMPENSATION

1. GENERAL.

Subject to the provisions of this Contract, (and except as otherwise provided by Appendices A, B, and C attached hereto and made a part hereof) the wages, hours, and other conditions of employment applicable on the effective date of this Contract to the employees covered by the contract shall continue to be so applicable.

2. CREDIT FOR PRIOR TEACHING EXPERIENCE.

A. The Superintendent, in placing new members on the salary schedule, may grant, in his/her discretion, credit for prior appropriate and comparable experience or prior related experience in business, trade, or profession. The denial of any such credit shall not be subject to the grievance and arbitration provisions of this Agreement.

B. Teachers with or without prior full-time teaching experience who have been substituting in the same or comparable position for which they are being hired will be allowed one year of credit on the salary schedule for the year of such substituting experience provided they have taught ninety (90) or more days in such position continually for the year of such substituting experience.

3. CREDIT FOR MILITARY SERVICE.

Members employed in Beverly prior to September 1, 1975, who are inducted or who, as members of the reserve unit, are called into military service shall be given one-half (1/2) credit as experience for each year of active full-time military service up to and including a total of four (4) years except for required service in time of a national emergency when full-time credit without restriction shall be given. When the computation results in a fraction of one-half (1/2) or more, a full one (1) year's credit shall be given. Nothing in this provision shall be construed as granting a member professional status.

4. SALARY PAYMENTS.

C. Members shall receive 1/26 of their contracted salary for each of the first 21 payments. The final payment, including all payments of summer vacation period, shall be made payable on June 30.

D. When the scheduled payday Thursday occurs on a holiday, payment shall be made on the preceding day. When the payday shall be during a school vacation period, the payment shall be made available on the day due in the Superintendent's Office in the afternoon.

ARTICLE V - CLASS SIZE

Class sizes of pupils are to be governed by the following considerations:

A. The subject matter, the school level, and what is deemed to be the most efficient class size by national or state authorities in that area of curriculum.

B. Availability of suitable teachers.

C. Availability of classroom space.

D. That a sufficient number of students are enrolled in the total course or a school or grade within a school that would allow the forming of another class of sufficient size to be justified economically.

E. That a reduction of a class size is possible by the transfer of pupils to a school in an adjacent school district.

F. The Association shall have the right to discuss with the Committee (or at the option of the Committee, an ad hoc sub-committee thereof) an appropriate class size for the case in question.

G. The number of pupils shall not exceed the number of pupil stations.

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Beverly Public Schools
502 Cabot Street
Beverly, Massachusetts 01915

New Briscoe Middle School
Grade Configuration Meetings

Audience: Beverly Public School Parents/ Beverly Community

Target Audience: Present Pre-Kindergarten and Kindergarten Parents who will be the first groups/students housed in the new Briscoe Middle School.

Scheduled Meetings: You can attend any one of the meetings that meet your schedule.

1/30/14	Hannah Elementary School	7:00 – 9:00 PM
2/6/14	Ayers Ryal Side Elementary School	7:00 – 9:00 PM
2/7/14	Centerville Elementary School	9:00 – 11:00 AM
2/11/14	North Beverly Elementary School	6:00 – 8:00 PM
2/13/14	Cove Elementary School	6:30 – 8:30 PM

Meeting Agenda

1) Overview: Dr. Albert F. Argenziano, Interim Superintendent
   - Purpose of Meeting
   - Reasons for New Briscoe
   - Educational Specifications

School Panel

2) Grade Configuration 5-8 or 6-8

Panel
- Principal of School
- Adjustment Counselor of School
- Middle School Principal (Matt Poska)
- Early Childhood, Special Education (Stacy Bucyk)
  - Quality of Instruction
  - Quality of Programs
  - Utilization of Space
  - Social Emotional Issues
  - Site Visitations

3) Mayor Michael Cahill – City Focus on New Briscoe Middle School
4) School Committee Task Force – Co-Chairs
   Annemarie Cesa / Kris Silverstein
   A) Research Based, Information Gathered to date.
   B) Discussion centered around visits to School Districts with Grade 5-8 configuration
5) Public Input / Question / Answer Session

Briscoe Middle School

7 Sohier Road
Beverly, Massachusetts 01915
Telephone (978) 921-6103
Fax (978) 927-7781

Mr. Matthew P. Poska, Principal
Mr. Terrence Conant, Assistant Principal
Mrs. Amy Gerade, Assistant Principal

"Our aspirations are our possibilities."
-Robert Browning

Questions for MS Visits

1. How do you separate the grade levels from each other? Do they have common space?
2. Are teams still in place and how are they configured? What licenses do they have? How did you work with staff/union to address?
3. What academic benefits were noticed due to this grade configuration?
4. What does your schedule look like? Do you have 'safety nets' built into the schedule?
5. What impact does this grade configuration have on Special Education Programming? Are there space issues in the building because of this configuration? What SPED Programs are in the building? Are you able to offer small group interventions? How are you able to facilitate team meetings?
6. Were you able to keep more students in district because of this set up?
7. Are there concerns with bussing with a Grade 5-8 configuration?
8. What feedback have you received from staff regarding this configuration? Parents?

"The mission of the Beverly Public Schools is to maximize academic achievement and personal growth of every student."

Notice of Non-Discrimination
All educational and non-academic programs, activities and employment opportunities at Beverly Public Schools are offered without regard to race, color, sex, religion, ancestry, national origin, sexual orientation, disability, and any other class or characteristic protected by law.

Beverly Public Schools
502 Cabot Street
Beverly, Massachusetts
01915
Telephone (978) 921-6100
Fax (978) 922-6597
www.beverlyschools.org

Albert F. Argenziano, Ed.D.
Interim Superintendent of Schools

Mayor Cahill - - - Visits to Elementary School Schedule

Wednesday, January 29, 2014

School	Time
Cove Elementary School	12:00 PM
Centerville Elementary School	12:30 PM
North Beverly Elementary School	1:00 PM
Hannah Elementary School	1:30 PM
Ayers Ryal Side Elementary School	2:00 PM
McKeown Elementary School	2:30 PM

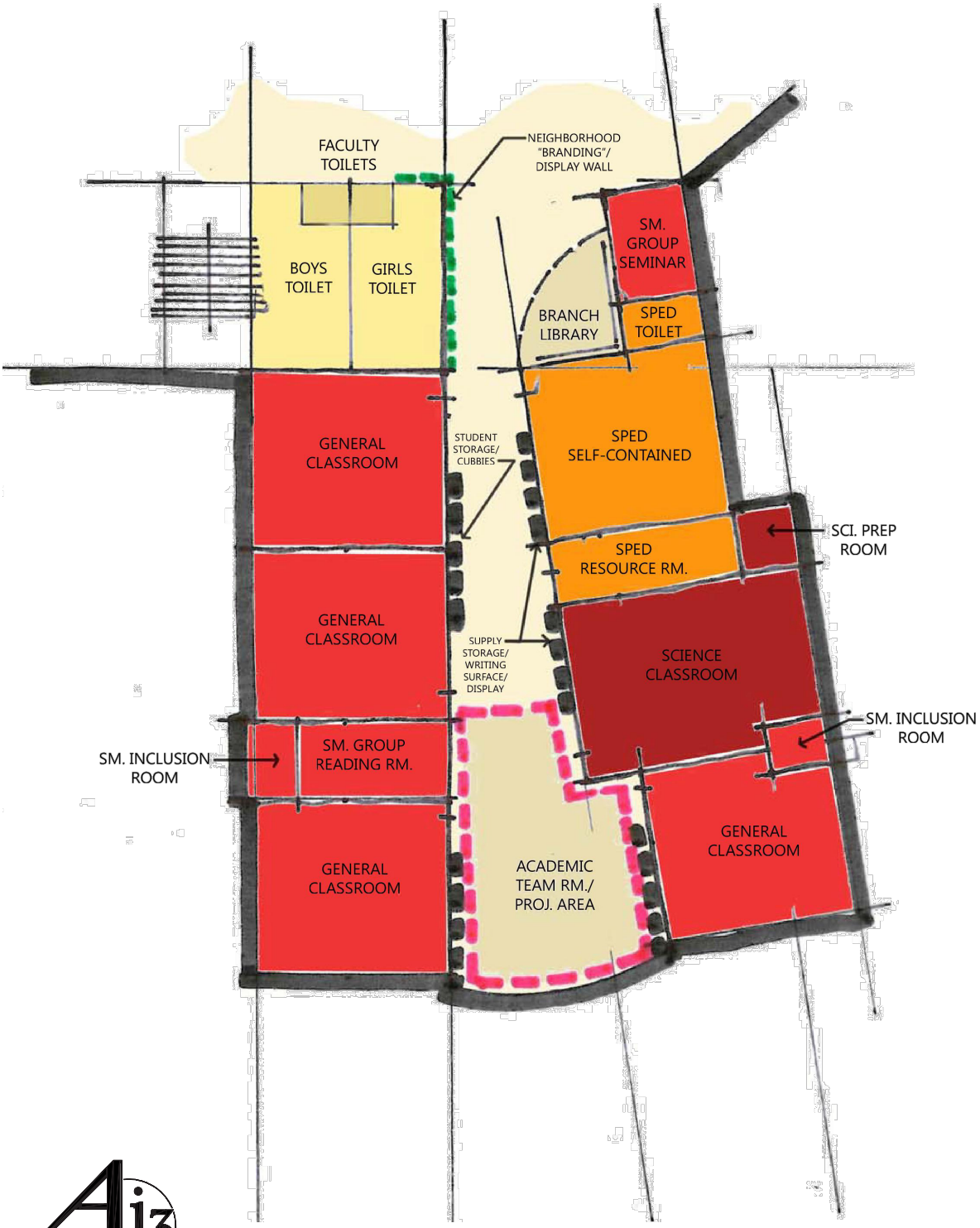
The mission of the Beverly Public Schools is to maximize academic achievement and personal growth of every student.

DRAFT

Briscoe Middle School - Educational Specifications			
General/Specific Educations Spaces	**Square Foot Allotment**	**Total Square Feet**	
14 Grade 5 Classrooms	900 sq. ft. each	12,600	
14 Grade 6 Classrooms	900 sq. ft. each	12,600	
14 Grade 7 Classrooms	900 sq. ft. each	12,600	
14 Grade 8 Classrooms	900 sq. ft. each	12,600	
8 Science Laboratories	1,000 sq. ft. each	8,000	
4 Technology Laboratories	1,000 sq. ft. each	4,000	
2 Reading/Writing Laboratories	1,000 sq. ft. each	2,000	
Cafetorium (W/stage)	8,000 sq. ft.	8,000	
Media Center	8,000 sq. ft.	8,000	
Gymnasium/ w/3 sm. Offices	10,000 sq. ft.	10,000	
Kitchen / Storage Areas / Freezers	10,000 sq. ft.	10,000	
2 Music Suite / 3 Practice Areas / Storage	4,200 sq. ft. per	8,400	
2 Art Suites / Storage	3,000 sq. ft. per	6,000	
Health Suite / 4 sm. Areas			
storage, office, rest area (M/F)	2,000 sq. ft.	2,000	
12 Special Education Spaces	800 sq. ft. per	9,600	
Offices - Main Office	1,200 sq. ft.	1,200	
3 Administration Offices	400 sq. ft. per	1,200	
3 Guidance / sq. ft.	400 sq. ft. per	1,200	
Teacher Work Spaces			
4 X 600 sq. ft.	600 sq. ft.per	2,400	
Storage Areas per Grade			
2000 sq. ft. per grade	2,000 sq. ft.per	8,000	
Corridors / Bathrooms	40,000 sq. ft.	40,000	
Locker Rooms / Male / Female			
3,000 per x 2	3,000 sq. ft. per	6,000	
Stage Storage	1,000 sq. ft.	1,000	
		187,400	
		$440.00 per sq. ft.	
20,000 sq. ft. X $440.00 per			
		$82,456,000	
$8,800,000			
		$45,350,800 (55%)	
$4,840,000 (55%)			
		$37,105,200 (45%)	
$3,960,000 (45%)			

QUESTION ASKED BY SCHOOL COMMITTEE MEMBER

TEACHERS – GRADE 5	PRESENCE LICENSE
AYERS:	
Erin Glencross	1 - 6
Alexandria Murray	1 - 6
Lauren Seabrook	1 - 6
CENTERVILLE:	
Jill Aylward	1 - 6
Danielle Hopkins	1 - 6
Kristopher Melanson	1 - 6
COVE:	
Stacie Dunleavy	1 - 6
Kara MacLean	1 - 6
Christine Noviello	1 - 6
Peggy Russo	1 - 6
Hannah:	
Tanya O'Malley	1 - 6
Stephen Sutherland	1 - 6
North Beverly:	
Kurt Anderson	1 - 6
Stacie Hall	1 - 6
Elizabeth Young	1 - 6



architects

526 Boston Post Rd Wayland, MA
508.358.0790 www.ai3architects.com

Beverly Middle School

New Middle School, Option 1 - Typical Academic Neighborhood

Existing Space Summary
Memorial Building (Cabot St.)

1.7.15

Memorial Building	Existing Conditions		
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals
Alternate High School			**36,443**
Classroom	971	1	971
	1,430	1	1,430
	980	1	980
	1,124	1	1,124
Science Classroom / Lab	1,052	1	1,052
	916	1	916
Cafeteria / Lounge	4,028	1	4,028
Kitchen	1,338	1	1,338
Faculty Café / Lounge	484	1	484
School Storage	686	1	686
	182	1	182
Alternative HS Administration	1,102	1	1,102
	1,501	1	1,501
	612	1	612
Alt HS Admin Storage	202	1	202
Alt. HS Office	310	1	310
Gymnasium	5,690	1	5,690
Gymnasium Storage	1,618	1	1,618
Locker Rooms/Showers	2,306	2	4,612
Auditorium	5,825	1	5,825
Stage	1,780	1	1,780
ABINGTON POLICE			**12,123**
Detective Offices	1,197	1	1,197
	318	1	318
	572	1	572
Traffic Office	410	1	410
Police Training	1,152	1	1,152
Police Storage	236	1	236
	164	1	164
	137	1	137
	173	1	173
Police Bicycle Storage	1,941	4	7,764
INPSECTIONAL SERVICES			**4,938**
Inspectional Services	857	1	857
	843	1	843
Inspectional Services Storage	1,085	1	1,085
Community Development	955	1	955
	955	1	955
Veterans Director	243	1	243
DISTRICT ADMINISTRATION			**8,514**
Business Offices	848	1	848
	366	1	366
	412	1	412
Admin Offices	641	1	641
	847	1	847
District Department Offices	544	1	544
District Technology Office	191	1	191
Conference Room	833	1	833
Payroll Office	188	1	188
Attendance Office	311	1	311
SPED Admin Offices	893	1	893
	238	1	238
	148	1	148
	121	1	121
SPED Admin Waiting Area	173	1	173
Superintedent	847	1	847
Assistant Superintendent	913	1	913
PreK			**12,889**
ECC Classroom	2,211	1	2,211
Pre-K Classroom	847	2	1,694
	837	1	837
	1,122	1	1,122
	819	2	1,638
	802	1	802
ECC SPED Education	808	1	808
Special Education File Storage	839	1	839
ECC Lunch Room	913	1	913
Psychology Offices	894	1	894
Nurse Office	161	1	161
Computer Lab	291	1	291
Copy Room	134	1	134

Version
11.24.2010

Middle School Space Summary

Existing Space Summary
Memorial Building (Cabot St.)

1.7.15

Memorial Building	Existing Conditions		
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals
ECC Storage	545	1	545
OTHER			**2,480**
Other *(specify)*			
Vacant Rooms	837	1	837
	750	1	750
	893	1	893
Total Building Net Floor Area (NFA)			**77,387**
Proposed Student Capacity / Enrollment			
Total Building Gross Floor Area (GFA)[2]			103,399
Grossing factor (GFA/NFA)			**1.34**

[1] **Individual Room Net Floor Area (NFA)**

Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)**

Includes the entire building gross square footage measured from the outside face of exterior walls

Proposed Space Summary - Beverly Middle School

Grades 5-8

1.7.15

5-8 BEVERLY MIDDLE SCHOOL	Existing Conditions			PROPOSED: Existing to Remain/Renovated			PROPOSED: New			PROPOSED: Total			MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			**31,524**			**0**			**68,390**			**0**			**65,310**	
(List classrooms of different sizes separately)																
Classroom - General		*34*					850	50	42,500				950	51	48,450	850 SF min - 950 SF max
English	600	2	1,200													
	640	3	1,920													
	675	1	675													
	755	1	755													
	763	1	763													
	725	1	725													
Math	585	2	1,170													
	640	2	1,280													
	675	1	675													
	725	3	2,175													
	788	1	788													
Foreign Language	700	2	1,400													
	820	1	820													
	588	1	588													
	680	1	680													
Reading	680	1	680													
	900	1	900													
Social Studies	600	2	1,200													
	640	3	1,920													
	655	1	655													
	679	1	679													
	688	1	688													
	741	1	741													
Small Group Seminar (20-30 seats) / Resource			0				175	12	2,100				500	3	1,500	
		10	0													
Science Classroom / Lab	648	2	1,296				1,200	12	14,400				1,200	12	14,400	1 period / day / student
	656	1	656													
	668	2	1,336													
	730	4	2,920													
	1,200	1	1,200													
Prep Room	75	3	225				80	12	960				80	12	960	
Academic Team Room							465	12	5,580							
Teacher Collaboration Room							500	4	2,000							
Health Classroom	814	1	814				850	1	850							
SPECIAL EDUCATION			**8,895**			**0**			**15,850**			**0**			**15,100**	
(List classrooms of different sizes separately)																
Self-Contained SPED	800	1	800				850	7	5,950				950	10	9,500	assumed 8% of pop. in self-contained SPED
	711	1	711													
	675	1	675													
	665	2	1,330													
	610	1	610													
	586	1	586													
Self-Contained SPED Toilet			0				60	7	420				60	10	600	
ESL - English as a Second Language	238	1	238													
ASL - American Sign Language	660	1	660													
Speech / Testing	75	4	300													
OT Office	175	1	175													
Resource Room	400	3	1,200				425	12	5,100				500	7	3,500	1/2 size Genl. Clrm.
	347	1	347													
	390	1	390													
Small Group Room / Reading	665	1	665				215	12	2,580				500	3	1,500	1/2 size Genl. Clrm.
Small Inclusion Room							75	24	1,800							1/2 size Genl. Clrm.
Special Education Chair Office	208	1	208													
ART & MUSIC			**3,896**			**0**			**6,550**			**0**			**6,550**	
Art Classroom	802	1	802				1,250	2	2,500				1,200	3	3,600	assumed use - 50% population 2 times / week
Art Workroom w/ Storage & kiln	550	1	550				175	2	350				150	3	450	
Band / Chorus - 100 seats	917	2	1,834				2,300	1	2,300				1,500	1	1,500	assumed use - 50% population 2 times / week
Music Practice / Ensemble	710	1	710				75	4	300				200	5	1,000	
MIDI Lab							500	1	500							
STEAM Academic Support							50	12	600							
VOCATIONS & TECHNOLOGY			**4,649**			**0**			**9,600**			**0**			**9,600**	
Tech Clrm. - (E.G. Drafting, Business)	2,382	1	2,382										1,200	3	3,600	Assumed use - 25% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)			0										2,000	3	6,000	Assumed use - 25% Population - 5 times/week
ComputerTechnology #1	1,584	1	1,584													
Computer Technology #2	683	1	683													
Integrated Academic Production Lab							500	12	6,000							
Multimedia & Video Applications Lab							1,000	1	1,000							
Technology Applications & Production Lab							1,600	1	1,600							
Set Design & Construction Applications Lab							1,000	1	1,000							
HEALTH & PHYSICAL EDUCATION			**8,677**			**0**			**15,400**			**0**			**8,400**	
Gymnasium	4,607	1	4,607				6,000	2	12,000				6,000	1	6,000	
Gym Storeroom			0				150	2	300				150	1	150	
Health Instructor's Office w/ Shower & Toilet	125	2	250				250	2	500				250	1	250	
Locker Rooms - Boys / Girls w/ Toilets	3,820	1	3,820				1,300	2	2,600				1,000	2	2,000	
MEDIA CENTER			**2,177**			**0**			**8,401**			**0**			**8,401**	
Media Center / Reading Room	2,177	1	2,177				8,401	1	8,401				8,401	1	8,401	
DINING & FOOD SERVICE			**8,389**			**0**			**15,872**			**0**			**15,872**	
Cafeteria / Dining	5,130	1	5,130				10,463	1	10,463				10,463	1	10,463	2 seatings - 15SF per seat
Stage	885	1	885				1,600	1	1,600				1,600	1	1,600	
Chair / Table / Equipment Storage			0				665	1	665				665	1	665	
Kitchen	2,374	1	2,374				2,695	1	2,695				2,695	1	2,695	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room			0				449	1	449				449	1	449	20 SF/Occupant
MEDICAL			**362**			**0**			**910**			**0**			**910**	
Medical Suite Toilet							60	1	60				60	1	60	
Nurses' Office / Waiting Room							250	1	250				250	1	250	
Examination Room / Resting	362	1	362				100	6	600				100	6	600	
ADMINISTRATION & GUIDANCE			**2,660**			**0**			**4,796**			**0**			**4,795**	
General Office / Waiting Room / Toilet	740	1	740				798	1	798				798	1	798	
Teachers' Mail and Time Room			0				100	1	100				100	1	100	
Duplicating Room			0				200	1	200				200	1	200	
Records Room			0				200	1	200				200	1	200	
Principal's Office w/ Conference Area	230	1	230				375	1	375				375	1	375	
Principal's Secretary / Waiting			0				125	1	125				125	1	125	
Assistant Principal's Office - AP1	175	1	175				150	1	150				150	1	150	
Assistant Principal's Office - AP2	200	1	200				150	2	300				150	2	300	
Supervisory / Spare Office			0				150	1	150				150	1	150	
Conference Room	247	1	247				350	1	350				350	1	350	
Guidance Office	120	4	480				150	7	1,050				150	7	1,050	
Guidance Waiting Room	238	1	238				100	1	100				100	1	100	
Guidance Storeroom			0				50	1	50				50	1	50	
Teachers' Work Room	350	1	350				848	1	848				848	1	848	
CUSTODIAL & MAINTENANCE			**328**			**0**			**2,870**			**0**			**2,870**	
Custodian's Office							150	1	150				150	1	150	
Custodian's Workshop							250	1	250				250	1	250	
Custodian's Storage							375	1	375				375	1	375	
Recycling Room / Trash							400	1	400				400	1	400	
Receiving and General Supply							565	1	565				565	1	565	
Storeroom							930	1	930				930	1	930	
Network / Telecom Room	328	1	328				200	1	200				200	1	200	
OTHER			**10,066**			**0**			**6,870**			**0**			**0**	
Other *(specify)*																
Dental Clinic																
Reception	210	1	210				500	1	500							
Exam	112	1	112				150	2	300							
Exam	90	1	90													
X-ray	132	1	132				150	1	150							
Clean Room	83	1	83				120	1	120							
Office							100	1	100							
Auditorium (Existing: 1,200 seats)	9,439	1	9,439				5,700	1	5,700							
Total Building Net Floor Area (NFA)			**81,623**			**0**			**155,509**			**0**			**137,808**	
Proposed Student Capacity / Enrollment									1,395						**1,395**	
Total Building Gross Floor Area (GFA)[2]			144,349						233,264						**223,200**	
Grossing factor (GFA/NFA)			**1.77**						1.50			**#DIV/0!**			**1.62**	

Version
11.24.2010

Middle School Space Summary

Proposed Space Summary - Beverly Middle School

Grades 5-8

1.7.15

5-8 BEVERLY MIDDLE SCHOOL	Existing Conditions			PROPOSED									MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
				Existing to Remain/Renovated			New			Total						
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments

[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls

Architect Certification

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: _____

Name of Principal Architect: _____

Signature of Principal Architect: _____

Date: _____

Evaluation of Existing Conditions

Narrative of Preliminary Design Program

The existing conditions were further reviewed, but there were no substantive changes to any of the original conclusions and observations at the existing Beverly Middle School. The existing gross square footage of the existing Memorial Building (Cabot Street Site) was previously reported at 54,000gsf. Following further review of the existing conditions and take-offs of the existing Memorial Building floor plans during the Preferred Schematic Report phase, the design team has identified the total gross square footage as approximately 103,000gsf.

Final Evaluation of Alternatives

Site Analysis

The Memorial Building was constructed in 1954 and is located on approximately 17.71 acres of land. The building is located at 502 Cabot Street (assessor's parcel ID 42-01) in Beverly, MA. The Memorial Building currently hosts several City services including the School District Administration and Superintendent's Office, a pre-kindergarten facility, a Police Unit, the Building Commissioner and Inspectional Services, and the Northshore Collaborative School. The building was originally constructed as a middle school. The site is accessible via two one way driveways from Cabot Street and also has frontage on Balch Street (Figure 1). The site is furnished with paved parking areas, paved driveways, toddler playground and grassed athletic fields. A gravel parking area is located on the south side of the site with access from Balch Street.

The site is bounded by Cabot Street to the north, Balch Street to the south and residential development to the east and west. Commercial development is located along the north side of Cabot Street and south side of Balch Street. Between the residential development to the west and the Memorial Building resides a parcel that is described in some documentation as a Memorial Wildlife Sanctuary (Sanctuary); however, a review of the City of Beverly Open Space's Inventory does not indicate that this parcel is a Memorial Wildlife Sanctuary nor does it identify any restrictions associated with its use. This portion of the site would not be required in order to achieve successful development of the site; however, we would recommend further review with the City in order to determine how this parcel may or may not be utilized as part of future development.

ZONING REGULATIONS

According to the "Zoning Map with Overlays, City of Beverly, Massachusetts – FYE 2014" the Site is located in an area zoned One-Family District (R-10). Educational facilities are noted to be allowed "under special conditions" within a zone R-10 according to the "City of Beverly Zoning Ordinance: Chapter XXXVIII with Amendments through December 2013." The Zoning Ordinance indicates the following would control the development on this Site:

R-10 – One-Family District:
- 10,000 square feet minimum area
- 100 feet minimum lot frontage
- 20 feet minimum front yard setback
- 15 feet minimum side yard setback
- 25 feet minimum rear yard setback
- 35 feet maximum building height

The parking capacity requirements for schools are one (1) space for every 500 square feet of floor space, exclusive of basements. Requirements for auditoriums include one (1) space for every 4 seats, permanent or otherwise according to Section 38-25 of the Zoning Ordinance. The future development is schematically programmed to include a 225,000 to 245,000 square feet building and is proposed to include a future auditorium of approximately 750 seats. This would require over 500 parking spots by zoning, an amount which could easily

be accommodated on site. However, 500 parking spaces would likely exceed the practical requirements of the school program and some consideration should be made for reducing the final programmed amount.

We understand that the future development option for this site would require that existing bus storage facility currently residing at the existing Beverly Middle School would be moved to this Site. This facility and its associated program could be accommodated on the site.

Topography

The topography of the site generally pitches gradually to the south of the property from the northwest, north and northeast. The highest elevations on site appear to be at the entrance to the parking lot off Cabot Street and the Sanctuary area. The lowest elevation appears to be in the south west corner and along the south edge of the athletic fields. Record topographic maps (dated 1949) indicate that a low lying wetland area once existed on the south side of the site near Balch Street (Figure 2) with the most recent topographic maps (dated 1985) indicating that this area has since been developed and mostly filled (Figure 3).

Soils

Existing soils were evaluated based on the USDA Natural Resource Conservation Services Web Soil Survey. Below is a description of the soils that are shown throughout the site as shown on the web soil survey (attached NRCS Soil Survey).

Within the parking lot areas and the majority of the building the soils consist of Urban Land (Map Unit 602). This map unit consists of areas where 85 percent or more of the land is covered with impervious surfaces, such as buildings, pavement, etc.

Within portions of the field areas south of the building and portions of the Sanctuary area the soils consist of Udorthents (Map Unit 651). This map unit consists of excessively to moderately well drained soils from which soil material has been excavated and nearby areas where the material has been deposited. The depth of excavations and fills can range from 2 to 20 feet.

Within the remainder of the athletic fields along the south side of the site as well as the Sanctuary area the soils consists of Boxford Silt Loam (Map Unit 220A), Scitico Silt Loam (Map Unit 14B) and Belgrade Very Fine Sandy Loam (Map Unit 225B).

Boxford silt loam is a very deep, nearly level, moderately well drained soil which can be found in areas of glacial lake deposits. The soil is known to have shallow seasonal high water tables ranging 1.5 to 3 feet below grade which is considered a limitation with this soil. Permeability is considered slow or very slow in the subsoil and substratum.

Scitico silt loam is a very deep, nearly level, poorly drained soil is in depressions, at the base of swales, and in low areas of glacial lake deposits that border streams, ponds, and swamps. The soil is known to have a seasonal high water table that is at or near the surface. Permeability is considered moderately slow or slow in the subsoil and slow or very slow in the substratum.

Belgrade very fine sandy loam is moderately well drained soil. The soil is known to have shallow seasonal high water tables ranging 1.5 to 3 feet below grade which is considered a limitation with this soil. Permeability is considered slow or very slow in the subsoil and substratum.

Based on the web soil survey information it is anticipated that the soils along the south and east side of the existing building may limit infiltration for stormwater due to their slow permeability and the depth to seasonal high groundwater in regards to future development. Stormwater detention practices will likely be considered due to these limitations. However, a good portion of this soil type overlaps the wetland resource areas onsite and the Sanctuary area which are not suitable for development anyway.

For purposes of stormwater infiltration, we would recommend additional future test pits along the north and east side of the existing building (closer to Cabot Street) which would provide soil information necessary to confirm if infiltration could be provided in those areas.

For purposes of building foundations and future site improvements, a preliminary site specific soil boring and test pit investigation program has been completed by LGCI, Inc. In general, a building proposed with the future development would be required to be placed on piles. Additionally, the site is anticipated to experience settlement under the weight of fill placed to raise site grades, due to the underlying clay layer, as such it is recommended to keep the future grades close to the existing grades as possible. Please refer to the "Preliminary Geotechnical Report, Proposed Middle School, Beverly, MA" prepared by LGCI, Inc. and dated November 4, 2014 for more information.

Wetlands

After review of the Massachusetts GIS data layers (MassGIS) it does appear that there are wetlands located along the south western property line in undisturbed wooded areas. If determined to be jurisdictional wetlands, these areas will have a minimum 100 foot regulatory buffer and a local 25-foot No-Disturbance Zone.

After review of the MassGIS certified and potential vernal pools layers, the Site does not appear to have potential or certified vernal pools as defined by the Natural Heritage and Endangered Species Program (NHESP). If it is determined in an environmental review that a vernal pool exists on the site the local regulations require a 100-foot No-Disturbance Zone around the upland area edge or the wetland area edge that encompasses the vernal pool.

According to the Flood Insurance Rate Maps available through FEMA (Federal Emergency Management Agency), this Site is located entirely in Zone X – Other Areas (Figure 4). A Zone X – Other Areas is defined by FEMA as areas determined to be outside of the 0.2% annual chance flood. There are no restrictions for development in the Zone X area.

Rare Species & Cultural Resources: Information regarding rare species was obtained from the MassGIS Rare Species and Priority Habitat data layer showing data recorded by the NHESP in the State Registry. Review of this information indicates that there are no known significant habitat areas within the Site.

Roadways and Parking Lots

The site is accessible via two one way driveways from Cabot Street and also has frontage on Balch Street. Cabot Street (Route 1A) is considered a state road and therefore any future development would require a MassDOT Access Permit.

The site is furnished with paved parking areas and paved driveways off of Cabot Street which are in fair to poor condition with surface cracks and pavement patches throughout. A gravel parking area is located on the south side of the site with access from Balch Street and additional gravel parking located along Balch Street. Future development and parking

options could look to Cabot Street and Balch Street as potential entrance/exit locations for vehicles. Please refer to the "Traffic Impact Analysis for the Beverly Middle School" dated November 10, 2014 as prepared by Pare Corporation for additional information on traffic in regards to the existing roadways and the future development.

Future development design considerations will likely require vehicular travel lanes surrounding the perimeter of the school to assist in access as well as provide emergency routes to each face of the school building. We would also recommend the re-paving of the existing parking areas and driveways if it is intended to re-use them with the future development.

The existing conditions utility information was collected through site visits, communications with Roland Adams (Beverly GIS Manager), Gregory St. Louis (City Engineer) and Mike Collins (Commissioner of Public Services and Engineering) as well as data available through MassGIS and Beverly GIS online maps. Future development options would require that the existing utilities be located and included in design plans.

Sewer

Sanitary waste from the building is conveyed via gravity sewer line to a cross country sewer main. The line that services the building is a 10-inch VC line that exits the east side of the building and then connects to a 21" PVC sewer line which discharges to a 24" RC sewer main in Balch Street. This is shown on plans entitled "Brimbal Avenue Interceptor Cross Country Balch Street to Cabot Street" dated November 1982 as prepared by Camp Dresser & McKee Inc. The 21" PVC sewer line flows via gravity from Cabot Street, along the east side of the site, towards Balch Street. The sewer main is located on the site. Plans we obtained do not indicate the presence of an existing exterior grease trap.

During design, the capacity of the existing sewer line will need to be evaluated to determine if it can handle the increased use or the need to provide a connection to the 24" RC sewer main in Balch Street. Future development would require the replacement and/or removal of the VC sewer service, the installation of an appropriately sized PVC sewer service and the installation of an exterior grease trap to service cafeteria functions. The 21" PVC sewer line will be required to be maintained in future development conditions. This will need to be considered during the design process.

Water

Water mains are located in Cabot and Balch Street. They are 12-inch cast iron and 8-inch cast iron respectively. Fire hydrants are located on Cabot and Balch Streets as well as one onsite. The onsite hydrant is located on the east side of the property at approximately the mid-point of the soccer field. The water main for this hydrant is serviced via the Balch Street water main. Record City GIS information indicates there is a 4-inch water service to the building which is off of Cabot Street. We understand that an existing irrigation system is located in the athletic fields. However, information as to the pipe sizes and locations is unknown. We would recommend that record plans of the existing irrigation system and its components be provided if future development plans include the use of this system.

During design, a hydrant flow test will be required to determine available flow for fire suppression system design. Additionally, the need to relocate the existing service may need to be evaluated as well as the installation of an additional service for fire suppression. If future developments plans include that the building is to be demolished and relocated, the new service could be evaluated to see if connecting and maintaining

a portion of the existing line would be feasible. However, it is likely that it would require replacement.

Drainage

Record drainage plans were not available at the City to review. However, Beverly GIS information indicates drainage lines, direction of flow within the lines and some pipe sizes. The onsite drainage system appears to consist mainly of conveyance via a closed drainage system. Additionally, the onsite closed drainage system acts as a conveyance system for stormwater being captured from portions of Cabot Street as well as the neighborhood to the west which consists of portions of Courtney Drive, Fitzgerald Way and some commercial properties.

The Cabot Street drainage system enters the site north of the building via an 18-inch VC pipe and continues through the site going beneath the parking lot, the building and the athletic fields. The westerly neighborhood's drainage system enters from the west side of the site via a 24-inch RCP and continues beneath the wetlands and the athletic fields. There is one point of discharge for the drainage system which is located in the south side of the property towards Balch Street via a 24-inch RCP. The stormwater ultimately discharges south to the Shoe Pond Basin through the Cummings Center property.

Drainage is collected from impervious and pervious surfaces via catch basins and conveyed via a closed drainage system to the discharge point. It appears that the stormwater system is receiving little treatment in regards to TSS removal. During design, it should be evaluated if the current drainage pattern should be maintained or rerouted. This would also include the review of an existing conditions plan that will be provided by a surveyor in a later phase of this project. Portions of the existing on-site drainage system will likely be re-used in future development conditions. However, an evaluation of those portions may become necessary to confirm the integrity of them.

The portions of the existing drainage system that conveys stormwater from Cabot Street and the neighborhood to the west, as described above, will be required to be maintained in future development conditions. This will need to be considered during the design process.

The future development drainage design will need to be re-designed to meet the Massachusetts Department of Environmental Protection stormwater standards, the City of Beverly Stormwater and Construction Site Management Ordinance and will require quantity and quality mitigation measures.

Gas

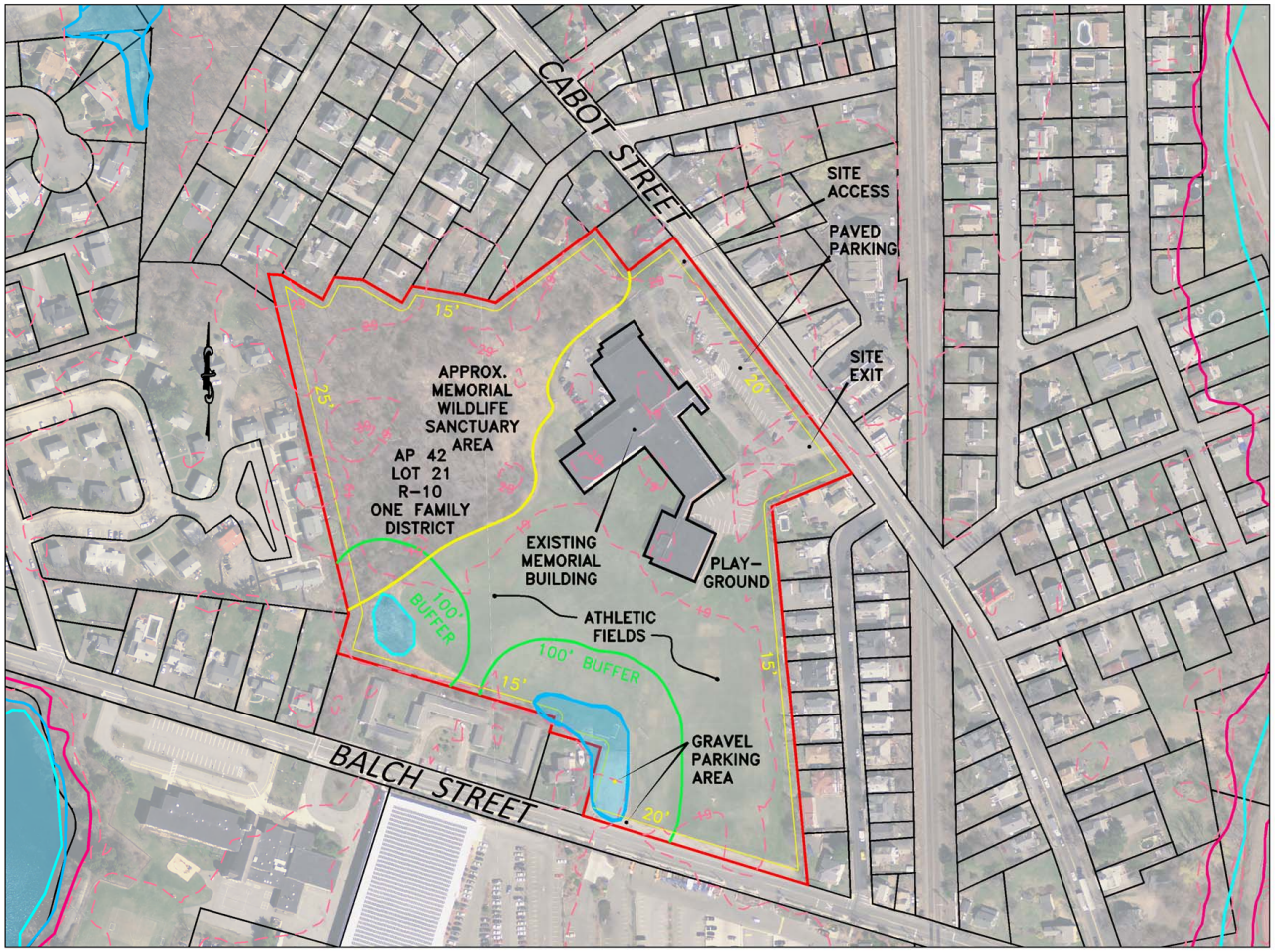
National Grid is the supplier of natural gas to the City of Beverly. There is a gas meter and valve at the west side of the building near the loading area. Future development options would require that the existing system be located and analyzed for capacity. Coordination should occur with National Grid regarding any service improvements.

Electric

National Grid is the supplier of electricity to the City of Beverly. Electricity appears to be supplied below ground based on discussions with the City. The service enters the building from the front (north side). Future development options would require that the existing system be located and analyzed for capacity. Coordination should occur with National Grid regarding any service improvements.

SUMMARY

There are not constraints which prohibit this site from serving as a viable location for a newly constructed school or an expansion of the existing Memorial Building. Design considerations should include the use of infiltration for stormwater practices which are consistent with onsite soils, and anticipating settlement from raising existing site grades due to the underlying clay layer and therefore avoiding (where possible) the raising of existing grades. Development should include recognition of the wetland resource areas and consideration for their buffer zones in regards to development, and further research on the use of the land within the Memorial Wildlife Sanctuary. We would recommend these considerations be made part of future development options. However, we do not believe there are any constraints which preclude this site from being a viable candidate for future school development.



N

ZONE: R-10
ONE-FAMILY DISTRICT

SETBACKS:

FRONT: 20'

SIDE: 15'

REAR: 25'

LEGEND

FEATURE (SOURCE)

- CONTOUR (MASS GIS)(NAVD 88)
- WETLAND (MASS GIS)
- MAJOR STREAMS AND PONDS (MASS GIS)
- PROPERTY LIMIT (MASS GIS)
- ABUTTING PARCEL LINES (MASS GIS)
- ZONING SETBACKS (BEVERLY ZONING BY-LAW)
- FLOOD HAZARD ZONE (MASS GIS)
- PRIORITY HABITAT (MASS GIS)
- SURFACE WATER PROTECTION AREA (MASS GIS)
- 100' BUFFER

200' 100' 0 200'

Scale: 1"=200'

Existing Conditions and Site Plan - Beverly Middle School

Memorial Building - 502 Cabot Street - AP 42, Lot 21

Beverly, Massachusetts

PARE
PARE CORPORATION
ENGINEERS - SCIENTISTS - PLANNERS
10 LINCOLN ROAD, SUITE 103
FOXBORO, MA 02035

Z:\JOBS\14 Jobs\14225.00 Beverly Feasibility and SD\dwg\gis-constraints.dwg

PARE CORPORATION

BEVERLY MIDDLE SCHOOL
FEASIBILITY STUDY
502 CABOT STREET
BEVERLY, MASSACHUSETTS

AERIAL PLAN

OCTOBER 2014 FIGURE 1

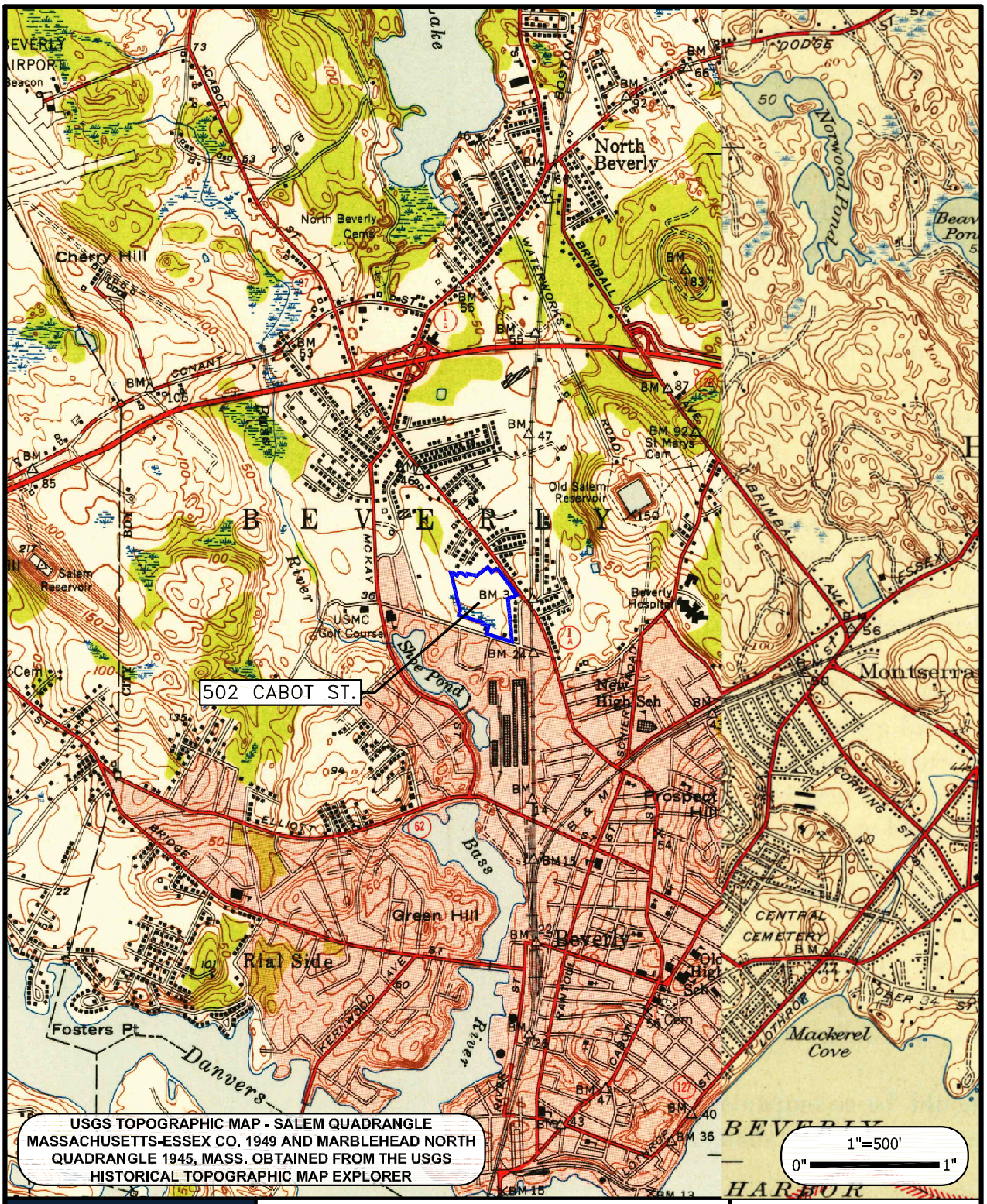
USGS TOPOGRAPHIC MAP FROM OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MASSGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS

PARE CORPORATION

BEVERLY MIDDLE SCHOOL
FEASIBILITY STUDY
502 CABOT STREET
BEVERLY, MASSACHUSETTS

LOCUS PLAN

OCTOBER 2014 FIGURE 2

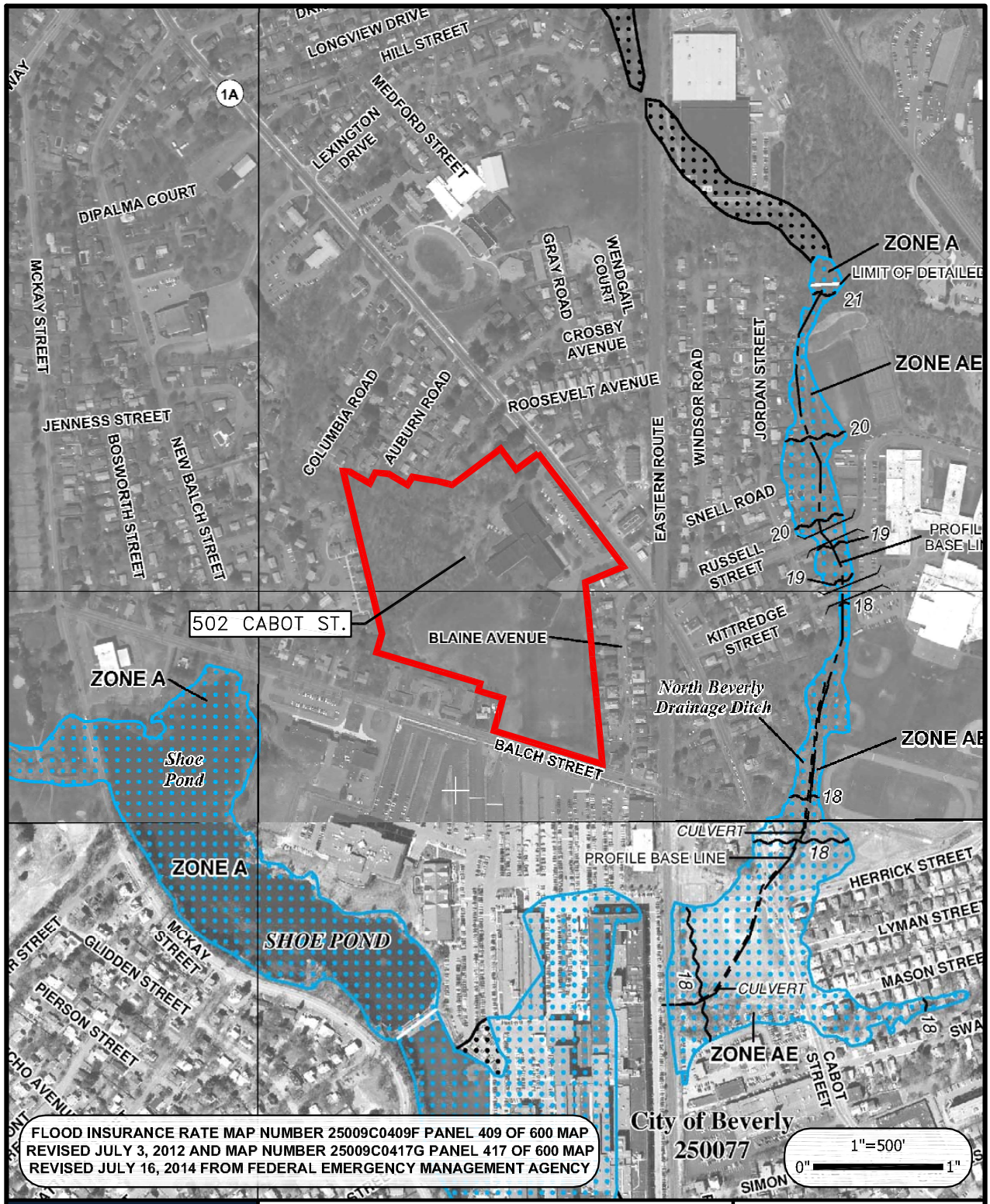


PARE CORPORATION

BEVERLY MIDDLE SCHOOL
FEASIBILITY STUDY
502 CABOT STREET
BEVERLY, MASSACHUSETTS

HISTORIC
USGS
PLAN

OCTOBER 2014 FIGURE 3



PARE CORPORATION

BEVERLY MIDDLE SCHOOL
FEASIBILITY STUDY
502 CABOT STREET
BEVERLY, MASSACHUSETTS

FEMA FLOOD PLAN

OCTOBER 2014 FIGURE 4

Hydrologic Soil Group—Essex County, Massachusetts, Southern Part
(502 Cabot St)
Sohier Rd
Hermk St
Parking Lot
Jordan St
Russell St
Roosevelt Ave
Columbia Rd
Balch St
Jenness St
Mckay
Bass River
311B
306C
102E
306D
725A
651
602
1a
626B
225B
220A
14B
620B
220B
220C
1
724C
42° 34' 8" N
42° 33' 39" N
70° 52' 41" W
70° 53' 42" W
Map Scale: 1:6,370 if printed on A landscape (11" x 8.5") sheet.
Meters
0 50 100 200 300
Feet
0 300 600 1200 1800
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84
N
Natural Resources
Conservation Service
Web Soil Survey
National Cooperative Soil Survey
10/24/2014
Page 1 of 5

Hydrologic Soil Group—Essex County, Massachusetts, Southern Part
(502 Cabot St)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Southern Part
Survey Area Data: Version 11, Sep 19, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 20, 2010—May 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Essex County, Massachusetts, Southern Part (MA606)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
1	Water		7.1	3.8%
14B	Scitico silt loam, 0 to 5 percent slopes	C/D	2.8	1.5%
102E	Chatfield-Hollis-Rock outcrop complex, 15 to 35 percent slopes	B	3.9	2.1%
220A	Boxford silt loam, 0 to 3 percent slopes	D	1.4	0.7%
220B	Boxford silt loam, 3 to 8 percent slopes	D	5.2	2.8%
220C	Boxford silt loam, 8 to 15 percent slopes	D	4.0	2.2%
225B	Belgrade very fine sandy loam, 0 to 8 percent slopes	C	5.5	2.9%
306C	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	C	2.8	1.5%
306D	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	C	0.0	0.0%
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	0.1	0.0%
602	Urban land		45.1	24.1%
620B	Boxford-Urban land complex, gently sloping		13.6	7.3%
626B	Merrimac-Urban land complex, gently sloping		49.4	26.4%
651	Udorthents, smoothed		43.5	23.2%
724C	Hollis-Urban land-Rock outcrop complex, sloping		0.3	0.2%
725A	Shaker fine sandy loam, 0 to 3 percent slopes	C/D	2.8	1.5%
Totals for Area of Interest			**187.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Final Evaluation of Alternatives

Permitting Requirements

502 Cabot Street

Based on the preferred Schematic Study and Plans for the project site there are multiple permits that will be required at the local, state, and federal level for site construction. The local permitting information was compiled from the City of Beverly Zoning Ordinance, Chapter XXXVIII with amendments through December 2013 (Zoning) and conversations with Steve Frederickson, Director/Building Commissioner of the Beverly Municipal Inspections Department, Leah Zambernardi, Assistant City Planner with the Beverly Planning Board and Gregory St. Louis, City Engineer. According to the "Zoning Map with Overlays, City of Beverly, Massachusetts – FYE 2014" the Site is located in an area zoned One-Family District (R-10). Educational facilities are noted to be allowed "under special conditions" within a zone R-10 as stated in Zoning section 38-11(A). The following is a list of anticipated permits:

SITE PLAN REVIEW - PLANNING BOARD

The project is not subject to a Site Plan Review by the Planning Board based on conversations with both the Assistant City Planner and the Municipal Inspections Department. The project is, however, subject to local Planning Board special permit requirements in regards to the reduction in parking spaces from Zoning section 38-25(A). Based on Zoning, the parking capacity requirements for schools are one (1) space for every 500 square feet of floor space, exclusive of basements. The future development is schematically programmed to include a 225,000 to 245,000 square feet building. This would require a maximum of 490 parking spots by Zoning. Based on the Institute of Transportation Engineers Parking Generation book, and the future staffing needs, the Zoning requirement appears higher than what may necessarily be needed. As such, consideration is being made in reducing the Zoning required parking requirements to be tailored to the needs of the future development. Further review of the parking needs will be evaluated as the design progresses.

The schedule for special permits with the Planning Board consists of a public hearing being held a maximum of 65 days after receipt of an application. In cases requiring a special permit, a decision shall be issued 90 days after the hearing is held which will be followed by a 20 day appeal period. It is likely that the review period may stretch if the decision is stretched over multiple hearings. The total anticipated review period for a special permit would likely be around 5-6 months.

ZONING BOARD OF APPEALS

The project is considered a government use under the jurisdiction of the City of Beverly. As such, the Zoning use is allowed in all districts per Zoning section 38-6(A). The project will, however, require a special permit for use from the Zoning Board of Appeals for exceeding the height requirements within that district. It is not anticipated that any relief will be required

from the building setbacks. A special permit application requires a public hearing with the special permit granting authority which is the Zoning Board of Appeals in this case. A public hearing is held a maximum of 65 days after receipt of an application. In cases requiring a special permit, a decision shall be issued 90 days after the hearing is held which will be followed by a 20 day appeal period. It is likely that the review period may stretch if the decision is stretched over multiple hearings. The total anticipated review period for a special permit would likely be around 5-6 months.

CONSERVATION COMMISSION

PARE completed a review of Massachusetts GIS data and conducted a preliminary review of the wetlands onsite. During the field investigation, wetlands were identified on the site. According to the City of Beverly's Wetlands Protection Ordinance have associated minimum 100 foot regulatory buffers as well as local 25-foot No-Disturbance Zones. Work is anticipated within these associated buffers and further review of the wetlands will be conducted in future phases of the project.

Based on the scope of the work, a Notice of Intent will be required to be submitted to the Beverly Conservation Commission, and the Massachusetts Department of Environmental Protection. After a completed Notice of Intent is filed with the Commission, a public hearing will be held within 21 days. Hearings are typically held every three weeks. It will likely require attendance at multiple hearings prior to closing. A determination will be issued by the Commission within 21 days of the close of the hearing. It is anticipated that the permitting process with the Commission would take approximately 60 – 75 days.

ENGINEERING DEPARTMENT APPLICATIONS

The project will require an application to be filed with the Engineering department in regards to "Drainage Alterations" permit and an "Erosion/Sediment Control & Materials Management Application." We understand that the permit and application, as well as their review, will run concurrently with the Conservation Commission filing based on conversations with Gregory St. Louis.

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

The project will meet the 2008 Storm Water Management Guidelines and appropriate submissions will be made to the Beverly Conservation Commission and Mass DEP, the jurisdictional entity for these guidelines.

An Underground Injection Control Registration will need to be filed for any stormwater systems proposed to infiltrate into the ground. The registration would be submitted to the Beverly Health Department, Conservation Commission and Mass DEP. The review of the registration required typically is complete within 48 days of submission.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

The proposed project will require filing a NPDES construction general permit with the EPA for disturbance of an area of more than one acre of land. The Contractor awarded the contract is responsible for filing for the NPDES General Permit and preparing a project specific Stormwater Pollution Prevention Plan. The contractor must submit a Notice of Intent 14 days prior to any earth disturbing activities.

MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

The scope of work for the preferred schematic plans does not appear to trigger MEPA thresholds at this time. However, the following are potential triggers that we will continue to monitor as the design progresses: In the category of land, creation of ten (10) or more acres of impervious area would require a MEPA review. As the preferred schematic plans are defined further, the increase in impervious area over the existing conditions will be checked. In the category of wetlands, waterways and tidelands, the alteration of 5,000 or more square feet of bordering or isolated vegetated wetlands. As the preferred schematic plans are defined further, the alteration of wetlands will be checked. In the category of transportation, the construction of 300 or more new parking spaces at a single location would require MEPA review. As the preferred schematic plans are defined further, the parking space count will be checked.

Once a schematic design is developed, all thresholds will be reviewed in regards to the proposed project. If MEPA review is required, MEPA requires applications to be submitted one year prior to construction.

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MassDOT)

The Site entrances are currently located off of Cabot Street. The existing north entrance is located within a state highway layout and the existing south entrance is located within a local roadway layout. Based on the current preferred schematic plans, and the initial traffic study, the site appears to be subject to a MassDOT Category II – Major Vehicular Access Permit. The review schedule for the permit consists of three separate submissions. A detailed review of each submission is required by MassDOT. The first submission is to be reviewed within 35 business days, the second submission is to be completed within 20 business days and the third submission shall be reviewed within 20 business days. It is anticipated that the permitting process with MassDOT would take approximately three months.

Final Evaluation of Alternatives

Construction Impact

As a result of the information gathered during the Feasibility Study (Preliminary Design Program) phase of the process, the City of Beverly School Building Committee elected to continue the evaluation of the previous "Option 1" (identified as Option 1a in this Preferred Schematic Report), the construction of an all new middle school to be located at the Cabot Street site, with plans to demolish the existing Memorial Building prior to construction of the new middle school. Additionally, although the decision to pursue "all new construction" (Option 1) appeared to be the obvious choice (both financially and educationally) subsequent to completion of the PDP, the City decided to broaden its review of possible renovation/addition options to the existing Memorial Building by considering the advantages/disadvantages of both a (2a) major renovation addition option, and a (2b) minimal renovation/addition option – maintaining the existing auditorium. In addition to the new construction option (1a), at the request of the MSBA, the City evaluated an additional new construction option (1b) that eliminates the proposed auditorium space. The consideration of each option is summarized below.

OPTION 1A - CONSTRUCTION OF A NEW MIDDLE SCHOOL ON THE CABOT STREET SITE

The existing Memorial Building located on the Cabot Street site would be demolished prior to the construction of the new middle school.

The construction of an "all new" middle school on the Cabot Street site would include a construction limit of work that is distinctly separate from the surrounding properties by a construction fence and an opaque visual barrier. The construction-related vehicular circulation and parking would be separated from and coordinated with the flow of existing vehicular actives around the perimeter of the construction. Construction of a new middle school at the Memorial Building site (in lieu of any construction at the existing Beverly Middle School) site allows for clear separation of all construction activities from educational activities and ELIMINATES potential conflicts such as:

- Noise disruptions from the existing school
- Visual distractions
- Service interruptions
- Air quality control issues
- Dust control issues
- Building scheduling interruptions
- Building system service interruptions
- Interactions between faculty and students with construction personnel
- Security measures required within the existing building due to construction activity

OPTION 1B - CONSTRUCTION OF A NEW MIDDLE SCHOOL ON THE CABOT STREET SITE – DELETING THE PROPOSED AUDITORIUM PROGRAM

Included as part of the Preliminary Design Program (PDP) design review comments, the MSBA required that the City of Beverly develop at least one alternative to build a new middle school that does not include an auditorium. The City complied with this request. However, as noted in the City's response to the PDP comments, the District's educational program includes very specific goals for the student dining area that requires that it be:

1. Broken down in scale (split into at least two dining areas) to avoid the negative consequences of attempting to address the needs of a 1,400 pupil population within a single contiguous dining area.
2. Fully integrated into the academic neighborhoods such that it provides many multi-use opportunities to support education well beyond simply a "cafeteria".
3. Located directly adjacent to a large outdoor courtyard to promote indoor/outdoor activities and the abundance of natural daylight.

As a result of these goals, the District feels that attempting to attach a stage to the proposed dining areas would not result in a functional and efficient use of space and, therefore, under the proposed Option 1b, the stage area is attached to the gymnasium space.

Construction of a new middle school at the Memorial Building site (in lieu of any construction at the existing Beverly Middle School) site allows for clear separation of all construction activities from educational activities and ELIMINATES numerous potential conflicts described in detail in Option 1a.

OPTION 2A – MAJOR RENOVATION OF THE EXISTING MEMORIAL BUILDING AND CONSTRUCTION OF A NEW ADDITION – DEMOLISHING THE EXISTING GYMNASIUM/ LOCKER ROOM WING

Option 2a involves the re-use and renovation of as much of the existing Memorial Building as deemed practically possible; with significant new additional construction to provide for the necessary total space to meet the grades 5 through 8 building program. This approach ultimately resulted in the demolition of the approximately 15,000sf existing gymnasium, the renovation of the remaining 88,000sf Memorial Building, and the proposed addition of 165,339sf in order to meet the proposed total building program.

The existing Memorial Building is a sprawling two-story structure which does not make efficient use of the available site area. Its incorporation into an overall building plan results in a larger building footprint and larger overall building size than any of the other proposed options. It requires that one grade level (5th grade) be forced into the confines of the existing building footprint in lieu of having a more effective educational organization with the required adjacencies as identified in the educational program. It also requires that this grade level be separated from the other proposed grade levels, even though the educational program calls for specific relationships and adjacencies between grade levels.

The structural narrative identifies significant structural improvements that would have to be completed to the existing building and structure. These upgrades, combined with the

comprehensive scope of renovations required for the existing building and the need to physically disengage new additions form the existing structure result in significant renovation costs to the existing building.

Similar to the new construction options, construction of a new middle school at the Memorial Building site (in lieu of a renovation/addition option at the existing Beverly Middle School) site allows for clear separation of all construction activities from educational activities and ELIMINATES numerous potential conflicts described in Option 1a.

OPTION 2B – MAJOR RENOVATION OF THE EXISTING AUDITORIUM AND CONSTRUCTION OF A NEW ADDITION – DEMOLISHING THE MAJORITY OF THE EXISTING MEMORIAL BUILDING

Option 2b involves the re-use and renovation of the existing Memorial Building auditorium and adjacent corridor space. It evolved from an understanding that it might not be financially or educationally beneficial to keep a significant portion of the existing Memorial Building, but that there might be some value in attempting to keep and renovate the existing auditorium. The option proposes to keep and renovate 20,000sf of the existing 103,000sf Memorial Building (primarily the auditorium) and to add 215,264sf of new construction in order to meet the proposed total building program.

This option can be organized to create all of the desired organizational and efficiency benefits of the desired Option 1a, as the existing auditorium happens to be in a very similar location on the site as the newly proposed (new construction) auditorium in Option 1a and therefore can be part of an Option 2b which has a layout and organization very similar to Option 1a.

Construction Impact

In an effort to mitigate the negative impact on surrounding neighboring properties throughout the construction duration, with any option (new construction or renovation/addition), the construction of the proposed project would require that the contractor implement several measures, including, but not limited to:

Environmental Quality Procedures

- Hazardous Materials removal notifications and procedures in accordance with applicable codes and regulatory agency requirements
- Construction Indoor Air Quality (IAQ) Management Plan (including scheduled testing and monitoring)
- Pollution prevention – Healthy air quality goals during construction
- Maintain proper ventilation during construction and eliminate contaminating indoor air quality within the adjacent occupied spaces
- Implementation of environmentally-benign construction techniques

Work Restrictions, Worker Conduct, and Work Rules

- Restricted site access hours
- Contractor coordination with Owner's school vacation dates

- Contractor coordination with Owner's school parking and vehicular/bus access roads
- Police details at any time during construction where the construction takes place in a public right-of-way
- Contractor coordination with and notification to the Owner related to temporary disruption of existing services (i.e., electric, gas, water, telephone, internet) during construction

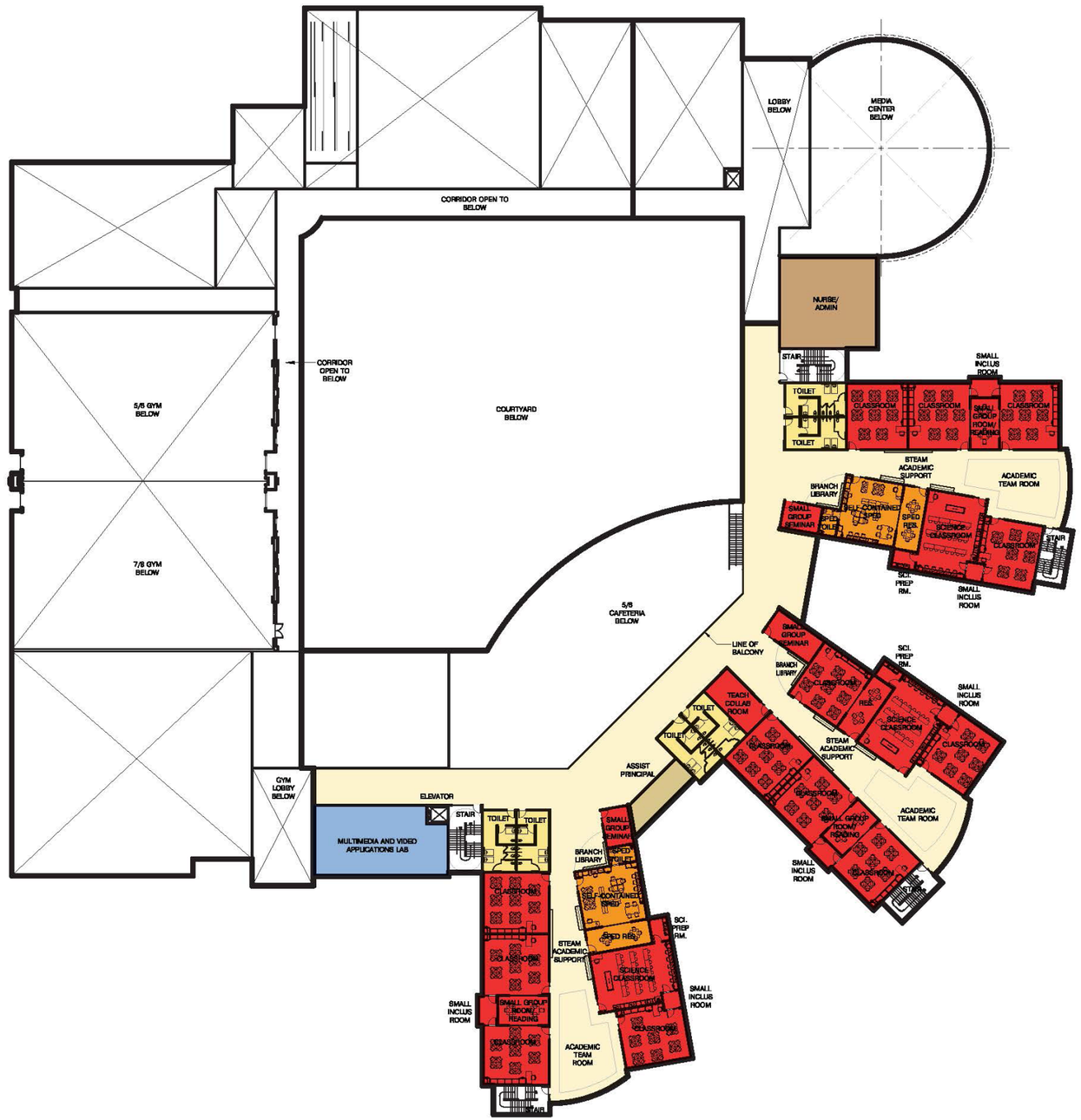
Temporary Facilities and Controls

- Provide and maintain all temporary facilities, controls, and construction aids during the course of construction to provide a safe environment
- Temporary utility services: contractor must ensure that temporary services (protective night lighting, heating, water, etc.) used for construction are maintained during construction and comply with local, state, and national codes
- Temporary construction signage: the contractor provides construction signage clearly delineating site and building construction areas from public area
- Noise control measures - noise reduction methods include, but are not limited to: noise-abatement program, scheduling noise related activities to minimize impact on surrounding neighborhood (cutting, drilling, jack-hammering, etc.), configuration of construction site relative to the existing building(s), air compressors with silencers, power equipment with mufflers, and limiting equipment idling on site
- Dust control measures: construction entrances, site, and building construction area
- Temporary Barricades: Clear separation between construction zone and occupied spaces
- Temporary Fences: provide clear separation and secure perimeter around the construction site, construction equipment with vehicular locks and gates. The fence should include an opaque applied scrim to provide a 'solid visual barrier' between the construction area and public right of way.
- Vehicular Traffic Control: The contractor shall not close or obstruct any portion of any street public or private, without obtaining the necessary permits from the proper authorities
- Security measures

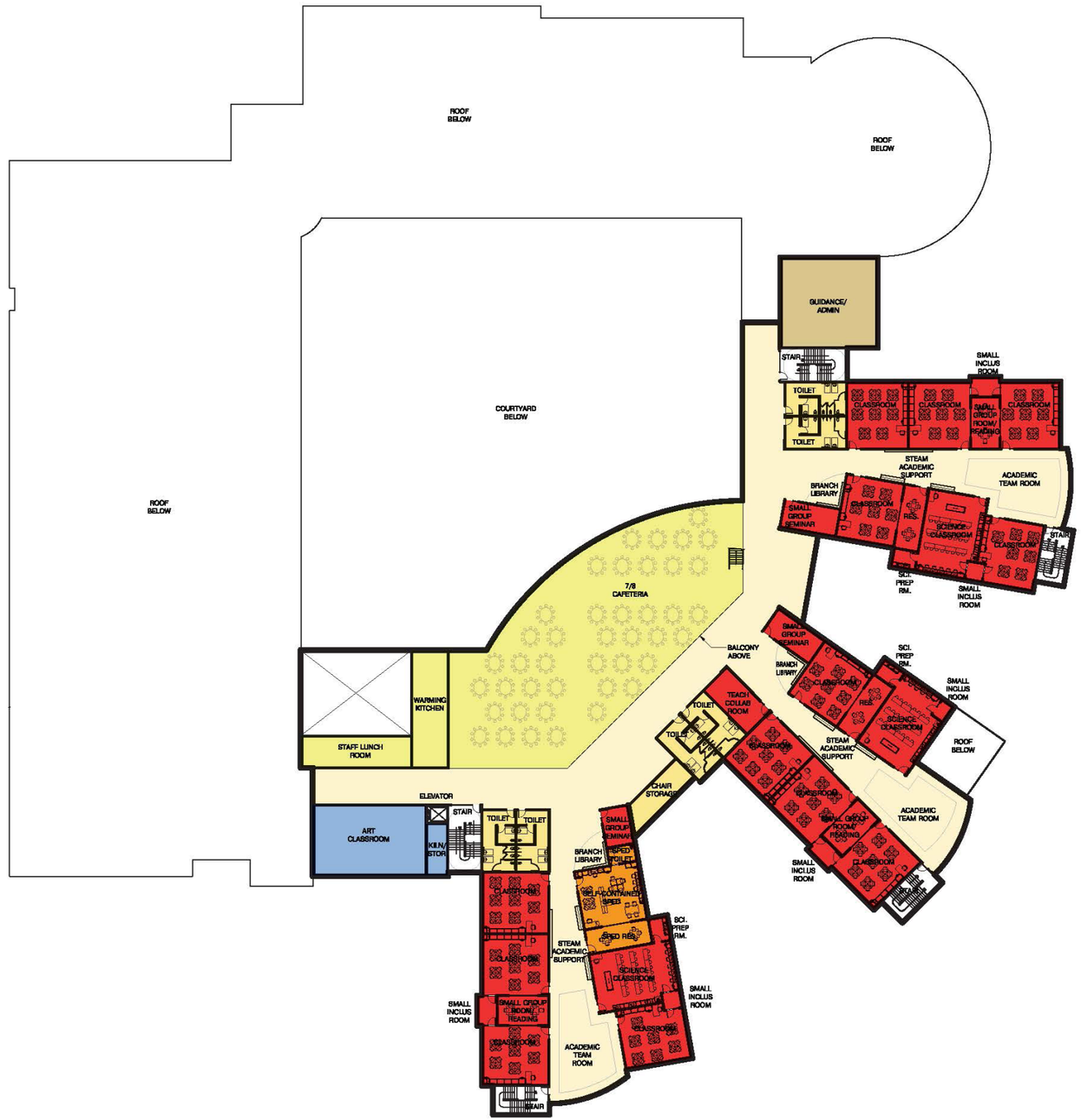
Option 1A
Conceptual Site Plan

Option 1A
Conceptual Building Plans: Floor 1

Option 1A
Conceptual Building Plans: Floor 2



Option 1A
Conceptual Building Plans: Floor 3

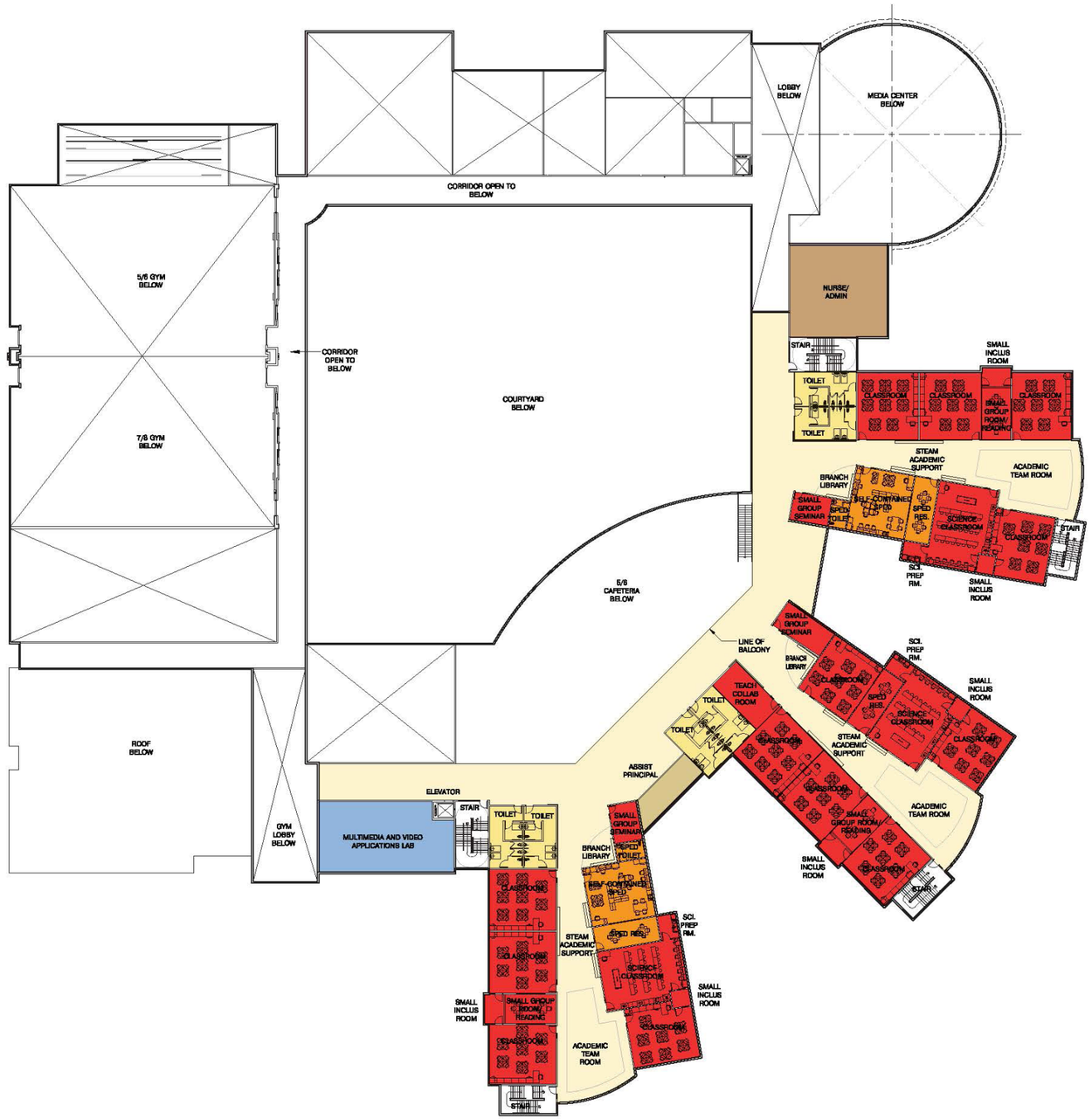


Option 1A
Conceptual Building Plans: Floor 4

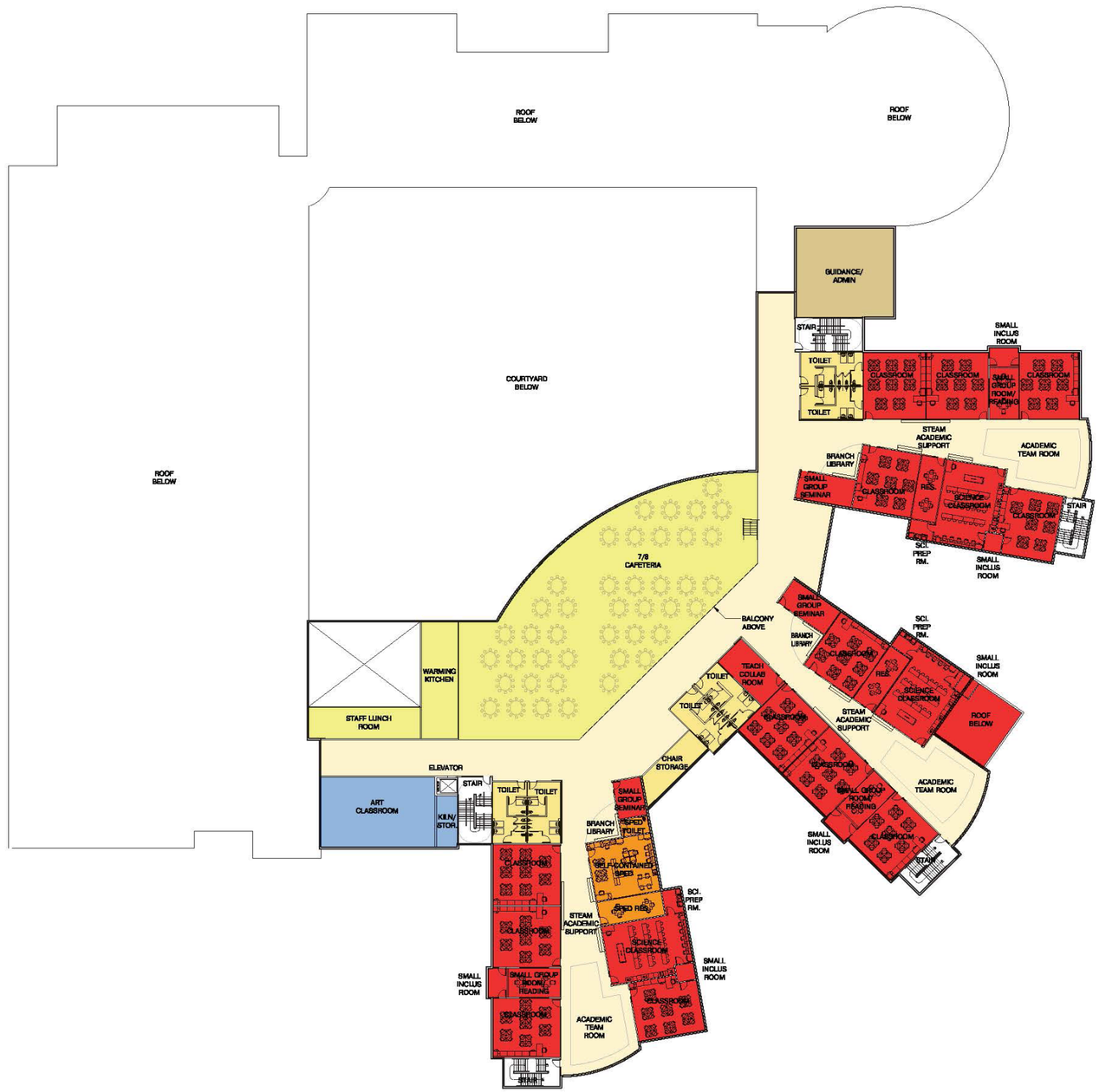
Option 1B
Conceptual Site Plan

Option 1B
Conceptual Building Plans: Floor 1

Option 1B
Conceptual Building Plans: Floor 2



Option 1B
Conceptual Building Plans: Floor 3

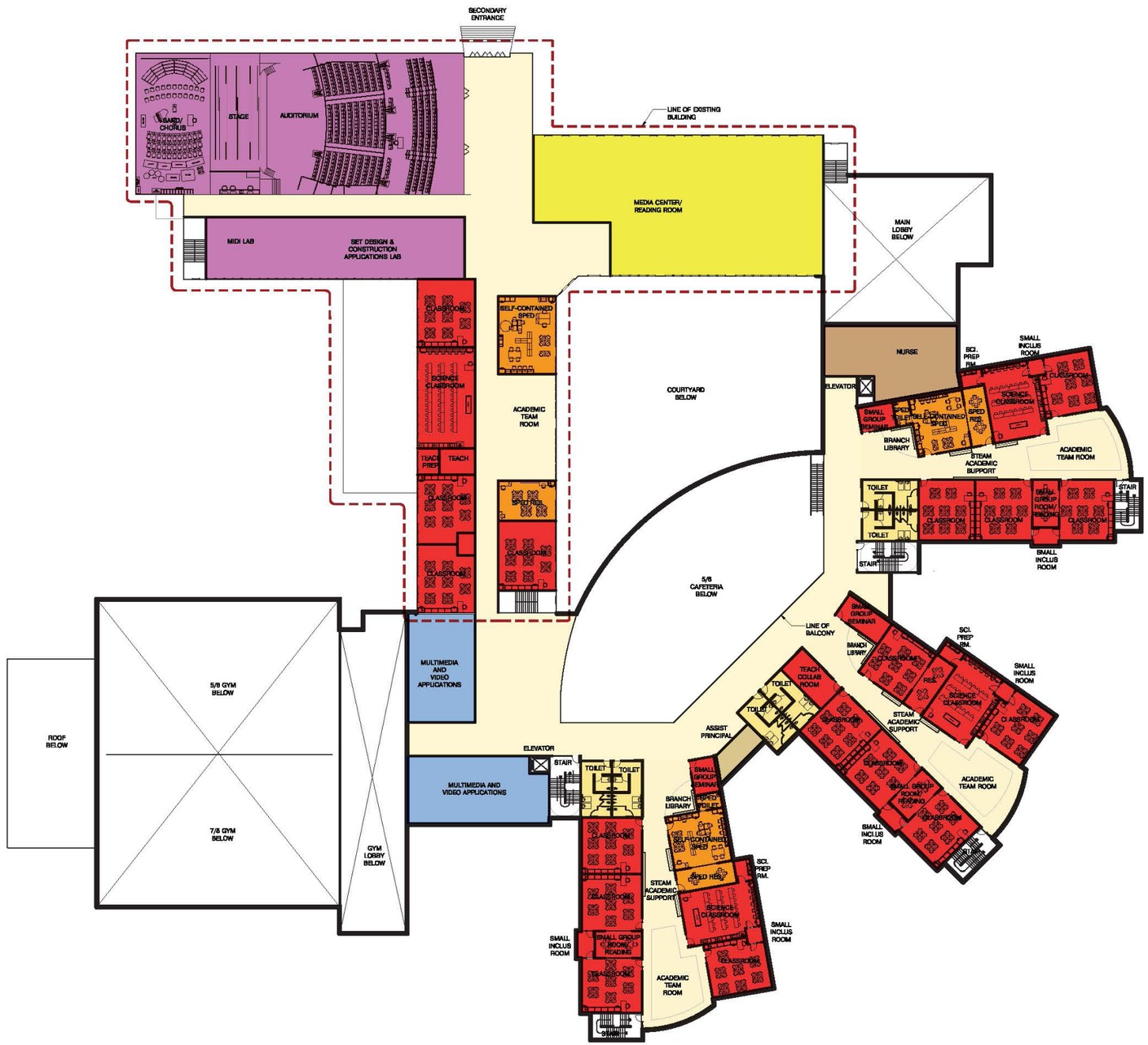


Option 1B
Conceptual Building Plans: Floor 4

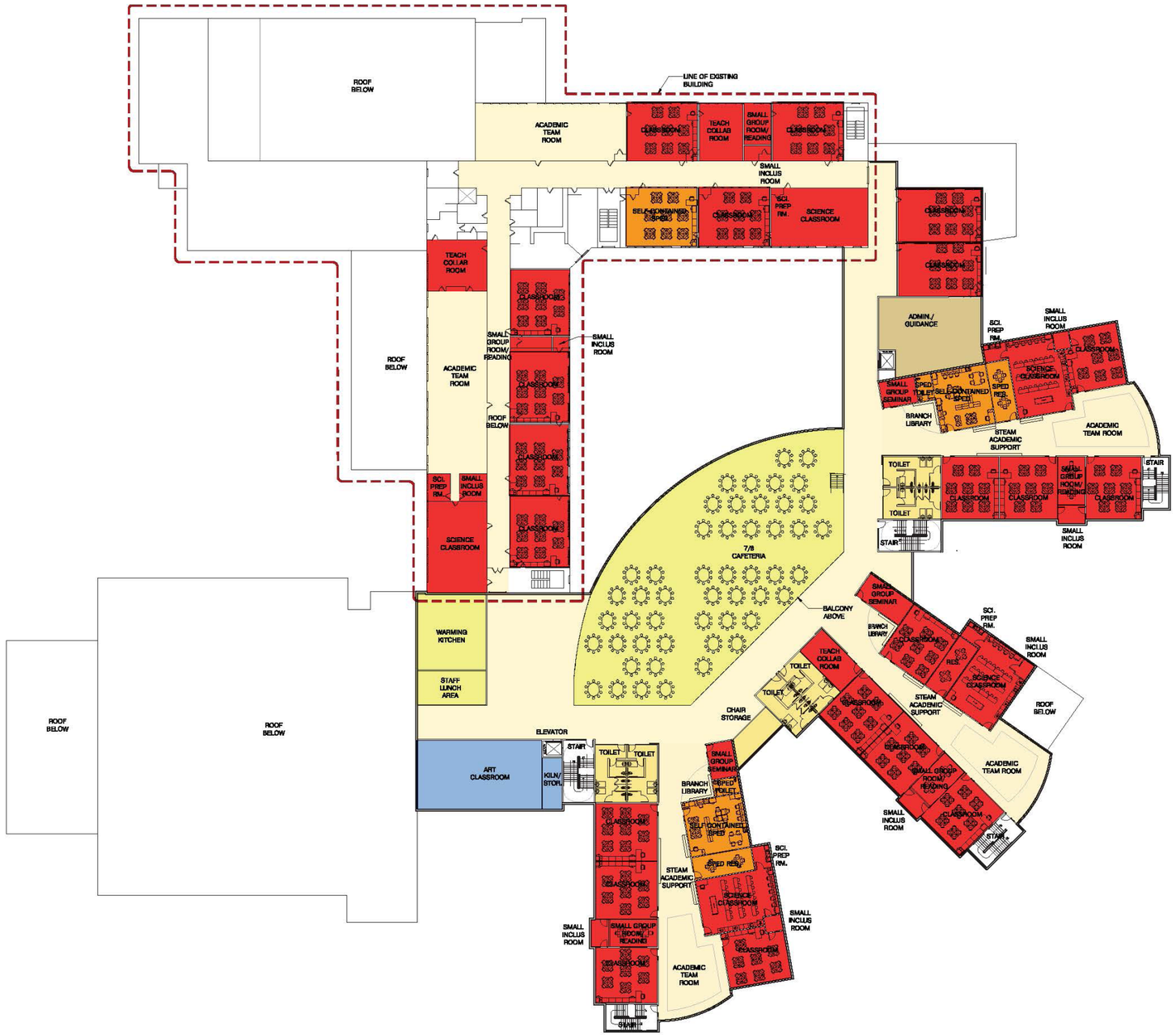
Option 2A
Conceptual Site Plan

Option 2A
Conceptual Building Plans: Floor 1

Option 2A
Conceptual Building Plans: Floor 2

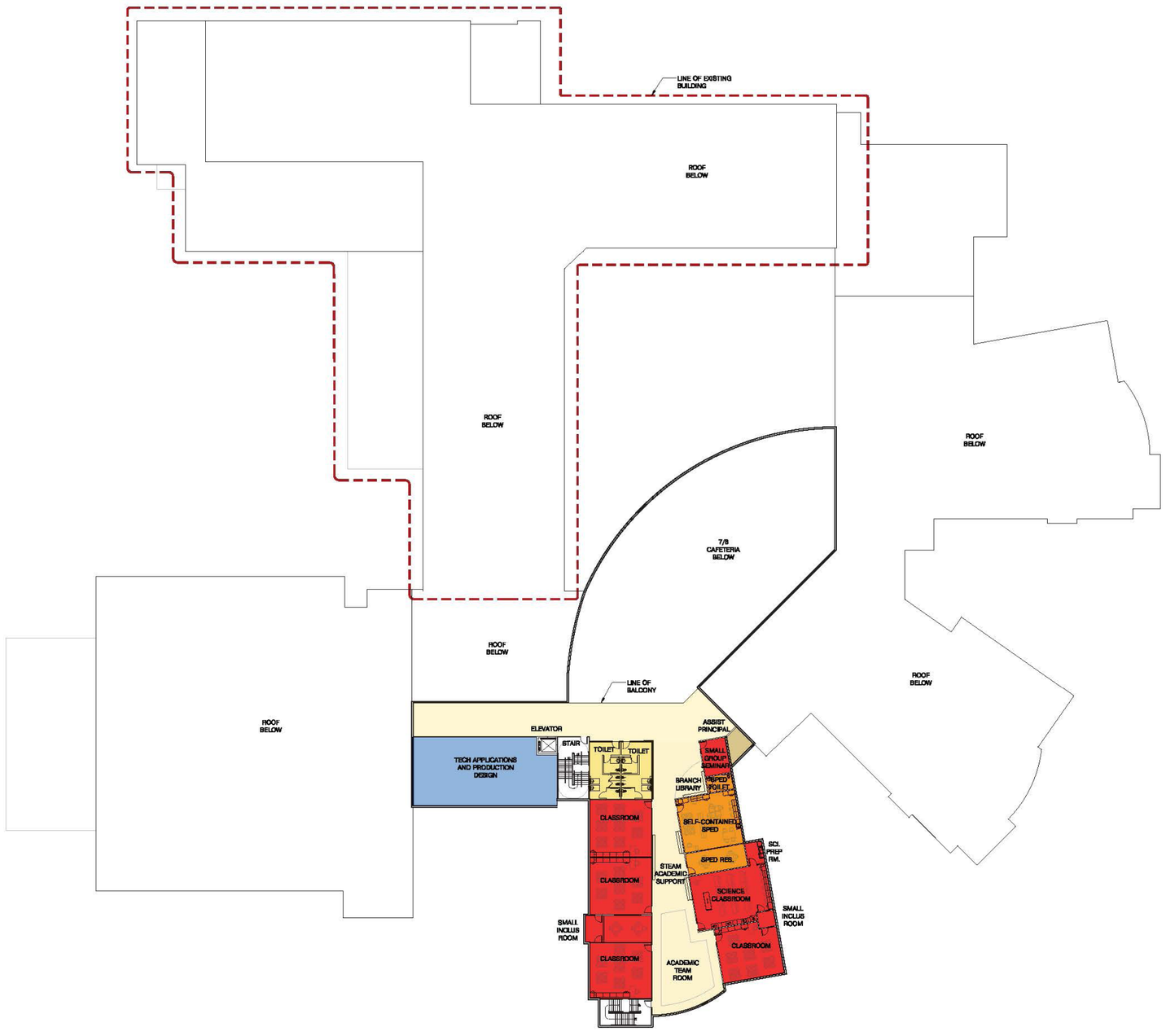


Option 2A
Conceptual Building Plans: Floor 3



Option 2A

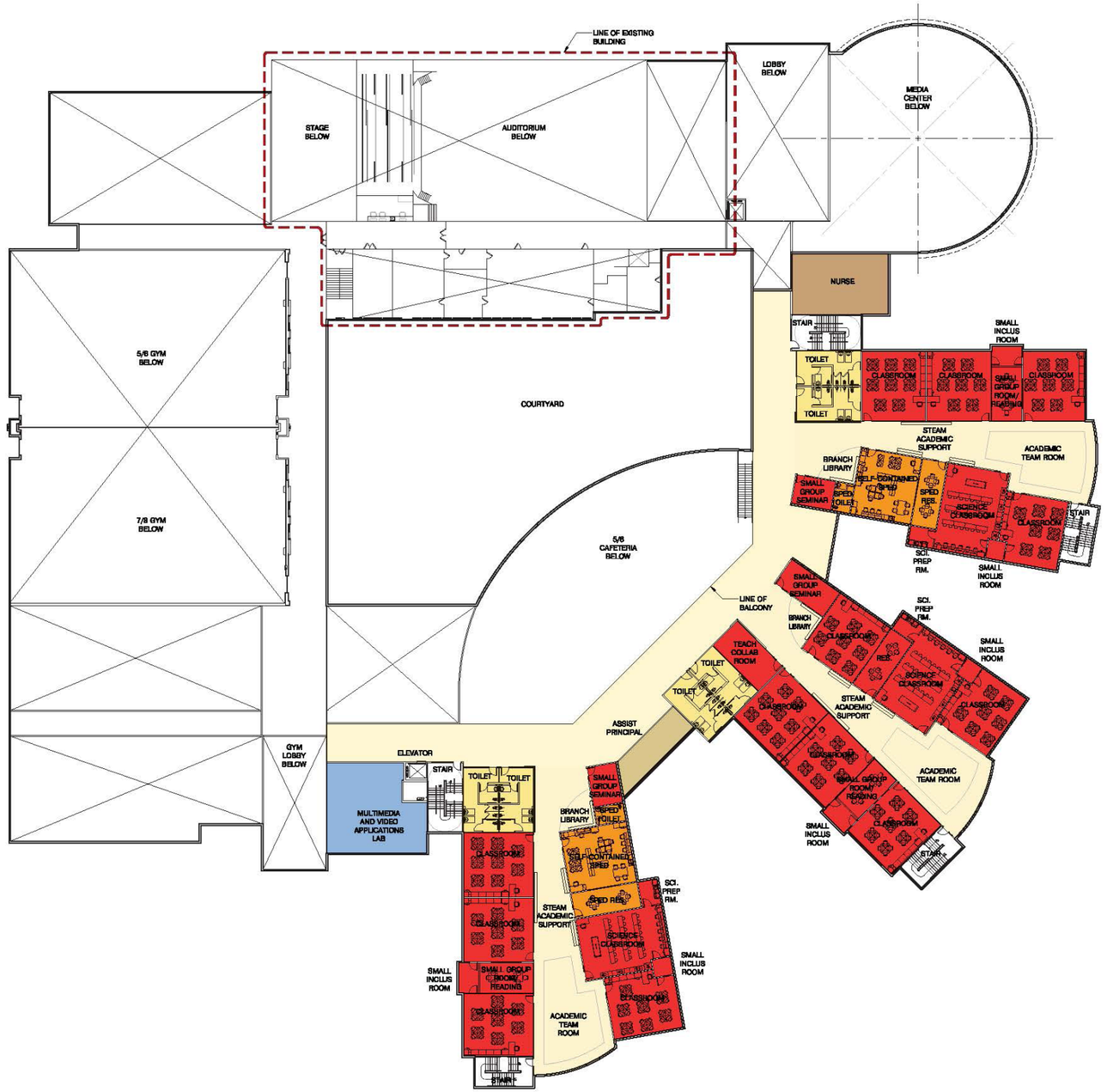
Conceptual Building Plans: Floor 4



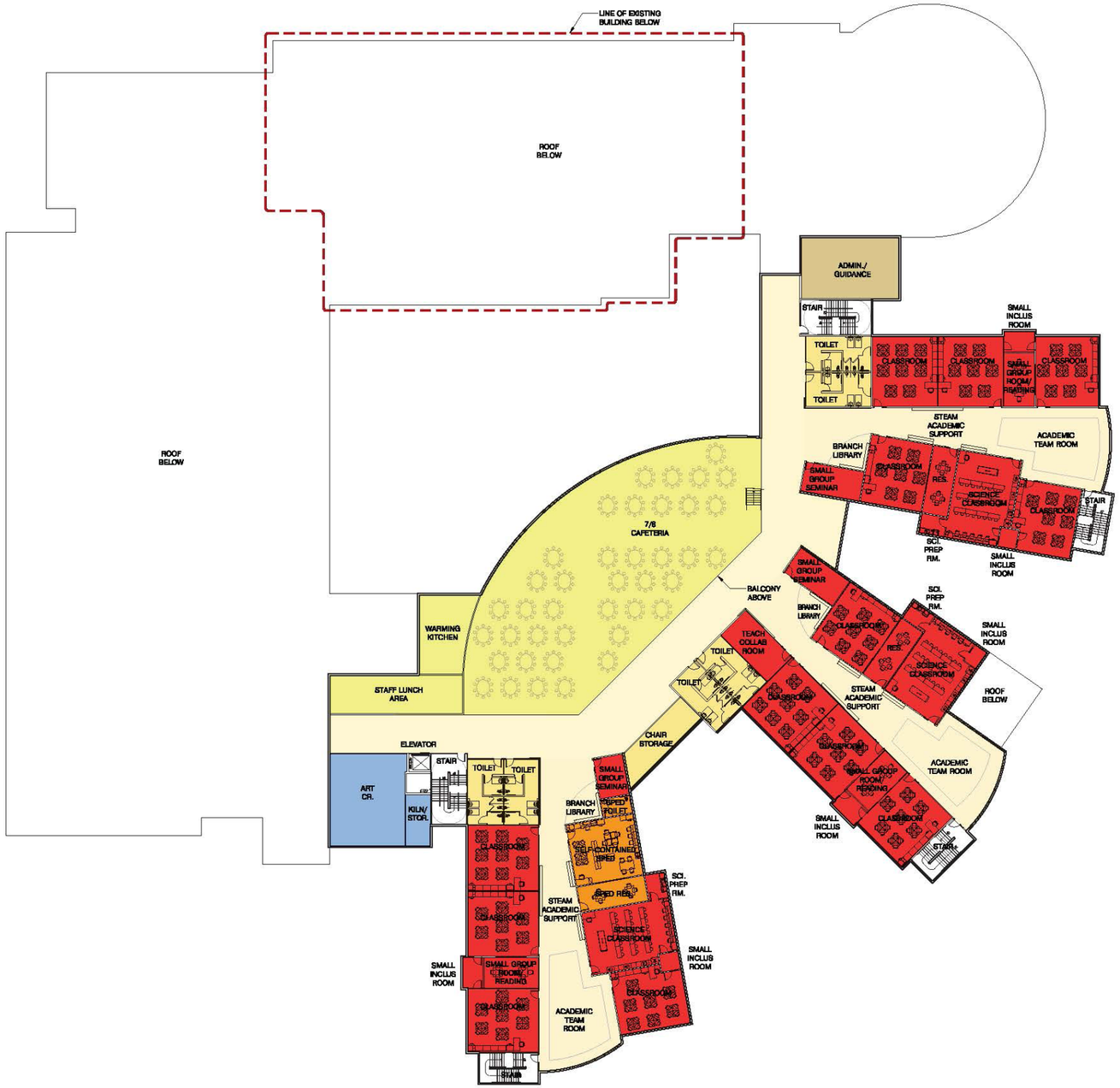
Option 2B
Conceptual Site Plan

Option 2B
Conceptual Building Plans: Floor 1

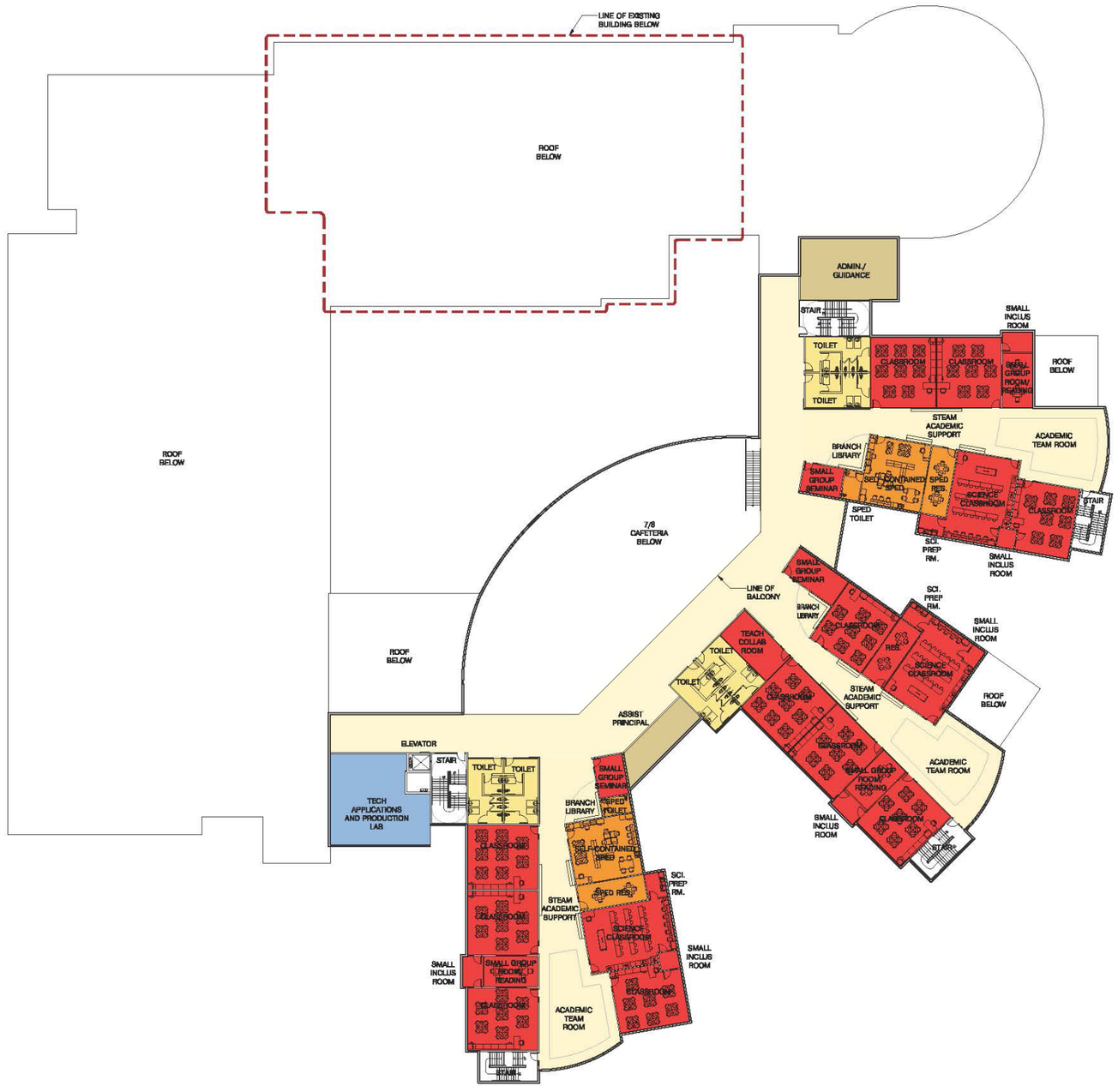
Option 2B
Conceptual Building Plans: Floor 2



Option 2B
Conceptual Building Plans: Floor 3



Option 2B
Conceptual Building Plans: Floor 4



Final Evaluation of Alternatives

Site Utilities

502 Cabot Street

The existing conditions utility information was collected through site visits in October of 2014, communications with Roland Adams (Beverly GIS Manager), Gregory St. Louis (City Engineer) and Mike Collins (Commissioner of Public Services and Engineering) as well as data available through MassGIS, Beverly GIS online maps and National Grid Gas and Electric. Future development options would require that the existing utilities be located and included in design plans.

SEWER

Sanitary waste from the existing building is conveyed via gravity sewer line to a cross country sewer main. The line that services the building is a 10-inch VC line that exits the east side of the building and then connects to a 21" PVC sewer line which discharges to a 24" RC sewer main in Balch Street. This is shown on plans entitled "Brimbal Avenue Interceptor Cross Country Balch Street to Cabot Street" dated November 1982 as prepared by Camp Dresser & McKee Inc. The 21" PVC sewer line flows via gravity from Cabot Street, along the east side of the site, towards Balch Street. Plans we obtained do not indicate the presence of an existing exterior grease trap.

During design, the capacity of the existing sewer line will need to be evaluated to determine if it can handle the increased use or the need to provide a connection to the 24" RC sewer main in Balch Street. Future development would require the replacement and/or removal of the VC sewer service, the installation of an appropriately sized PVC sewer service and the installation of an exterior grease trap to service cafeteria functions. The 21" PVC sewer line will be required to be maintained in future development conditions which will need to be considered during the design process.

WATER

Water mains are located in Cabot and Balch Street. They are 12-inch cast iron and 8-inch cast iron respectively. Fire hydrants are located on Cabot and Balch Streets as well as one onsite. The onsite hydrant is located on the east side of the property at approximately the mid-point of the soccer field. The water main for this hydrant is serviced via the Balch Street water main. Record City GIS information indicates there is a 4-inch water service to the building which is off of Cabot Street. We understand that an existing irrigation system is located in the athletic fields. However, information as to the pipe sizes and locations is unknown. We would recommend that record plans of the existing irrigation system and its components be provided if future development plans include the use of this system.

During design, a hydrant flow test will be required to determine available flow for fire suppression system design. Additionally, the need to relocate the existing service may need

to be evaluated as well as the installation of an additional service for fire suppression. If future developments plans include that the building is to be demolished and relocated, the new service could be evaluated to see if connecting and maintaining a portion of the existing line would be feasible. However, it is likely that it would require replacement.

DRAINAGE

Record drainage plans were not available at the City to review. However, Beverly GIS information indicates drainage lines, direction of flow within the lines and some pipe sizes. The existing onsite drainage system appears to consist mainly of conveyance via a closed drainage system. Additionally, the onsite closed drainage system acts as a conveyance system for stormwater being captured from portions of Cabot Street as well as the neighborhood to the west which consists of portions of Courtney Drive, Fitzgerald Way and some commercial properties.

The Cabot Street drainage system enters the site north of the building via an 18-inch VC pipe and continues through the site going beneath the parking lot, the building and the athletic fields. The westerly neighborhood's drainage system enters from the west side of the site via a 24-inch RCP and continues beneath the wetlands and the athletic fields. There is one point of discharge for the drainage system which is located in the south side of the property towards Balch Street via a 24-inch RCP. The stormwater ultimately discharges south to the Shoe Pond Basin through the Cummings Center property. The Cummings Center property is located to the south of the site across Balch Street.

Drainage is collected from impervious and pervious surfaces via catch basins and conveyed via a closed drainage system to the discharge point. It appears that the stormwater system is receiving little treatment in regards to TSS removal. During design, it should be evaluated if the current drainage pattern should be maintained or rerouted. This would also include the review of an existing conditions plan that will be provided by a surveyor in a later phase of this project. Portions of the existing on-site drainage system will likely be re-used in future development conditions. However, an evaluation of those portions may become necessary to confirm the integrity of them.

The portions of the existing drainage system that conveys stormwater from Cabot Street and the neighborhood to the west, as described above, will be required to be maintained in future development conditions. This will need to be considered during the design process.

The future development drainage design will need to be re-designed to meet the Massachusetts Department of Environmental Protection stormwater standards, the City of Beverly Stormwater and Construction Site Management Ordinance and will require quantity and quality mitigation measures.

GAS

National Grid is the supplier of natural gas to the City of Beverly. There is a gas meter and valve at the west side of the existing building near the loading area. Future development options would require that the existing system be located and analyzed for capacity. Coordination should occur with National Grid regarding any service improvements.

ELECTRIC

National Grid is the supplier of electricity to the City of Beverly. Electricity appears to be supplied below ground for the existing building based on discussions with the City. The service enters the building from the front (north side) and appears to be a three phase service. Future development options would require that the existing system be located, confirm if it is three phase and analyzed for capacity. Coordination should occur with National Grid regarding any service improvements.

Option 1
Building Systems Narratives: Structural

SUBSTRUCTURE

FOUNDATIONS

Based on the recommendations of the Geotechnical Engineer, the entire structure of the school will be supported on pile foundations. The columns of the proposed structure would bear on 4 ft. 0 in. deep reinforced concrete pile caps on structural steel piles, bearing on a sand layer, with pile lengths varying between 58 and 68 ft., averaging about 60 ft. in length (to be verified by the Geotechnical Engineer). The exterior walls will be supported on 5 ft. 0 in. deep grade beams spanning between pile caps with intermediate piles at 10 ft. 0 in. on center. Based on the recommended pile capacity of 50 tons, a typical interior column in the four story classroom wings would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on a four pile group and a typical exterior column would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on a three pile group. The columns supporting the long span structure of the single story gymnasium, cafeteria, music spaces and other ancillary spaces would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on three pile groups. In addition, the ground floor slab would be supported on single piles with a 2 ft. 0 in. x 2 ft. 0 in. x 2 ft. 0 in. deep pile caps spaced out approximately 15 ft. 0 in. (including interior and exterior pile caps supporting the columns.) All of the interior and exterior pile caps will be tied to the supported concrete slab.

During the schematic Design Phase, the design team, in conjunction with the Geotechnical Engineer, will be reviewing alternative variations/options to satisfy the recommendations provided by the Geotechnical Engineer for this phase and implement the most cost effective solution for the project.

SLAB ON GRADE

Based on the recommendations of the Geotechnical Engineer, the lowest level slab of the proposed structure would be a 12 in. thick reinforced concrete slab reinforced with 6 psf reinforcing over a vapor barrier on 2 in. thick rigid insulation on compacted granular structural fill supported on piles.

SUPERSTRUCTURE

FLOOR CONSTRUCTION

Typical Floor Construction

A 5 1/4" light weight concrete composite metal deck slab reinforced with welded wire fabric on wide flange steel beams spanning between steel girders and columns. The weight of the structural steel is estimated to be 13 psf for the typical framing.

ROOF CONSTRUCTION

Typical Roof Construction

The roof construction would be galvanized, corrugated 1 ½" deep, Type 'B' metal roof deck spanning between wide flanged steel beams and girders. At locations of roof supported mechanical equipment, a concrete slab will be provided similar to the typical supported floor slab. The weight of the structural steel is estimated to be 12 psf.

Low Roof Structure above the Kitchen, Mechanical Room and the Utility Areas

The roof would be a continuation of the adjacent second floor and would be similar to the typical floor construction of 5 1/4" light weight concrete composite metal deck slab reinforced with welded wire fabric on wide flange steel beams spanning between steel girders and columns. This roof will be supporting the mechanical units. The units would be screened by a screen comprised of structural steel posts and beams. The weight of the structural steel is estimated to be 15 psf.

Gymnasium Roof Framing

The roof construction would be acoustic, galvanized, corrugated 3" deep, Type 'NA' metal roof deck spanning between wide flange steel beams supported on structural steel trusses. The weight of the steel trusses and structural steel framing is estimated to be 12 psf.

Auditorium Roof Framing

The roof construction would be galvanized, corrugated 3" deep, Type 'N' metal roof deck spanning between wide flange steel beams supported on structural steel trusses. The weight of the steel trusses and structural steel framing is estimated to be 12 psf. The weight of the structural steel framing supporting the roof and the rigging above the stage is estimated to be 15 psf.

Locker Rooms and Music Rooms Roof Structures

The roof construction would be similar to the typical roof construction and would be galvanized, corrugated 1 ½" deep, Type 'B' metal roof deck spanning between wide flanged steel beams and girders. At locations of roof supported mechanical equipment, a concrete slab will be provided similar to the typical supported floor slab. The weight of the structural steel is estimated to be 12 psf.

VERTICAL FRAMING ELEMENTS

Columns

Columns would be hollow structural steel columns. Typical columns would be HSS 8 x 8 columns and the columns at the double story spaces at the Gymnasium, Auditorium and Lobby would be HSS 12 x 12.

Lateral Load-Resisting System

The proposed school structure would be divided into four parts separated by way of expansion joints. One part would comprise the two Gymnasiums, the Locker rooms and the Mechanical/ Utility spaces; the second part of the structure is the portion that houses two of the three Academic wings and the Cafeteria; the third part would house one of the Academic wings and the Administration spaces; and the fourth part would comprise the Auditorium, Chorus and Band Rooms and the Library/Media Center.

The lateral load resisting system for the two structures housing the Gymnasium and the Auditorium spaces, would be comprised of reinforced masonry shear walls.

The typical lateral load resisting system for the other parts of the school would be concentric steel braced frames comprised of hollow structural steel sections.

Option 1

Building Systems Narratives: Fire Protection

GENERAL

The Fire Protection systems shall be provided in accordance with NFPA #13, NFPA #14, the BOCA Fire Prevention Code and the latest Massachusetts State Building Code.

The fire protection system shall be a wet-pipe, combined sprinkler/standpipe system to which will protect all areas of the building. Each level of the building will be protected as a separate zone of fire protection.

The fire protection system shall commence from a new separate, designated fire water service. Where this service enters the building, a double check backflow preventer shall be provided. A wet-pipe alarm riser shall be provided immediately after the backflow preventer.

A standpipe system will be provided which will interconnect the sprinkler systems and have fire department connections, at the front and rear of the building.

The stairwells will have standpipes complete with fire hose valves with cabinets. Each floor of the building will be a separate sprinkler zone, being fed from a floor control valve connecting to the standpipe riser.

All sprinkler and standpipe piping 2-1/2" and larger in size shall be Schedule 10 steel pipe with rolled joints with victaulic fittings. All piping 2" and smaller shall be Schedule 40 steel pipe with 175 lb. screwed fittings.

All finished areas of the building, with hung ceilings, shall be protected by concealed piping with quick response, semi-recessed pendant sprinkler heads.

All unfinished areas of the building shall be protected with exposed piping having brass, upright sprinkler heads.

Sprinkler heads shall be omitted from the main electric room and emergency electric room, provided a two (2) hour fire rating is constructed.

Option 1
Building Systems Narratives: Plumbing

GENERAL

The Plumbing Systems of the building shall be provided in accordance with Mass 248 CMR, the Massachusetts Fuel Gas and Plumbing Code and the latest Massachusetts State Building Code.

DOMESTIC WATER

Domestic water will be supplied to the building by a cement-lined, ductile iron water service fed from the municipal system. A backflow preventer and expansion tanks shall be provided immediately after the service enters the building.

Domestic water shall extend out to the building in a series of mains, risers and branches to all fixtures and equipment requiring same. Two (2) gas fired, high efficiency condensing-type, domestic hot water heaters, (one (1) for the classroom area and one (1) for the locker/shower area), will be provided. Both domestic hot water systems shall have recirculation piping with circulator pumps to return hot water from the most remote points of the hot water systems. The building will be provided with two (2) hot water piping systems; a 140º system to service the kitchen and 120º to serve the remainder of the building. Tempering valves will be provided to reduce the water temperature at all public lavatories to 110ºF.

Cold, hot and hot water recirculation piping will run parallel to each other. All domestic water piping shall be of Type "L" copper with wrought copper fittings having press-fit connections. All water piping will be insulated with 1" thick, heavy density, fiberglass insulation having an all purpose jacket. All valves and fittings shall be insulated with pre-molded pipe enclosures packed with fiberglass insulation. Domestic water piping will be supported on trapeze type hangers where three (3) or more lines run together. Pipe will be supported individually on clevis type hangers. Twelve (12) inch long pipe saddles shall be provided between all supports and the insulated pipe.

All water closets and urinals will be supplied with recycled storm water from a separate designated system. This system shall commence from an exterior 20,000 gallon storage tank with two (2) pumps (one primary and one stand-by). The tank shall recieve rain water from the school's roof and will discharge its overflow to the on-site storm water system. This system's pumps will discharge through a piping system that will enter into the mechanical room, where a back-up connection from the municipal water system, will be provided. The back-up system will have reduced pressure backflow preventers with a solenoid valve, wired to a low-level sensor in the 20,000 gallon tank, so that when there is insufficient water in the tank the system will automatically operate on municipal water. The piping beyond the back-up connection will the same as outlined herein for cold water and will run parallel to that system in the building.

Wall hydrants shall be provided around the perimeter of the building at approximately 100-foot intervals.

Reduced pressure zone backflow preventers will be provided on the make-up water supply to the mechanical system on the hot and cold water supplies to the Science Areas and on the feeds to various equipment in the Kitchen.

SANITARY, WASTE, AND VENT

All sanitary system fixtures and equipment on all levels of the building shall flow by gravity from the building to the municipal system. The waste from the kitchen areas shall also flow by gravity, but shall run to a separate, exterior grease interceptor, before combining with the sanitary waste.

All interior DW&V piping above grade shall be service weight, cast iron pipe with "no hub" fittings except for pipe 2" and smaller which may be Type "M" copper tubing with sweat joints.

Sanitary, waste and vent piping below grade and exterior to the building shall be service weight cast iron with hub joints having neoprene gaskets.

STORM SYSTEM

Drains shall be provided on all roof areas and they will be piped down through the building to below the slab, where they will be connected and distributed to either the recycled water tank or the storm water disposal system. All storm piping above slab shall be no-hub cast iron pipe, insulated with 1" thick, heavy density, fiberglass insulation. Storm pipe below the slab shall be hub type, service weight cast iron pipe with resilient rubber gaskets.

NATURAL GAS

Natural gas will be supplied to the school by a new gas service. The service will be sized to accommodate the needs of the heating, domestic water and cooking requirements of this building.

All gas piping within the building will be Schedule 40 steel pipe. Pipe 3-1/2" and larger will be welded; 3" pipe and smaller shall have screwed fittings.

ACID NEUTRALIZATION SYSTEM

A complete ph adjustment system shall be provided to insure that the waste discharge, from the Science Classrooms has a neutral ph. System shall consist of acid resistant collection piping, ph mixing tank, chemical tanks with metering pumps and chart recorder.

FIXTURES

All water closets, urinals and lavatories shall be of vitreous china and shall be white in color. All fixtures shall meet LEED Standards for water usage.

Water closets shall be wall-mounted units with elongated bowls and 1.28 gallon or less, sensor-operated flush valves. Urinals shall be wall-mounted units with 0.125 gallon or less,

sensor-operated flush valves. Showers shall have 1.5 GPM shower heads.

Lavatories shall have sensor type, metering faucets with individual hot and cold controls. The supplies and wastes of all handicapped lavatories shall be insulated with pre-formed insulation components.

All classroom sinks will be stainless steel, drop-in units with single lever, ADA approved faucets.

PLUMBING LIFE-CYCLE COST ESTIMATE

Pursuant to the requirements of MGL Chapter 149, Section 44M, the following schematic level life-cycle cost estimates have been prepared, which will define the cost associated with the installation and energy consumption related to the Plumbing systems in this particular school project. It should be noted that the following estimates are based on schematic level plans and system sizes and will most likely change as the project design develops more completely.

The construction costs were calculated using the latest edition of the RS Means Mechanical Cost Data book combined with the latest sub-bid results from similar projects. Energy costs were calculated with the aid of the latest version of the Hourly Analysis Program published by the Carrier Corporation, which utilized typical natural gas and electric rates published by the Energy Information Administration. Maintenance costs were also obtained from RS Means.

Summary of Costs for the Domestic Hot Water Systems:

- Plumbing Construction Cost: $111,823.00
- Plumbing Systems Annual Electric Energy Cost: $2,132.00
- Plumbing Systems Annual Gas Energy Cost: $7,668.00
- Plumbing Systems Annual Maintenance Cost: $1,270.00

Option 1
Building Systems Narratives: Mechanical

DESIGN CRITERIA

Interior environmental conditions will be based on Massachusetts Code 780 CMR 12 and ASHRAE Standard 55-2010 Thermal Environmental Conditions for Human Occupancy.

Ventilation of spaces will be designed to meet or exceed the requirements of the latest edition of the Massachusetts State Building Code, the ICC International Mechanical Code and ASHRAE Standard 62-2007, Ventilation for Acceptable Indoor Air Quality.

The HVAC systems will be designed to meet the acoustical requirements of ANSI S12.60-2002. The American National Standards Institute developed this standard specification and design guideline to help eliminate acoustical problems in the design stage of a project. Essentially, the steady background noise level in core learning areas should not exceed an NC of 35.

HEATING SYSTEM

High efficiency, gas fired, condensing boilers will produce hot water to meet the heating needs of the school. Preliminary load calculations indicate that the school may need three (3) boilers each having a capacity of approximately 3,500 MBH. Each boiler will be sized to handle 1/3 of the peak heating load to provide back-up redundancy should a boiler failure occur. The boilers will be manufactured by Buderus or approved equal and will have a minimum efficiency of 95%. Exact size of boilers will be determined during the design phase of the project.

Due to the fact that the specified boilers do not have a minimum flow requirement, the boiler system will be piped in a primary configuration with the hot water reset schedule being maintained by the boilers.

Hot water will be circulated throughout the facility by individual hot water circulating pumps. The pumps will be designed to operate in a lead/lag configuration such that the lag pump shall automatically start should the lead pump fail. The lead/lag assignment shall be reversible through the automatic temperature control system. Preliminary calculations indicate that each pump should be sized to provide a maximum of 700 GPM at 75 feet of head. The speed of the pumps will be controlled by variable frequency drives (VFD). Exact size of pumps will be determined during the design phase of the project.

CHILLED WATER SYSTEM

As part of the base design the following spaces will be provided with air conditioning:

- Student Dining.
- Administration area including Principal's Office, Assistant Principal's Office, School Psychologist's Office, Counselor's Office, Adjustment Counselor's Office, Pre-school Coordinator's Office, Nurse's Office and conference rooms.
- Teacher's planning/work rooms.
- Multipurpose rooms.

- Sped PT/OT spaces.
- Media Center/Media center.
- Classrooms.
- Music/performing arts areas.
- Computer classrooms.

Locker Rooms, kitchen, gymnasium, electric rooms, and shop areas will not be air-conditioned unless specifically directed by school department representatives.

Preliminary calculations indicate that one (1) 350-ton high efficiency air-cooled chiller will be required to produce chilled water to meet the cooling needs of the school on a design day. The chiller will be furnished with a variable frequency drive for increased energy efficiency. The chiller will either be installed on grade or roof mounted. Exact chiller size to be determined. Specified chiller shall be compliant with ASHRAE 90.1.

The chilled water system will be piped in a variable primary configuration. This will permit the use of two-way control valves and variable frequency drives.

Chilled water will be circulated throughout the facility by dedicated chilled water pumps. The chilled water pumps will be designed to operate in a lead/lag configuration such that the lag pump shall automatically start should the lead pump fail. The lead/lag pump assignment shall be reversible through the automatic temperature control system. Preliminary calculations indicate that each pump should be sized to provide a maximum of 800 GPM at 75 feet of head. The speed of the pumps will be controlled by VFD's. Exact size of pumps will be determined.

CLASSROOMS

Energy recovery rooftop units will supply the classrooms with tempered air via a system of ductwork and ceiling mounted induction units. Energy recovery rooftop units are an effective way of reducing the overall energy consumption of a building. Energy recovery rooftop units will be furnished with the following components:

- Double-wall insulated casings.
- Supply and exhaust fans.
- MERV 13 air filters for superior indoor air quality.
- Energy recovery wheel.
- Hot water heating coil.
- Chilled water cooling coil to dehumidify and cool the supply air.
- Variable frequency drives.

Each classroom will be furnished with induction units. The induction units will utilize dry primary air provided by the energy recovery units, the code required ventilation air needed, at an inlet static pressure of 0.6" and distributes this air through a bank of specially designed

aerodynamic nozzles that discharges the air at high velocity into a mixing chamber that creates a lower pressure. This lower pressure draws room air over a coil that imparts either sensible cooling or heating as it passes over the coil. This induces room air, then mixes with the primary air and is discharged through a grille. This air circulates throughout the room and is gently drawn back up to the return grille of the induction unit. This air circulation produces even and consistent temperatures throughout the room.

A portion of the room air is exhausted to the outside as a relief for the primary air entering through the induction unit. The energy of the exhaust air leaving the classrooms is recovered at the energy recovery rooftop units.

The room thermostat controls water flow through the coil via the automatic temperature control system to maintain individual space temperature control.

ADMINISTRATION, MEDIA CENTER, MULTIPURPOSE ROOMS, MUSIC ROOM, COMPUTER CLASSROOMS, AND TEACHERS WORKROOMS

Energy recovery rooftop units will supply these spaces with tempered air via a system of ductwork and ceiling mounted induction units. The energy recovery units used in these spaces will be very similar to those used for the classrooms.

Each space will be furnished with at least one (1) induction unit. The exact number of induction units per space will be determined during the design phase. The induction units will take this source of dry primary air, the code required ventilation air needed, at an inlet static pressure of 0.6" and distributes this air through a bank of specially designed aerodynamic nozzles that discharges the air at high velocity into a mixing chamber that creates a lower pressure. This lower pressure draws room air over a coil that imparts either sensible cooling or heating as it passes over the coil. This induces room air, then mixes with the primary air and is discharged through a grille. This air circulates throughout the room and is gently drawn back up to the return grille of the induction unit. This air circulation produces even and consistent temperatures throughout the room.

A portion of the room air is exhausted to the outside as a relief for the primary air entering through the induction unit. The total energy (both latent and sensible) of the exhaust air leaving the spaces is recovered at the energy recovery rooftop units.

The room thermostat controls water flow through the coil via the automatic temperature control system to maintain individual space temperature control.

GYMNASIUM

The gymnasium will be furnished with a heating and ventilating rooftop unit. Air will be distributed throughout the space via ductwork and supply diffusers.

The heating and ventilating units will be fitted with a hot water coil only.

The rooftop units will utilize the demand controlled ventilation sequence of operation. This

strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

STUDENT DINING

A dedicated rooftop air-handling unit will handle the Student Dining.

This unit will provide both heating and cooling. The rooftop unit will utilize the demand controlled ventilation sequence of operation. This strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

KITCHEN

The kitchen areas will be handled by a roof mounted, gas fired make-up air handling unit specifically designed to provide tempered air to the kitchen in order to offset the amount of air being exhausted through the kitchen hood.

The kitchen hood exhaust system shall be provided with a Mellink kitchen hood exhaust control system, which is designed to vary the speed of the kitchen hood exhaust fan in response to the intensity of the cooking operations taking place. Essentially, the fan will operate at higher speeds when higher heat and smoke producing cooking is taking place. The Mellink system will also modulate the outside air damper and fan speed of the make-up air unit.

AUDITORIUM

The HVAC needs of the auditorium will be accommodated by a dedicated rooftop air handling unit. The rooftop unit will be furnished with a hot water heating coil and chilled water cooling coil.

This unit will provide both heating and cooling. The rooftop unit will utilize the demand controlled ventilation sequence of operation. This strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

CONTROLS

Griffith & Vary, Inc. recommends this facility be furnished with a Building Management System. This system will feature full Digital Direct Controls (DDC). This system will be capable of controlling the following:

- Space temperature set point.
- Start and stop of all energy recovery rooftop units and air-handling units.
- Start and stop of chillers.
- Enable/Disable boilers.
- Start and stop of chilled water pumps.
- Start and stop of hot water pumps.
- Schedule occupied/unoccupied times for various spaces.
- Monitoring of supply and return temperatures for hot water and chilled water.
- Optimization of plant efficiency.
- Monitoring of mechanical equipment (fans, pumps, boilers, chiller, etc.) and indication of any alarms, which may result from equipment failures.

To save energy required to heat or cool outdoor air, carbon dioxide sensors will be employed in the gymnasium, auditorium, and Student Dining to allow a reduction of outdoor air during periods of low occupancy and motion sensors will also be utilized to allow closure of outdoor air dampers when assembly areas are unoccupied. Classrooms will also have occupancy sensors to modulate dampers in the supply air duct branches as a means of saving energy during periods when the classrooms are unoccupied.

HVAC LIFE-CYCLE COST ESTIMATE

Pursuant to the requirements of MGL Chapter 149, Section 44M, the following schematic level life-cycle cost estimates have been prepared, which will define the cost associated with the installation and energy consumption related to the HVAC systems in this particular school project. It should be noted that the following estimates are based on schematic level plans and system sizes and will most likely change as the project design develops more completely.

The construction costs were calculated using the latest edition of the RS Means Mechanical Cost Data book combined with the latest sub-bid results from similar projects. Energy costs were calculated with the aid of the latest version of the Hourly Analysis Program published by the Carrier Corporation, which utilized typical natural gas and electric rates published by the Energy Information Administration. Maintenance costs were also obtained from RS Means.

Summary of Costs:

- HVAC Construction Cost: $6,807,900.00
- HVAC Systems Annual Electric Energy Cost: $160,700.00
- HVAC Systems Annual Gas Energy Cost: $21,800.00
- HVAC Systems Annual Maintenance Cost: $6,500.00

Option 1
Building Systems Narratives: Electrical

ELECTRIC SERVICE

The building electric service will be served via a pad mounted transformer located on site and installed by the electric utility company. Primary service conduits in concrete duct bank will be provided from the electric utility pole to the transformer via electric utility co. standard manholes. Secondary service feeders and conduits in concrete duct bank will be provided from the transformer to the switchboard. The electric utility co. meter will be mounted on the transformer.

TELEPHONE SERVICE

Telephone service conduits will be provided from a utility pole to the building demarcation point (MDF Room).

FIRE ALARM SERVICE

The fire alarm system will call the Fire Department per Fire Department Standards.

CABLE TV SERVICE

Cable TV service conduits will be provided from a utility pole to the building demarcation point (MDF Room).

POWER DISTRIBUTION

The switchboard will be located in the main electric room. Preliminary load calculations indicate that the switchboard will be rated at 4000 amperes, 277/480 volt, three phase, four wire. The main will be provided with a surge protection device. A switchboard distribution section will feed 277/480 volt panelboards and major Mechanical and Plumbing equipment. Dry-type transformers will be provided to distribute 120/208 volt power for branch circuit panelboards and the Kitchen panelboards. One of the kitchen panelboards will be provided with a shunt trip main circuit breaker which will trip if fire suppression under hoods in initiated, shutting down all circuits under hoods. Panelboards with surge protection devices for computers will be provided, fed from computer grade K-rated transformers. Zero sequence harmonic filters connected to the computer panelboards will be provided to reduce neutral currents.

EMERGENCY POWER SYSTEM

A diesel fuel generator with a sound attenuated, weatherproof enclosure will be provided on the site. Preliminary load calculations indicate that the generator will be rated at 750kW, 277/480 volt, three phase, four wire. The generator will supply emergency power automatically upon loss of normal power to emergency egress, exterior building mounted, Administration, Student Dining, Mechanical Room, Electric rooms, Kitchen, Student Dining, ganged Toilet rooms, Custodian, Teacher Dining, Receiving, Locker rooms, Nurse's suite, and Gymnasium lighting, elevators, heating system equipment, fire alarm control panel, telephone system, MDF and IDF rooms, cooling for MDF and IDF rooms, and kitchen walk in cooler and freezer. Two

ATS's will be provided to separate emergency from optional standby loads. The emergency ATS and associated emergency panelboards will be located in two hour rated closets with two hour rated feeders. The optional standby ATS and associated panelboards will be located in normal electric rooms.

FIRE ALARM

An addressable manual and automatic fire alarm system will be provided. The fire alarm control panel will be located in the main electric room or an area as so directed by the Fire Department. A remote annunciator panel will be provided in the Vestibule at the Main Lobby and where required by the Fire Department. A map of the entire building will be framed and mounted adjacent to the annunciator. A keyed box will be provided outside the Fire Department entries. Manual pull stations will be located within five feet (5') of each egress door and at the entrance to each Stair. Additional pull stations will be provided as required by Code. Heat detectors will be provided at the top of the elevator shaft and any other areas not provided with protection by the fire suppression system. Smoke detectors will be provided in the Corridors, in Stairs at each floor level, in the Elevator Machine Room, and at all elevator landings for early detection of smoke for recall. All devices including tamper, flow, pressure switches, and PIV, associated with the fire suppression system will be connected to the fire alarm system. Audio/visual appliances will be provided in the Corridors, Classrooms and all large areas such as the Auditorium, Gymnasium, Student Dining, and Media Center. Visual devices will be provided in Toilet and Conference rooms. Mechanical equipment will be shut down by the fire alarm system as required by Code.

LIGHTING

Interior

In general, highly efficient fluorescent lighting fixtures and lamps will be provided throughout the building. Lighting levels will be in accordance with I.E.S. (Illuminating Engineering Society of North America) recommendations and the Massachusetts State Building Code energy requirements. Classrooms will be provided with direct/indirect, LED pendant mounted lighting fixtures. Office areas and Conference rooms will be provided with volumetric lighting fixtures. The Gymnasium will be provided with LED high bay lighting fixtures. Storage, Mechanical, and Electrical rooms will be provided with strip lighting fixtures. The Main Lobby, Media Center, and Student Dining will be provided with decorative lighting, probably luminous bowls, down lights, and wall sconces. The Kitchen and Locker rooms will be provided with gasketed wet location lighting fixtures. The Auditorium will be provided with LED surface cylinders, recessed down lights, step lighting, and wall sconces. The Stairs will be provided with wall sconces. Corridors will be provided with prismatic lens troffers. Down lights will be provided at various locations. The Stage will be provided with theatrical lighting fixtures and a dimming system. The dimming system will be connected to the fire alarm system bringing the house lights to full brightness upon initiation of fire alarm system. Edge lit LED exit signs will be provided at all egress doors and at additional locations as required to identify exit discharge routes. Vandal resistant exit signs will be provided in the Gymnasium.

Exterior

Wall and pole mounted site lighting fixtures will be LED type.

SWITCHING

Lighting fixtures in rooms less than 900 square feet, will be controlled primarily by room occupancy sensors and local low voltage override switches. Lighting fixtures nearest to the exterior walls with windows in Classrooms will be provided with dimming ballasts and will be controlled by daylight sensors. Larger areas not controlled by occupancy sensors and exterior lighting will be controlled through lighting relay panels and low voltage override switches. Digital timer switches will be provided in Storage and Custodial rooms.

DEVICES

General convenience receptacles will be located throughout the building as required. Receptacles provided in Toilet rooms, near sinks, the Kitchen, and outdoors will be provided with ground fault protection. Circuiting will be provided to Kitchen, Mechanical, and Plumbing equipment, and miscellaneous loads as required.

LIGHTNING PROTECTION

The building will be provided with a lightning protection system made up of air terminals on the roof with downlead conductors to ground.

BI-DIRECTIONAL AMPLIFIER SYSTEM

A bi-directional amplifier with coaxial cabling above accessible ceilings will be provided to amplify Fire Department and Police frequencies to ensure that there are no “dead” spots in the building for communication within building.

TECHNOLOGY SYSTEMS BACK BOX AND CONDUIT SYSTEM

A telephone/data/video/security/clock/speaker conduit system consisting of empty back boxes and conduit with pull strings to above accessible ceilings will be provided for technology. Cable tray will be provided above the Corridor ceilings and MDF and IDF rooms for low voltage wiring.

PV SYSTEM CONDUIT SYSTEM

An empty conduit system with pull strings will be provided for the PV system consisting of photovoltaic panels and an inverter. Conduits will be provided from the switchboard to an exterior mounted disconnect switch for shutting down the PV system if need be. Conduits will also be provided from the exterior disconnect switch to the inverter and from the inverter to the banks of photovoltaic panels.

Option 1
Building Systems Narratives: Technology

The technology labs will be capable of accommodating an entire class of students (28). Network access in the technology labs will be hard wired. Wireless access points will be installed. Labs will contain the same equipment as a classroom. Science labs shall have 14 wired data outlets, and wireless access points installed.

271000 STRUCTURED CABLING

The new network design will support a 10GHZ backbone over single mode and multi-mode fiber and up to 10G over Category 6A to the desktop.

Twelve (12) pairs of single mode fiber and twelve (12) pairs of multi mode fiber will be provided from the MDF to each IDF, to be utilized for data, voice, security systems, etc.

Cat 6A cabling will be provided for data, voice, CCTV, and wireless access points (four data drops at each wireless access point location). Wireless access point outlet placements are intended to provide the capability for complete wireless coverage throughout the school.

Each teacher location will be wired with 4 data ports and a voice port.

Category 6A cabling will be provided for the phone system (Voice over IP).

272100 NETWORK SWITCHES

Network electronics (switches) shall be provided for every data, CCTV and voice port wired, plus 2 ports of every WAP faceplate. All ports shall be Power Over Ethernet. Switches may be proprietary to ensure compatibility with existing district infrastructure.

272133 WIRELESS ACCESS POINTS

3x3 Wireless access points, and a controller if applicable, will be provided, one in each classroom, and a minimum of two in each large group space. Office suites shall also have an access point. Access points may be proprietary to ensure compatibility with existing district infrastructure.

273000

The phone system shall be provided and installed by the owner. The building shall be cabled to support a voice over IP phone system using Cat 6A.

274000

Video and audio presentation equipment (wall mounted wide format ultra short throw projector, voice lift system with amplifier, and up to 4 ceiling speakers) will be permanently

installed in classrooms, labs and designated rooms. The PC/laptop in each classroom shall be provided by the owner. Each interactive location shall have a presentation camera.

The Auditorium shall have a theater level presentation and performance sound system. A 10,000 lumen projector shall be included. An assistive listening system shall be provided. Wired and wireless microphones shall be provided. A recording system shall be provided.

Local sound systems and projection shall be provided in each of the two Cafés (5/6 & 7/8) and Gym. These spaces shall also contain assisted listening systems and wired and wireless microphone systems.

Portable recording systems and microphones shall be provided in band and chorus rooms.

274100

An interactive whiteboard with wall mounted projector or interactive wall mounted projector shall be provided at all designated IWB locations (classrooms, conference rooms and Academic team rooms/maker spaces).

275000

A public address system shall be provided. Clocks synchronized with a master clock shall be provided in every classroom and conference room, and where designated on the drawings. The PA system shall be integrated with the owner provided phone system to allow the use of the phone system for paging within the building.

277000

A high definition, 1080p, IPTV system with set top boxes in every classroom shall be provided. TVs with set top boxes shall be provided at designated locations. Coax shall not be run for video distribution purposes within the school. The capability and devices necessary to broadcast three (3) high definition "live" video streams to the IPTV system from any data port within the school shall be provided. A video on demand system shall be provided. An encoder shall be provided in the auditorium to display the local camera as a channel on the IPTV system. Digital signage shall be included. A mini-headend with 4 DVD players and an encoding station shall be included in the media center.

281300

Access control shall be provided. The system may be proprietary to ensure compatibility with district infrastructure. Card readers shall be located as designated on the drawings. The system shall integrate with the CCTV system. Every first floor room with a window shall have a motion sensor. Motion sensors shall also be placed within the hallways and in vestibules to help partition the building into zones for afterhour's use of the facility. Every exterior door shall have door contacts and a request to exit device. Interior doors shall also contain door contacts, card readers and a request to exit device as shown on the drawings. The main entry shall be equipped with a video entry system. Panic buttons shall be provided as designated on the drawings.

281600

Intrusion detection system and related components shall be provided.

282300

An indoor/outdoor CCTV system (IP based) will be provided. Coverage shall include hallways, stairwells, building perimeter, and parking. Other areas, such as the gym, auditorium, café, and admin shall be included.

Option 2A

Building Systems Narratives: Structural

PROPOSED SCHEME

The proposed scheme calls for the demolition of the existing gymnasium and the locker room wing, including the foundations and the piles (the foundations and piles of the existing structure cannot be abandoned in place since they would interfere with the foundation of the proposed addition). The proposed scheme requires extensive re-configuration of the existing spaces, demolition of the majority of the demising walls and construction of new demising partitions. The proposed scheme also requires construction of three, four story Academic wings, a Cafeteria, Administration spaces and two, new Gymnasiums. The renovation scope also requires replacement of the entire mechanical, electrical and fire protection systems.

PRIMARY STRUCTURAL CODE ISSUES RELATED TO THE EXISTING STRUCTURE

If any repairs, renovations, additions or change of occupancy or use are made to the existing structure, a check for compliance with 780 CMR, Chapter 34 "Existing Structures" (Massachusetts Amendments to The International Existing Building Code 2009) of the Massachusetts Amendments to the International Building Code 2009 (IBC 2009) and reference code "International Existing Building Code 2009" (IEBC 2009) is required. The intent of the IEBC and the related Massachusetts Amendments to IEBC is to provide alternative approaches to alterations, repairs, additions and/or a change of occupancy or use without requiring full compliance with the code requirements for new construction.

The IEBC provides three compliance methods for the repair, alteration, change of use or additions to an existing structure. Compliance is required with only one of the three compliance alternatives. Once the compliance alternative is selected, the project will have to comply with all requirements of that particular method. The requirements from the three compliance alternatives cannot be applied in combination with each other.

The three compliance methods are as follows:

1. Prescription Compliance Method.
2. Work Area Compliance Method.
3. Performance Compliance Method.

Comment

The approach is to evaluate the compliance requirements for each of the three methods and select the method that would yield the most cost effective solution for the structural scope of the project. The selection of the compliance method may have to be re-evaluated after the impact of the selected method is understood and after analyzing the compliance requirements of the other disciplines, Architectural, Mechanical, Fire Protection, Electrical and Plumbing.

Since portions of the existing building are considered un-reinforced masonry bearing wall

structures, the analysis and reinforcement of the existing structure may have to comply with some of the requirements of Appendix A1 "Seismic Strengthening Provisions for Un-reinforced Masonry Bearing Wall Buildings" in the IEBC.

1. PRESCRIPTIVE COMPLIANCE METHOD

In this method, compliance with Chapter 3 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of this chapter.

Additions

Based on the project scope, the following structural issues have to be addressed:

- All additions should comply with the code requirements for new construction in the IBC.
- For additions that are not structurally independent of the existing structure, the existing structure and its addition, acting as a single structure, shall meet the requirements of the code for new construction for resisting lateral loads, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.

Alterations

- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations that would increase the design lateral loads or cause a structural irregularity or decrease the capacity of any lateral load carrying structural element, the structure of the altered building shall meet the requirements of the code for new construction, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.

2. WORK AREA COMPLIANCE METHOD

In this method, compliance with Chapter 4 through 12 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of these chapters.

In this method, the extent of alterations has to be classified into LEVELS OF WORK based on the scope and extent of the alterations to the existing structure. The LEVEL OF WORK can be classified into LEVEL 1, LEVEL 2 or LEVEL 3 Alterations. In addition, there are requirements that have to be satisfied for additions to the existing structure.

The extent of the renovations (includes Architectural, FP and MEP renovations) for this project will exceed 50 percent of the aggregate area of the building, thus the LEVEL OF WORK for this project would be classified as LEVEL 3 Alterations. This would require compliance with provision of Chapter 6, 7 and 8 of the IEBC. The scope of the project includes new additions to

the existing structure; this would trigger compliance with provisions in Chapter 10 of the IEBC.

Level 3 Alterations

- Any existing gravity, load-carrying structural element for which an alteration causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations where more than 30 percent of the total floor area and roof areas of the building or structure have been or proposed to be involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building complies with the full design wind loads as per the code requirements for new construction and with reduced IBC level seismic forces.
- For alterations where not more than 30 percent of the total floor and roof areas of the building are involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads at the time of the original construction or the most recent substantial alteration (more than 30 percent of total floor and roof area). If these alterations increase the seismic demand-capacity ratio on any structural element by more than 10 percent, that particular structural element shall comply with reduced IBC level seismic forces.
- For alterations that involve structural alterations to more than 30 percent of the total floor and roof area of the building within a 12 month period, the evaluation and analysis shall demonstrate that the altered building structure complies with IBC for wind loading and with reduced IBC level seismic forces.
- For alterations where more than 25 percent of the roof is replaced for buildings assigned to seismic design category B, C, D, E or F, all un-reinforced masonry walls shall be anchored to the roof structure and un-reinforced masonry parapets shall be braced to the roof structure.

Additions

- All additions shall comply with the requirements for the code for new construction in the IBC.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For additions that are not structurally independent of the existing structure, the existing structure and its addition, acting as a single structure, shall meet the requirements of the code for new construction in the IBC for resisting wind loads and IBC Level Seismic Forces (may be lower than loads from the Code for New Construction in the IBC), except for small additions that would not increase the lateral force story shear in any story by more than 10 percent cumulative. In this case, the existing lateral load resisting system can remain unaltered.

3. PERFORMANCE COMPLIANCE METHOD

Following the requirements of this method for the alterations and additions may be onerous on the project because this method requires that the altered existing structure and the additions meet the requirements for the code for new construction in the IBC.

For our project, in order to meet compliance with one of the two compliance methods "Prescriptive Compliance Method" or the "Work Area Compliance Method", we have to address the following:

1. PRESCRIPTIVE COMPLIANCE METHOD

Additions

The proposed additions will be designed structurally independent of the existing structure, thus, would not impart any additional lateral loads on the existing structure.

If the proposed alterations are such that the alterations increase the design lateral loads on the existing building or cause any structural irregularity of decrease the lateral load carrying capacity of the building, the structure of the altered building shall meet the requirements of the Code for New Construction in the IBC.

If the proposed additions increase the design gravity load on portions of the existing roof members, these members would have to be reinforced and this incidental structural alteration of the existing structure would have to be accounted for in the scope of the alterations to the existing school and would trigger requirements for alterations.

Alterations

Alterations that would increase the design gravity loads by more than 5 percent on any structural members would have to be reinforced.

If the proposed alterations of the structure increase the effective seismic weight on the existing structure due to the greater snow loads from the drifted snow against any proposed addition, or, by addition of equipment on the roof, the increase of the effective seismic weight from the drifted snow and the equipment would require that the existing lateral load resisting system comply with the requirements of the Code for New Construction in the IBC and it would increase the demand-capacity ratio on certain structural elements of the existing lateral load resisting system.

2. WORK AREA COMPLIANCE METHOD

Level 3 Alterations

If the proposed structural alterations of the existing structure are less than 30 percent of the total floor and roof areas of the existing structure, we have to demonstrate that the altered structure complies with the loads applicable at the time of the original construction and that the seismic demand-capacity ratio is not increased by more than 10 percent on any existing structural element. Those structural elements whose seismic demand-capacity ratio is increased by more than 10 percent shall comply with reduced IBC level seismic forces. The percentage increase in seismic demand-capacity ratio on any particular structural element from the added snowdrift load against the proposed addition would be fairly low, thus, this would not have any major impact on the existing lateral load resisting system, though we would have to verify that the increase in seismic demand-capacity ratio on any of those particular structural elements is not greater than 10 percent.

If the proposed structural alterations of the existing structure exceed 30 percent of the total floor and roof areas of the existing structure, we have to demonstrate that the altered structure complies with the IBC for wind loading and with reduced IBC level seismic forces.

The seismic design category (SDC) of the existing structure is 'B'; thus, the replacement of the existing roof would trigger anchorage of un-reinforced masonry walls to the roof structure and bracing of un-reinforced masonry parapets to the roof structure. All un-reinforced masonry walls in the existing school will have to be identified. These un-reinforced masonry walls are required to be anchored to the roof structure.

Additions

The proposed additions will be designed structurally independent of the existing structure; thus, it would not impart any additional lateral loads on the existing structure.

COMMENT

The compliance requirements of the two methods, in most respects, are very similar. The Work Area Compliance Method would trigger anchorage of un-reinforced masonry walls, if re-roofing of the existing structure is included as part of the scope for this project. The Prescriptive Compliance Method would require that the existing lateral load resisting system meet the requirements of the code for new construction of the IBC, even for small increases of design lateral loads. We are required to comply with requirements of Appendix A1 of IEBC for either method, which requires anchorage of all existing masonry walls. Based on this, we would recommend the Work Area Compliance Method for the project.

COMPLIANCE METHOD FOR EXISTING STRUCTURE

Based on the scope of the proposed scheme for renovations of the existing school, we have determined that the existing structure would essentially have to comply with the Code for New Construction which would require the addition of new lateral load resisting elements such as structural steel braced beams on masonry shear walls throughout the floor plates at every level. All of the un-reinforced masonry walls are required to be anchored to the floor and roof structure and all of the roof diaphragms have to be reinforced, to resist uplift loads per the Code for New Construction. We recommend the Work Area Compliance Method for the project.

PROPOSED SCHEME FOR THE PROPOSED ADDITION

FOUNDATIONS

Based on the recommendations of the Geotechnical Engineer, the entire addition will be supported on pile foundations. The columns of the proposed structure would bear on 4 ft. 0 in. deep reinforced concrete pile caps on structural steel piles, bearing on a sand layer, with pile lengths varying between 58 and 68 ft., averaging about 60 ft. in length (to be verified by the Geotechnical Engineer). The exterior walls will be supported on 5 ft. 0 in. deep grade beams spanning between pile caps with intermediate piles at 10 ft. 0 in. on center. Based on the recommended pile capacity of 50 tons, a typical interior column in the four story classroom wings would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on a four pile group and a typical exterior column would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on a three pile group. The columns supporting the long span structure of the single story gymnasium, cafeteria, music spaces and other ancillary spaces would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on three pile groups. In addition, the ground floor slab would be supported on single piles with a 2 ft. 0 in. x 2 ft. 0 in. x 2 ft. 0 in. deep pile caps spaced out approximately 15 ft. 0 in. (including interior and exterior pile caps supporting the columns.) All of the interior and exterior pile caps will be

tied to the supported concrete slab.

During the schematic Design Phase, the design team, in conjunction with the Geotechnical Engineer, will be reviewing alternative variations/options to satisfy the recommendations provided by the Geotechnical Engineer for this phase and implement the most cost effective solution for the project.

SLAB ON GRADE

Based on the recommendations of the Geotechnical Engineer, the lowest level slab of the proposed addition would be a 12 in. thick reinforced concrete slab reinforced with 6 psf reinforcing over a vapor barrier on 2 in. thick rigid insulation on compacted granular structural fill supported on piles.

FLOOR CONSTRUCTION

Typical Floor Construction

A 5 1/4" light weight concrete composite metal deck slab reinforced with welded wire fabric on wide flange steel beams spanning between steel girders and columns. The weight of the structural steel is estimated to be 13 psf for the typical framing.

ROOF CONSTRUCTION

Typical Roof Construction

The roof construction would be galvanized, corrugated 1 ½" deep, Type 'B' metal roof deck spanning between wide flanged steel beams and girders. At locations of roof supported mechanical equipment, a concrete slab will be provided similar to the typical supported floor slab. The weight of the structural steel is estimated to be 12 psf.

Low Roof Structure above the Kitchen, Mechanical Room and the Utility Areas

The roof would be a continuation of the adjacent second floor and would be similar to the typical floor construction of 5 1/4" light weight concrete composite metal deck slab reinforced with welded wire fabric on wide flange steel beams spanning between steel girders and columns. This roof will be supporting the mechanical units. The units would be screened by a screen comprised of structural steel posts and beams. The weight of the structural steel is estimated to be 15 psf.

Gymnasium Roof Framing

The roof construction would be acoustic, galvanized, corrugated 3" deep, Type 'NA' metal roof deck spanning between wide flange steel beams supported on structural steel trusses. The weight of the steel trusses and structural steel framing is estimated to be 12 psf.

Locker Rooms Roof Structures

The roof construction would be similar to the typical roof construction and would be galvanized, corrugated 1 ½" deep, Type 'B' metal roof deck spanning between wide flanged steel beams and girders. At locations of roof supported mechanical equipment, a concrete

slab will be provided similar to the typical supported floor slab. The weight of the structural steel is estimated to be 12 psf.

VERTICAL FRAMING ELEMENTS

Columns

Columns would be hollow structural steel columns. Typical columns would be HSS 8 x 8 columns and the columns at the double story spaces at the Gymnasium and Lobby would be HSS 12 x 12.

Lateral Load-Resisting System

The proposed addition would be separated from the existing building by way of expansion joints and would be divided into three parts, also separated by way of expansion joints. One part would comprise the two Gymnasiums, the Locker rooms and the Mechanical/Utility spaces; the second part of the structure is the portion that houses two of the three Academic wings and the Cafeteria; and, the third part would house one of the Academic wings and the Administration spaces.

The lateral load resisting system for the two structures housing the two Gymnasiums would be comprised of reinforced masonry shear walls.

The typical lateral load resisting system for the other parts of the school would be concentric steel braced frames comprised of hollow structural steel sections.

Option 2A

Building Systems Narratives: Fire Protection

GENERAL

The existing school building does not have a fire protection system. A complete new system must be installed to protect the existing building.

The Fire Protection systems shall be provided in accordance with NFPA #13, NFPA #14, the BOCA Fire Prevention Code and the latest Massachusetts State Building Code.

The fire protection system shall be a wet-pipe, combined sprinkler/standpipe system which will protect all areas of the building. Each level of the building will be protected as a separate zone of fire protection.

The fire protection system shall commence from a new separate, designated fire water service. Where this service enters the building, a double check backflow preventer shall be provided. A wet-pipe alarm riser shall be provided immediately after the backflow preventer.

A standpipe system will be provided which will interconnect the sprinkler systems and have fire department connections, at the front and rear of the building.

The stairwells will have standpipes complete with fire hose valves with cabinets. Each floor of the building will be a separate sprinkler zone, being fed from a floor control valve connecting to the standpipe riser.

All sprinkler and standpipe piping 2-1/2" and larger in size shall be Schedule 10 steel pipe with rolled joints with victaulic fittings. All piping 2" and smaller shall be Schedule 40 steel pipe with 175 lb. screwed fittings.

All finished areas of the building, with hung ceilings, shall be protected by concealed piping with quick response, semi-recessed pendant sprinkler heads.

All unfinished areas of the building shall be protected with exposed piping having brass, upright sprinkler heads.

Sprinkler heads shall be omitted from the main electric room and emergency electric room, provided a two (2) hour fire rating is constructed.

Option 2A

Building Systems Narratives: Plumbing

GENERAL

The majority of the existing plumbing systems in this school are original, being 51 years old and are in need of replacement. The existing systems and components, which can be re-used are the 6" water service and the storm drainage system of the existing building. The main hot water heaters are 41 years old and have outlived their useful life.

DESIGN CRITERIA

The Plumbing Systems of the building shall be provided in accordance with Mass CMR248, the Massachusetts Fuel Gas and Plumbing Code, and the Massachusetts State Building Code.

DOMESTIC WATER

Domestic water will be supplied to the building by the existing 6" domestic water service fed from the Municipal Water System. The existing water meter would be replaced with a new meter, conforming to all Town of Beverly requirements.

New domestic water piping shall extend out from the meter in a series of mains, risers and branches to all fixtures and equipment requiring same. Two (2) gas-fired, high efficiency, domestic hot water heaters, each sized for 60% of the total demand, will be provided. The domestic hot water system shall have recirculation piping with a circulator pump to return hot water from the most remote points of the hot water system. The building will be provided with two (2) hot water piping systems; a 140° system to service the kitchen and 120° to serve the remainder of the building. Tempering valves will be provided to reduce the water temperature at all public lavatories to 110°F.

Cold, hot and hot water recirculation piping will run parallel to each other. All domestic water piping shall be of Type "L" copper with wrought copper, press-fit connections. All water piping will be insulated with 1" thick, heavy density, fiberglass insulation having an all-purpose jacket. All valves and fittings shall be insulated with pre-molded pipe enclosures packed with fiberglass insulation. Domestic water piping will be supported on trapeze type hangers where three (3) or more lines run together. Pipe will be supported individually on clevis type hangers. Twelve (12) inch long pipe saddles shall be provided between all supports and the insulated pipe.

A reduced pressure zone backflow preventer will be provided on the make-up water supply to the mechanical system and science classrooms.

SANITARY, WASTE, AND VENT

The existing sanitary, waste and vent piping shall be altered and extended with new piping to suit new fixture and equipment locations. All unused existing underground piping will be abandoned and capped.

All sanitary system fixtures and equipment on all levels of the building shall flow by gravity

from the building to the municipal system. The waste from the kitchen areas shall also flow by gravity, but shall run to a separate, exterior grease interceptor, before combining with the sanitary waste.

All new interior DW&V piping, above grade, shall be service weight, cast iron pipe with "no hub" fittings except for pipe 2" and smaller which may be Type "M" copper tubing with sweat joints.

New sanitary, waste and vent piping below grade and exterior to the building shall be service weight cast iron with hub joints having neoprene gaskets.

STORM SYSTEM

New drains shall be added on all roof areas as required by new rooftop unit placement or other roof alterations. These drains will be piped to the existing drainage system, where they will run to the exterior storm water disposal system. All new storm piping above slab shall be no-hub cast iron pipe, insulated with 1" thick, heavy density, fiberglass insulation. Storm pipe below the slab shall be hub type, service weight cast iron pipe with resilient rubber gaskets.

NATURAL GAS

The natural gas service will be reviewed by the local gas company to insure it is adequate for the new load of the school.

All gas piping beyond the meter will be replaced with new Schedule 40 steel pipe. Pipe 4" and larger will be welded; 3" pipe and smaller shall have screwed fittings.

FIXTURES

All water closets, urinals and lavatories shall be new and shall be of vitreous china and shall be white in color.

Water closets shall be wall-mounted units with elongated bowls and 1.28 gallon, sensor-operated flush valves. Urinals shall be wall-mounted units with 0.125 gallon, sensor-operated flush valves.

Lavatories shall have sensor type faucets with 0.5 GPM aerators. The supplies and wastes of all handicapped lavatories shall be insulated with pre-formed insulation components.

All classroom sinks will be stainless steel, drop-in units with single lever, ADA approved faucets.

PLUMBING LIFE-CYCLE COST ESTIMATE

Pursuant to the requirements of MGL Chapter 149, Section 44M, the following schematic level life-cycle cost estimates have been prepared, which will define the cost associated with the installation and energy consumption related to the Plumbing systems in this particular school project. It should be noted that the following estimates are based on schematic level plans and system sizes and will most likely change as the project design develops more completely.

The construction costs were calculated using the latest edition of the RS Means Mechanical Cost Data book combined with the latest sub-bid results from similar projects. Energy costs were calculated with the aid of the latest version of the Hourly Analysis Program published by the Carrier Corporation, which utilized typical natural gas and electric rates published by the Energy Information Administration. Maintenance costs were also obtained from RS Means.

Summary of Costs:

- Plumbing Construction Cost: $111,823.00
- Plumbing Systems Annual Electric Energy Cost: $2,132.00
- Plumbing Systems Annual Gas Energy Cost: $7,668.00
- Plumbing Systems Annual Maintenance Cost: $1,270.00

Option 2A

Building Systems Narratives: Mechanical

GENERAL CONDITIONS

Although the existing HVAC systems have been properly maintained over the years, they have outlived their useful service life and are not suitable for re-use in this project. Furthermore, the existing equipment does not meet current energy efficiency standards, nor does it meet current ventilation Code requirements and does not provide sufficient zone temperature control to satisfy occupants or meet ASHRAE Standard 55-2010. Therefore, it is recommended that the existing systems be completely replaced as part of this renovation project.

DESIGN CRITERIA

Interior environmental conditions will be based on Massachusetts Code 780 CMR 12 and ASHRAE Standard 55-2010 Thermal Environmental Conditions for Human Occupancy.

Ventilation of spaces will be designed to meet or exceed the requirements of the latest edition of the Massachusetts State Building Code, the ICC International Mechanical Code and ASHRAE Standard 62-2007, Ventilation for Acceptable Indoor Air Quality.

The HVAC systems will be designed to meet the acoustical requirements of ANSI S12.60-2002. The American National Standards Institute developed this standard specification and design guideline to help eliminate acoustical problems in the design stage of a project. Essentially, the steady background noise level in core learning areas should not exceed an NC of 35.

HEATING SYSTEM

High efficiency, gas fired, condensing boilers will produce hot water to meet the heating needs of the school. New boilers will be installed in the existing boiler room, which has sufficient space to accommodate the new equipment. Preliminary load calculations indicate that the school may need three (3) boilers each having a capacity of approximately 3,500 MBH. Each boiler will be sized to handle 1/3 of the peak heating load to provide back-up redundancy should a boiler failure occur. The boilers will be manufactured by Buderus or approved equal and will have a minimum efficiency of 95%. Exact size of boilers will be determined during the design phase of the project.

Due to the fact that the specified boilers do not have a minimum flow requirement, the boiler system will be piped in a primary configuration with the hot water reset schedule being maintained by the boilers.

The existing pumps will be replaced with new hot water pumps. The new pumps will be designed to operate in a lead/lag configuration such that the lag pump shall automatically start should the lead pump fail. The lead/lag assignment shall be reversible through the automatic temperature control system. Preliminary calculations indicate that each pump should be sized to provide a maximum of 700 GPM at 75 feet of head. The speed of

the pumps will be controlled by variable frequency drives (VFD). Exact size of pumps will be determined during the design phase of the project.

CHILLED WATER SYSTEM

As part of the base design the following spaces will be provided with air conditioning:

- Cafeteria.
- Administration area.
- Teacher's planning/work rooms.
- Multipurpose rooms.
- Sped PT/OT spaces.
- Library/Media center.
- Classrooms.
- Music/performing arts areas.
- Computer classrooms.

Locker Rooms, kitchen, gymnasium, electric rooms, and shop areas will not typically be air-conditioned unless specifically directed by school department representatives.

Preliminary calculations indicate that one (1) 350-ton high efficiency air-cooled chiller will be required to produce chilled water to meet the cooling needs of the school on a design day. The chiller will be furnished with a variable frequency drive for increased energy efficiency. The new chiller will be installed on grade. Exact chiller size to be determined. Specified chiller shall be compliant with ASHRAE 90.1.

The chilled water system will be piped in a variable primary configuration. This will permit the use of two-way control valves and variable frequency drives.

Chilled water will be circulated throughout the facility by dedicated chilled water pumps. The chilled water pumps will be designed to operate in a lead/lag configuration such that the lag pump shall automatically start should the lead pump fail. The lead/lag pump assignment shall be reversible through the automatic temperature control system. Preliminary calculations indicate that each pump should be sized to provide a maximum of 700 GPM at 75 feet of head. The speed of the pumps will be controlled by VFD's. Exact size of pumps will be determined.

SUMMARY OF HVAC SYSTEMS

CLASSROOMS

Energy recovery air handling units will be installed in the mechanical mezzanine spaces, which will supply the classrooms with tempered air via a system of ductwork and ceiling mounted induction units. Energy recovery units are an effective way of reducing the overall energy consumption of a building. Energy recovery units will be furnished with the following components:

- Double-wall insulated casings.

- Supply and exhaust fans.
- MERV 13 air filters for superior indoor air quality.
- Energy recovery wheel.
- Hot water heating coil.
- Chilled water cooling coil to dehumidify and cool the supply air.
- Variable frequency drives.

Each classroom will be furnished with induction units. The induction units will utilize dry primary air provided by the energy recovery units, the Code required ventilation air needed, at an inlet static pressure of 0.6" and distributes this air through a bank of specially designed aerodynamic nozzles that discharges the air at high velocity into a mixing chamber that creates a lower pressure. This lower pressure draws room air over a coil that imparts either sensible cooling or heating as it passes over the coil. This induces room air, then mixes with the primary air and is discharged through a grille. This air circulates throughout the room and is gently drawn back up to the return grille of the induction unit. This air circulation produces even and consistent temperatures throughout the room.

A portion of the room air is exhausted to the outside as a relief for the primary air entering through the induction unit. This energy of the exhaust air leaving the classrooms is recovered at the energy recovery rooftop units.

The room thermostat controls water flow through the coil via the automatic temperature control system to maintain individual space temperature control.

Classrooms will also have occupancy sensors to modulate dampers in the supply air duct branches as a means of saving energy during periods when the classrooms are unoccupied.

ADMINISTRATION, LIBRARY, MULTIPURPOSE ROOMS, COMPUTER CLASSROOMS, AND TEACHERS WORKROOMS

Energy recovery air handling units will supply these spaces with tempered air via a system of ductwork and ceiling mounted induction units. The energy recovery units used in these spaces will be very similar to those used for the classrooms. These units will also be installed in the existing mechanical mezzanine areas.

Each space will be furnished with at least one (1) induction unit. The exact number of induction units per space will be determined during the design phase. The induction units will take this source of dry primary air, the Code required ventilation air needed, at an inlet static pressure of 0.6" and distributes this air through a bank of specially designed aerodynamic nozzles that discharges the air at high velocity into a mixing chamber that creates a lower pressure. This lower pressure draws room air over a coil that imparts either sensible cooling or heating as it passes over the coil. This induces room air, then mixes with the primary air and is discharged through a grille. This air circulates throughout the room and is gently drawn back up to the return grille of the induction unit. This air circulation produces even and consistent temperatures throughout the room.

A portion of the room air is exhausted to the outside as a relief for the primary air entering through the induction unit. The total energy (both latent and sensible) of the exhaust air leaving the spaces is recovered at the energy recovery rooftop units.

The room thermostat controls water flow through the coil via the automatic temperature control system to maintain individual space temperature control.

GYMNASIUM

The existing air handling units serving the gymnasium will be replaced with new heating and ventilating air handling units. Air will be distributed throughout the space via existing ductwork and supply diffusers.

The heating and ventilating units will be fitted with a hot water coil only.

The air handling units will utilize the demand controlled ventilation sequence of operation. This strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

CAFETERIA

A new dedicated air-handling unit will handle the Cafeteria.

This unit will provide both heating and cooling. The air handling unit will utilize the demand controlled ventilation sequence of operation. This strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

KITCHEN

The kitchen areas will be handled by a new roof mounted, gas fired make-up air handling unit specifically designed to provide tempered air to the kitchen in order to offset the amount of air being exhausted through the kitchen hood.

The kitchen hood exhaust system shall be provided with a new Mellink kitchen hood exhaust control system, which is designed to vary the speed of the kitchen hood exhaust fan in response to the intensity of the cooking operations taking place. Essentially, the fan will operate at higher speeds when higher heat and smoke producing cooking is taking place. The Mellink system will also modulate the outside air damper and fan speed of the make-up air unit.

CONTROLS

Griffith & Vary, Inc. recommends this facility be furnished with a Building Management System. This system will feature full Digital Direct Controls (DDC). This system will be capable of controlling the following:

- Space temperature set point.
- Start and stop of all energy recovery rooftop units and air-handling units.
- Start and stop of chillers.
- Enable/Disable boilers.
- Start and stop of chilled water pumps.
- Start and stop of hot water pumps.
- Schedule occupied/unoccupied times for various spaces.
- Monitoring of supply and return temperatures for hot water and chilled water.
- Optimization of plant efficiency.
- Monitoring of mechanical equipment (fans, pumps, boilers, chiller, etc.) and indication of any alarms, which may result from equipment failures.

HVAC LIFE-CYCLE COST ESTIMATE

Pursuant to the requirements of MGL Chapter 149, Section 44M, the following schematic level life-cycle cost estimates have been prepared, which will define the cost associated with the installation and energy consumption related to the HVAC systems in this particular school project. It should be noted that the following estimates are based on schematic level plans and system sizes and will most likely change as the project design develops more completely.

The construction costs were calculated using the latest edition of the RS Means Mechanical Cost Data book. Energy costs were calculated with the aid of the latest version of the Hourly Analysis Program published by the Carrier Corporation, which utilized typical natural gas and electric rates published by the Energy Information Administration. Maintenance costs were also obtained from RS Means.

Summary of Costs

- HVAC Construction Cost: $7,459,120.00
- HVAC Systems Annual Electric Energy Cost: $176,035.00
- HVAC Systems Annual Gas Energy Cost: $23,900.00
- HVAC Systems Annual Maintenance Cost: $7,030.00

Option 2A
Building Systems Narratives: Electrical

ELECTRIC SERVICE

The building electric service will be served via a pad mounted transformer located on site and installed by the electric utility company. Primary service conduits in concrete duct bank will be provided from the electric utility pole to the transformer via electric utility co. standard manholes. Secondary service feeders and conduits in concrete duct bank will be provided from the transformer to the switchboard. The electric utility co. meter will be mounted on the transformer.

TELEPHONE SERVICE

Telephone service conduits will be provided from a utility pole to the building demarcation point (MDF Room).

FIRE ALARM SERVICE

The fire alarm system will call the Fire Department per Fire Department Standards.

CABLE TV SERVICE

Cable TV service conduits will be provided from a utility pole to the building demarcation point (MDF Room).

POWER DISTRIBUTION

The switchboard will be located in the main electric room. Preliminary load calculations indicate that the switchboard will be rated at 4000 amperes, 277/480 volt, three phase, four wire. The main will be provided with a surge protection device. A switchboard distribution section will feed 277/480 volt panelboards and major Mechanical and Plumbing equipment. Dry-type transformers will be provided to distribute 120/208 volt power for branch circuit panelboards and the Kitchen panelboards. One of the kitchen panelboards will be provided with a shunt trip main circuit breaker which will trip if fire suppression under hoods in initiated, shutting down all circuits under hoods. Panelboards with surge protection devices for computers will be provided, fed from computer grade K-rated transformers. Zero sequence harmonic filters connected to the computer panelboards will be provided to reduce neutral currents.

EMERGENCY POWER SYSTEM

A diesel fuel generator with a sound attenuated, weatherproof enclosure will be provided on the site. Preliminary load calculations indicate that the generator will be rated at 750kW, 277/480 volt, three phase, four wire. The generator will supply emergency power automatically upon loss of normal power to emergency egress, exterior building mounted, Administration, Student Dining, Mechanical Room, Electric rooms, Kitchen, Student Dining, ganged Toilet rooms, Custodian, Teacher Dining, Receiving, Locker rooms, Nurse's suite, and Gymnasium lighting, elevators, heating system equipment, fire alarm control panel, telephone system, MDF and IDF rooms, cooling for MDF and IDF rooms, and kitchen walk in cooler and freezer. Two

ATS's will be provided to separate emergency from optional standby loads. The emergency ATS and associated emergency panelboards will be located in two hour rated closets with two hour rated feeders. The optional standby ATS and associated panelboards will be located in normal electric rooms.

FIRE ALARM

An addressable manual and automatic fire alarm system will be provided. The fire alarm control panel will be located in the main electric room or an area as so directed by the Fire Department. A remote annunciator panel will be provided in the Vestibule at the Main Lobby and where required by the Fire Department. A map of the entire building will be framed and mounted adjacent to the annunciator. A keyed box will be provided outside the Fire Department entries. Manual pull stations will be located within five feet (5') of each egress door and at the entrance to each Stair. Additional pull stations will be provided as required by Code. Heat detectors will be provided at the top of the elevator shaft and any other areas not provided with protection by the fire suppression system. Smoke detectors will be provided in the Corridors, in Stairs at each floor level, in the Elevator Machine Room, and at all elevator landings for early detection of smoke for recall. All devices including tamper, flow, pressure switches, and PIV, associated with the fire suppression system will be connected to the fire alarm system. Audio/visual appliances will be provided in the Corridors, Classrooms and all large areas such as the Auditorium, Gymnasium, Student Dining, and Media Center. Visual devices will be provided in Toilet and Conference rooms. Mechanical equipment will be shut down by the fire alarm system as required by Code.

LIGHTING

Interior

In general, highly efficient fluorescent lighting fixtures and lamps will be provided throughout the building. Lighting levels will be in accordance with I.E.S. (Illuminating Engineering Society of North America) recommendations and the Massachusetts State Building Code energy requirements. Classrooms will be provided with direct/indirect, LED pendant mounted lighting fixtures. Office areas and Conference rooms will be provided with volumetric lighting fixtures. The Gymnasium will be provided with LED high bay lighting fixtures. Storage, Mechanical, and Electrical rooms will be provided with strip lighting fixtures. The Main Lobby, Media Center, and Student Dining will be provided with decorative lighting, probably luminous bowls, down lights, and wall sconces. The Kitchen and Locker rooms will be provided with gasketed wet location lighting fixtures. The Auditorium will be provided with LED surface cylinders, recessed down lights, step lighting, and wall sconces. The Stairs will be provided with wall sconces. Corridors will be provided with prismatic lens troffers. Down lights will be provided at various locations. The Stage will be provided with theatrical lighting fixtures and a dimming system. The dimming system will be connected to the fire alarm system bringing the house lights to full brightness upon initiation of fire alarm system. Edge lit LED exit signs will be provided at all egress doors and at additional locations as required to identify exit discharge routes. Vandal resistant exit signs will be provided in the Gymnasium.

Exterior

Wall and pole mounted site lighting fixtures will be LED type.

SWITCHING

Lighting fixtures in rooms less than 900 square feet, will be controlled primarily by room occupancy sensors and local low voltage override switches. Lighting fixtures nearest to the exterior walls with windows in Classrooms will be provided with dimming ballasts and will be controlled by daylight sensors. Larger areas not controlled by occupancy sensors and exterior lighting will be controlled through lighting relay panels and low voltage override switches. Digital timer switches will be provided in Storage and Custodial rooms.

DEVICES

General convenience receptacles will be located throughout the building as required. Receptacles provided in Toilet rooms, near sinks, the Kitchen, and outdoors will be provided with ground fault protection. Circuiting will be provided to Kitchen, Mechanical, and Plumbing equipment, and miscellaneous loads as required.

LIGHTNING PROTECTION

The building will be provided with a lightning protection system made up of air terminals on the roof with downlead conductors to ground.

BI-DIRECTIONAL AMPLIFIER SYSTEM

A bi-directional amplifier with coaxial cabling above accessible ceilings will be provided to amplify Fire Department and Police frequencies to ensure that there are no “dead” spots in the building for communication within building.

TECHNOLOGY SYSTEMS BACK BOX AND CONDUIT SYSTEM

A telephone/data/video/security/clock/speaker conduit system consisting of empty back boxes and conduit with pull strings to above accessible ceilings will be provided for technology. Cable tray will be provided above the Corridor ceilings and MDF and IDF rooms for low voltage wiring.

PV SYSTEM CONDUIT SYSTEM

An empty conduit system with pull strings will be provided for the PV system consisting of photovoltaic panels and an inverter. Conduits will be provided from the switchboard to an exterior mounted disconnect switch for shutting down the PV system if need be. Conduits will also be provided from the exterior disconnect switch to the inverter and from the inverter to the banks of photovoltaic panels.

Option 2A

Building Systems Narratives: Technology

Existing cabling and infrastructure is inadequate, outdated and needs to be replaced. All old data and voice cabling shall be removed and replaced.

The technology labs will be capable of accommodating an entire class of students (28). Network access in the technology labs will be hard wired. Wireless access points will be installed. Labs will contain the same equipment as a classroom. Science labs shall have 14 wired data outlets, and wireless access points installed.

271000 STRUCTURED CABLING

The new network design will support a 10GHZ backbone over single mode and multi-mode fiber and up to 10G over Category 6A to the desktop.

Twelve (12) pairs of single mode fiber and twelve (12) pairs of multi mode fiber will be provided from the MDF to each IDF, to be utilized for data, voice, security systems, etc.

Cat 6A cabling will be provided for data, voice, CCTV, and wireless access points (four data drops at each wireless access point location). Wireless access point outlet placements are intended to provide the capability for complete wireless coverage throughout the school.

Each teacher location will be wired with 4 data ports and a voice port.

Category 6A cabling will be provided for the phone system (Voice over IP).

272100 NETWORK SWITCHES

Network electronics (switches) shall be provided for every data, CCTV and voice port wired, plus 2 ports of every WAP faceplate. All ports shall be Power Over Ethernet. Switches may be proprietary to ensure compatibility with existing district infrastructure.

272133 WIRELESS ACCESS POINTS

3x3 Wireless access points, and a controller if applicable, will be provided, one in each classroom, and a minimum of two in each large group space. Office suites shall also have an access point. Access points may be proprietary to ensure compatibility with existing district infrastructure.

273000

The phone system shall be provided and installed by the owner. The building shall be cabled to support a voice over IP phone system using Cat 6A.

274000

Video and audio presentation equipment (wall mounted wide format ultra short throw projector, voice lift system with amplifier, and up to 4 ceiling speakers) will be permanently installed in classrooms, labs and designated rooms. The PC/laptop in each classroom shall be provided by the owner. Each interactive location shall have a presentation camera.

The Auditorium shall have a theater level presentation and performance sound system. A 10,000 lumen projector shall be included. An assistive listening system shall be provided. Wired and wireless microphones shall be provided. A recording system shall be provided.

Local sound systems and projection shall be provided in each of the two Cafés (5/6 & 7/8) and Gym. These spaces shall also contain assisted listening systems and wired and wireless microphone systems.

Portable recording systems and microphones shall be provided in band and chorus rooms.

274100

An interactive whiteboard with wall mounted projector or interactive wall mounted projector shall be provided in all designated IWB locations (classrooms, conference rooms and Academic team rooms /maker spaces).

275000

A public address system shall be provided. Clocks synchronized with a master clock shall be provided in every classroom and conference room, and where designated on the drawings. The PA system shall be integrated with the owner provided phone system to allow the use of the phone system for paging within the building.

277000

A high definition, 1080p, IPTV system with set top boxes in every classroom shall be provided. TVs with set top boxes shall be provided at designated locations. Coax shall not be run for video distribution purposes within the school. The capability and devices necessary to broadcast three (3) high definition "live" video streams to the IPTV system from any data port within the school shall be provided. A video on demand system shall be provided. An encoder shall be provided in the auditorium to display the local camera as a channel on the IPTV system. Digital signage shall be included. A mini-headend with 4 DVD players and an encoding station shall be included in the media center.

281300

Access control shall be provided. The system may be proprietary to ensure compatibility with district infrastructure. Card readers shall be located as designated on the drawings. The system shall integrate with the CCTV system. Every first floor room with a window shall have a motion sensor. Motion sensors shall also be placed within the hallways and in vestibules to help partition the building into zones for afterhour's use of the facility. Every exterior door shall have door contacts and a request to exit device. Interior doors shall also contain door contacts, card readers and a request to exit device as shown on the drawings. The main entry

shall be equipped with a video entry system. Panic buttons shall be provided as designated on the drawings.

281600

Intrusion detection system and related components shall be provided.

282300

An indoor/outdoor CCTV system (IP based) will be provided. Coverage shall include hallways, stairwells, building perimeter, and parking. Other areas, such as the gym, auditorium, café, and admin shall be included.

Option 2B
Building Systems Narratives: Structural

PROPOSED SCHEME

The proposed scheme calls for the demolition of essentially the entire Memorial Building, except for the Auditorium. The proposed scheme also requires demolition of the existing foundations and the existing piles, since these would interfere with the construction of the foundations and installation of piles of the proposed additions. The proposed scheme requires extensive reconfiguration of the Auditorium. The existing Auditorium structure would be required to be reinforced and reframed in some areas to separate it from the rest of the existing structure and to create an expansion joint at the interface with the proposed additions. The proposed scheme also requires construction of three, four story Academic wings, a Cafeteria, Administrative spaces and two, new Gymnasiums with ancillary spaces.

PRIMARY STRUCTURAL CODE ISSUES RELATED TO THE EXISTING STRUCTURE

If any repairs, renovations, additions or change of occupancy or use are made to the existing structure, a check for compliance with 780 CMR, Chapter 34 "Existing Structures" (Massachusetts Amendments to The International Existing Building Code 2009) of the Massachusetts Amendments to the International Building Code 2009 (IBC 2009) and reference code "International Existing Building Code 2009" (IEBC 2009) is required. The intent of the IEBC and the related Massachusetts Amendments to IEBC is to provide alternative approaches to alterations, repairs, additions and/or a change of occupancy or use without requiring full compliance with the code requirements for new construction.

The IEBC provides three compliance methods for the repair, alteration, change of use or additions to an existing structure. Compliance is required with only one of the three compliance alternatives. Once the compliance alternative is selected, the project will have to comply with all requirements of that particular method. The requirements from the three compliance alternatives cannot be applied in combination with each other.

The three compliance methods are as follows:

1. Prescription Compliance Method.
2. Work Area Compliance Method.
3. Performance Compliance Method.

Comment

The approach is to evaluate the compliance requirements for each of the three methods and select the method that would yield the most cost effective solution for the structural scope of the project. The selection of the compliance method may have to be re-evaluated after the impact of the selected method is understood and after analyzing the compliance requirements of the other disciplines, Architectural, Mechanical, Fire Protection, Electrical and Plumbing.

Since portions of the existing building are considered un-reinforced masonry bearing wall

structures, the analysis and reinforcement of the existing structure may have to comply with some of the requirements of Appendix A1 "Seismic Strengthening Provisions for Un-reinforced Masonry Bearing Wall Buildings" in the IEBC.

1. PRESCRIPTIVE COMPLIANCE METHOD

In this method, compliance with Chapter 3 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of this chapter.

Additions

Based on the project scope, the following structural issues have to be addressed:

- All additions should comply with the code requirements for new construction in the IBC.
- For additions that are not structurally independent of the existing structure, the existing structure and its addition, acting as a single structure, shall meet the requirements of the code for new construction for resisting lateral loads, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.

Alterations

- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations that would increase the design lateral loads or cause a structural irregularity or decrease the capacity of any lateral load carrying structural element, the structure of the altered building shall meet the requirements of the code for new construction, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.

2. WORK AREA COMPLIANCE METHOD

In this method, compliance with Chapter 4 through 12 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of these chapters.

In this method, the extent of alterations has to be classified into LEVELS OF WORK based on the scope and extent of the alterations to the existing structure. The LEVEL OF WORK can be classified into LEVEL 1, LEVEL 2 or LEVEL 3 Alterations. In addition, there are requirements that have to be satisfied for additions to the existing structure.

The extent of the renovations (includes Architectural, FP and MEP renovations) for this project will exceed 50 percent of the aggregate area of the building, thus the LEVEL OF WORK for this project would be classified as LEVEL 3 Alterations. This would require compliance with provision of Chapter 6, 7 and 8 of the IEBC. The scope of the project includes new additions to

the existing structure; this would trigger compliance with provisions in Chapter 10 of the IEBC.

Level 3 Alterations

- Any existing gravity, load-carrying structural element for which an alteration causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations where more than 30 percent of the total floor area and roof areas of the building or structure have been or proposed to be involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building complies with the full design wind loads as per the code requirements for new construction and with reduced IBC level seismic forces.
- For alterations where not more than 30 percent of the total floor and roof areas of the building are involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads at the time of the original construction or the most recent substantial alteration (more than 30 percent of total floor and roof area). If these alterations increase the seismic demand-capacity ratio on any structural element by more than 10 percent, that particular structural element shall comply with reduced IBC level seismic forces.
- For alterations that involve structural alterations to more than 30 percent of the total floor and roof area of the building within a 12 month period, the evaluation and analysis shall demonstrate that the altered building structure complies with IBC for wind loading and with reduced IBC level seismic forces.
- For alterations where more than 25 percent of the roof is replaced for buildings assigned to seismic design category B, C, D, E or F, all un-reinforced masonry walls shall be anchored to the roof structure and un-reinforced masonry parapets shall be braced to the roof structure.

Additions

- All additions shall comply with the requirements for the code for new construction in the IBC.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For additions that are not structurally independent of the existing structure, the existing structure and its addition, acting as a single structure, shall meet the requirements of the code for new construction in the IBC for resisting wind loads and IBC Level Seismic Forces (may be lower than loads from the Code for New Construction in the IBC), except for small additions that would not increase the lateral force story shear in any story by more than 10 percent cumulative. In this case, the existing lateral load resisting system can remain unaltered.

3. PERFORMANCE COMPLIANCE METHOD

Following the requirements of this method for the alterations and additions may be onerous on the project because this method requires that the altered existing structure and the additions meet the requirements for the code for new construction in the IBC.

For our project, in order to meet compliance with one of the two compliance methods "Prescriptive Compliance Method" or the "Work Area Compliance Method", we have to address the following:

1. PRESCRIPTIVE COMPLIANCE METHOD

Additions

The proposed additions will be designed structurally independent of the existing structure, thus, would not impart any additional lateral loads on the existing structure.

If the proposed alterations are such that the alterations increase the design lateral loads on the existing building or cause any structural irregularity of decrease the lateral load carrying capacity of the building, the structure of the altered building shall meet the requirements of the Code for New Construction in the IBC.

If the proposed additions increase the design gravity load on portions of the existing roof members, these members would have to be reinforced and this incidental structural alteration of the existing structure would have to be accounted for in the scope of the alterations to the existing school and would trigger requirements for alterations.

Alterations

Alterations that would increase the design gravity loads by more than 5 percent on any structural members would have to be reinforced.

If the proposed alterations of the structure increase the effective seismic weight on the existing structure due to the greater snow loads from the drifted snow against any proposed addition, or, by addition of equipment on the roof, the increase of the effective seismic weight from the drifted snow and the equipment would require that the existing lateral load resisting system comply with the requirements of the Code for New Construction in the IBC and it would increase the demand-capacity ratio on certain structural elements of the existing lateral load resisting system.

2. WORK AREA COMPLIANCE METHOD

Level 3 Alterations

If the proposed structural alterations of the existing structure are less than 30 percent of the total floor and roof areas of the existing structure, we have to demonstrate that the altered structure complies with the loads applicable at the time of the original construction and that the seismic demand-capacity ratio is not increased by more than 10 percent on any existing structural element. Those structural elements whose seismic demand-capacity ratio is increased by more than 10 percent shall comply with reduced IBC level seismic forces. The percentage increase in seismic demand-capacity ratio on any particular structural element from the added snowdrift load against the proposed addition would be fairly low, thus, this would not have any major impact on the existing lateral load resisting system, though we would have to verify that the increase in seismic demand-capacity ratio on any of those particular structural elements is not greater than 10 percent.

If the proposed structural alterations of the existing structure exceed 30 percent of the total floor and roof areas of the existing structure, we have to demonstrate that the altered structure complies with the IBC for wind loading and with reduced IBC level seismic forces.

The seismic design category (SDC) of the existing structure is 'B'; thus, the replacement of the existing roof would trigger anchorage of un-reinforced masonry walls to the roof structure and bracing of un-reinforced masonry parapets to the roof structure. All un-reinforced masonry walls in the existing school will have to be identified. These un-reinforced masonry walls are required to be anchored to the roof structure.

Additions

The proposed additions will be designed structurally independent of the existing structure; thus, it would not impart any additional lateral loads on the existing structure.

COMMENT

The compliance requirements of the two methods, in most respects, are very similar. The Work Area Compliance Method would trigger anchorage of un-reinforced masonry walls, if re-roofing of the existing structure is included as part of the scope for this project. The Prescriptive Compliance Method would require that the existing lateral load resisting system meet the requirements of the code for new construction of the IBC, even for small increases of design lateral loads. We are required to comply with requirements of Appendix A1 of IEBC for either method, which requires anchorage of all existing masonry walls. Based on this, we would recommend the Work Area Compliance Method for the project.

COMPLIANCE METHOD FOR EXISTING STRUCTURE

Based on the scope of the proposed scheme for renovations of the existing school, we have determined that the existing structure would essentially have to comply with the Code for New Construction which would require the addition of new lateral load resisting elements such as structural steel braced beams on masonry shear walls throughout the floor plates at every level. All of the un-reinforced masonry walls are required to be anchored to the floor and roof structure and all of the roof diaphragms have to be reinforced, to resist uplift loads per the Code for New Construction. We recommend the Work Area Compliance Method for the project.

PROPOSED SCHEME FOR THE PROPOSED ADDITION

FOUNDATIONS

Based on the recommendations of the Geotechnical Engineer, the entire addition will be supported on pile foundations. The columns of the proposed structure would bear on 4 ft. 0 in. deep reinforced concrete pile caps on structural steel piles, bearing on a sand layer, with pile lengths varying between 58 and 68 ft., averaging about 60 ft. in length (to be verified by the Geotechnical Engineer). The exterior walls will be supported on 5 ft. 0 in. deep grade beams spanning between pile caps with intermediate piles at 10 ft. 0 in. on center. Based on the recommended pile capacity of 50 tons, a typical interior column in the four story classroom wings would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on a four pile group and a typical exterior column would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on a three pile group. The columns supporting the long span structure of the single story gymnasium, cafeteria, music spaces and other ancillary spaces would be supported on 8 ft. 0 in. x 8 ft. 0 in. x 4 ft. 0 in. deep pile caps on three pile groups. In addition, the ground floor slab would be supported on single piles with a 2 ft. 0 in. x 2 ft. 0 in. x 2 ft. 0 in. deep pile caps spaced out approximately 15 ft. 0 in. (including interior and exterior pile caps supporting the columns.) All of the interior and exterior pile caps will be

tied to the supported concrete slab.

During the schematic Design Phase, the design team, in conjunction with the Geotechnical Engineer, will be reviewing alternative variations/options to satisfy the recommendations provided by the Geotechnical Engineer for this phase and implement the most cost effective solution for the project.

SLAB ON GRADE

Based on the recommendations of the Geotechnical Engineer, the lowest level slab of the proposed addition would be a 12 in. thick reinforced concrete slab reinforced with 6 psf reinforcing over a vapor barrier on 2 in. thick rigid insulation on compacted granular structural fill supported on piles.

FLOOR CONSTRUCTION

Typical Floor Construction

A 5 1/4" light weight concrete composite metal deck slab reinforced with welded wire fabric on wide flange steel beams spanning between steel girders and columns. The weight of the structural steel is estimated to be 13 psf for the typical framing.

ROOF CONSTRUCTION

Typical Roof Construction

The roof construction would be galvanized, corrugated 1 ½" deep, Type 'B' metal roof deck spanning between wide flanged steel beams and girders. At locations of roof supported mechanical equipment, a concrete slab will be provided similar to the typical supported floor slab. The weight of the structural steel is estimated to be 12 psf.

Low Roof Structure above the Kitchen, Mechanical Room and the Utility Areas

The roof would be a continuation of the adjacent second floor and would be similar to the typical floor construction of 5 1/4" light weight concrete composite metal deck slab reinforced with welded wire fabric on wide flange steel beams spanning between steel girders and columns. This roof will be supporting the mechanical units. The units would be screened by a screen comprised of structural steel posts and beams. The weight of the structural steel is estimated to be 15 psf.

Gymnasium Roof Framing

The roof construction would be acoustic, galvanized, corrugated 3" deep, Type 'NA' metal roof deck spanning between wide flange steel beams supported on structural steel trusses. The weight of the steel trusses and structural steel framing is estimated to be 12 psf.

Locker Rooms Roof Structures

The roof construction would be similar to the typical roof construction and would be galvanized, corrugated 1 ½" deep, Type 'B' metal roof deck spanning between wide flanged

steel beams and girders. At locations of roof supported mechanical equipment, a concrete slab will be provided similar to the typical supported floor slab. The weight of the structural steel is estimated to be 12 psf.

VERTICAL FRAMING ELEMENTS

Columns

Columns would be hollow structural steel columns. Typical columns would be HSS 8 x 8 columns and the columns at the double story spaces at the Gymnasium and Lobby would be HSS 12 x 12.

Lateral Load-Resisting System

The proposed addition would be separated from the existing building by way of expansion joints and would be divided into three parts, also separated by way of expansion joints. One part would comprise the two Gymnasiums, the Locker rooms and the Mechanical/Utility spaces; the second part of the structure is the portion that houses two of the three Academic wings and the Cafeteria; the third part would house one of the Academic wings, the Administration spaces and the Library/Media Center.

The lateral load resisting system for the two structures housing the two Gymnasiums would be comprised of reinforced masonry shear walls.

The typical lateral load resisting system for the other parts of the school would be concentric steel braced frames comprised of hollow structural steel sections.

Option 2B

Building Systems Narratives: Fire Protection

GENERAL

The existing school building does not have a fire protection system. A complete new system must be installed to protect the existing building and the addition.

The Fire Protection systems shall be provided in accordance with NFPA #13, NFPA #14, the BOCA Fire Prevention Code and the latest Massachusetts State Building Code.

The fire protection system shall be a wet-pipe, combined sprinkler/standpipe system which will protect all areas of the building. Each level of the building will be protected as a separate zone of fire protection.

The fire protection system shall commence from a new separate, designated fire water service. Where this service enters the building, a double check backflow preventer shall be provided. A wet-pipe alarm riser shall be provided immediately after the backflow preventer.

A standpipe system will be provided which will interconnect the sprinkler systems and have fire department connections, at the front and rear of the building.

The stairwells will have standpipes complete with fire hose valves with cabinets. Each floor of the building will be a separate sprinkler zone, being fed from a floor control valve connecting to the standpipe riser.

All sprinkler and standpipe piping 2-1/2" and larger in size shall be Schedule 10 steel pipe with rolled joints with victaulic fittings. All piping 2" and smaller shall be Schedule 40 steel pipe with 175 lb. screwed fittings.

All finished areas of the building, with hung ceilings, shall be protected by concealed piping with quick response, semi-recessed pendant sprinkler heads.

All unfinished areas of the building shall be protected with exposed piping having brass, upright sprinkler heads.

Sprinkler heads shall be omitted from the main electric room and emergency electric room, provided a two (2) hour fire rating is constructed.

Option 2B

Building Systems Narratives: Plumbing

GENERAL

The majority of the existing plumbing systems in this school are original, being 51 years old and are in need of replacement. The existing systems and components, which can be re-used are the 6" water service and the storm drainage system of the existing building. The main hot water heaters are 41 years old and have outlived their useful life.

DESIGN CRITERIA

The Plumbing Systems of the building shall be provided in accordance with Mass CMR248, the Massachusetts Fuel Gas and Plumbing Code, and the Massachusetts State Building Code.

DOMESTIC WATER

Domestic water will be supplied to the building by the existing 6" domestic water service fed from the Municipal Water System. The existing water meter would be replaced with a new meter, conforming to all Town of Beverly requirements.

New domestic water piping shall extend out from the meter in a series of mains, risers and branches to all fixtures and equipment requiring same. Two (2) gas-fired, high efficiency, domestic hot water heaters, each sized for 60% of the total demand, will be provided. The domestic hot water system shall have recirculation piping with a circulator pump to return hot water from the most remote points of the hot water system. The building will be provided with two (2) hot water piping systems; a 140° system to service the kitchen and 120° to serve the remainder of the building. Tempering valves will be provided to reduce the water temperature at all public lavatories to 110°F.

Cold, hot and hot water recirculation piping will run parallel to each other. All domestic water piping shall be of Type "L" copper with wrought copper, press-fit connections. All water piping will be insulated with 1" thick, heavy density, fiberglass insulation having an all-purpose jacket. All valves and fittings shall be insulated with pre-molded pipe enclosures packed with fiberglass insulation. Domestic water piping will be supported on trapeze type hangers where three (3) or more lines run together. Pipe will be supported individually on clevis type hangers. Twelve (12) inch long pipe saddles shall be provided between all supports and the insulated pipe.

A reduced pressure zone backflow preventer will be provided on the make-up water supply to the mechanical system and science classrooms.

SANITARY, WASTE, AND VENT

The existing sanitary, waste and vent piping shall be altered and extended with new piping to suit new fixture and equipment locations. All unused existing underground piping will be abandoned and capped.

All sanitary system fixtures and equipment on all levels of the building shall flow by gravity

from the building to the municipal system. The waste from the kitchen areas shall also flow by gravity, but shall run to a separate, exterior grease interceptor, before combining with the sanitary waste.

All new interior DW&V piping, above grade, shall be service weight, cast iron pipe with "no hub" fittings except for pipe 2" and smaller which may be Type "M" copper tubing with sweat joints.

New sanitary, waste and vent piping below grade and exterior to the building shall be service weight cast iron with hub joints having neoprene gaskets.

STORM SYSTEM

On the new addition to the school, new drains shall be provided on all roof areas and they will be piped down through the building to below the slab, where they will be connected to the exterior storm water disposal system. All storm piping above slab shall be no-hub cast iron pipe, insulated with 1" thick, heavy density, fiberglass insulation. Storm pipe below the slab shall be hub type, service weight cast iron pipe with resilient rubber gaskets.

NATURAL GAS

The natural gas service will be reviewed by the local gas company to insure it is adequate for the new load of the school.

All gas piping beyond the meter will be replaced with new Schedule 40 steel pipe. Pipe 4" and larger will be welded; 3" pipe and smaller shall have screwed fittings.

FIXTURES

All water closets, urinals and lavatories shall be new and shall be of vitreous china and shall be white in color.

Water closets shall be wall-mounted units with elongated bowls and 1.28 gallon, sensor-operated flush valves. Urinals shall be wall-mounted units with 0.125 gallon, sensor-operated flush valves.

Lavatories shall have sensor type faucets with 0.5 GPM aerators. The supplies and wastes of all handicapped lavatories shall be insulated with pre-formed insulation components.

All classroom sinks will be stainless steel, drop-in units with single lever, ADA approved faucets.

PLUMBING LIFE-CYCLE COST ESTIMATE

Pursuant to the requirements of MGL Chapter 149, Section 44M, the following schematic level life-cycle cost estimates have been prepared, which will define the cost associated with the installation and energy consumption related to the Plumbing systems in this particular school project. It should be noted that the following estimates are based on schematic level plans and system sizes and will most likely change as the project design develops more completely.

The construction costs were calculated using the latest edition of the RS Means Mechanical Cost Data book combined with the latest sub-bid results from similar projects. Energy costs were calculated with the aid of the latest version of the Hourly Analysis Program published by the Carrier Corporation, which utilized typical natural gas and electric rates published by the Energy Information Administration. Maintenance costs were also obtained from RS Means.

Summary of Costs:

- Plumbing Construction Cost: $111,823.00
- Plumbing Systems Annual Electric Energy Cost: $2,132.00
- Plumbing Systems Annual Gas Energy Cost: $7,668.00
- Plumbing Systems Annual Maintenance Cost: $1,270.00

Option 2B

Building Systems Narratives: Mechanical

GENERAL CONDITIONS

Although the existing HVAC systems have been properly maintained over the years, they have outlived their useful service life and are not suitable for re-use in this project. Neither the equipment nor the systems are adaptable for new space usage. Furthermore, the existing equipment does not meet current energy efficiency standards, does not meet current ventilation Code requirements and has insufficient zone temperature control to satisfy occupants or meet ASHRAE Standard 55-2010. Therefore, it is recommended that the existing systems be completely replaced as part of this renovation project.

DESIGN CRITERIA

Interior environmental conditions will be based on Massachusetts Code 780 CMR 12 and ASHRAE Standard 55-2010 Thermal Environmental Conditions for Human Occupancy.

Ventilation of spaces will be designed to meet or exceed the requirements of the latest edition of the Massachusetts State Building Code, the ICC International Mechanical Code and ASHRAE Standard 62-2007, Ventilation for Acceptable Indoor Air Quality.

The HVAC systems will be designed to meet the acoustical requirements of ANSI S12.60-2002. The American National Standards Institute developed this standard specification and design guideline to help eliminate acoustical problems in the design stage of a project. Essentially, the steady background noise level in core learning areas should not exceed an NC of 35.

HEATING SYSTEM

High efficiency, gas fired, condensing boilers will produce hot water to meet the heating needs of the school. New boilers will be installed in the existing boiler room. Preliminary load calculations indicate that the school may need three (3) boilers each having a capacity of approximately 3,500 MBH. Each boiler will be sized to handle 1/3 of the peak heating load to provide back-up redundancy should a boiler failure occur. The boilers will be manufactured by Buderus or approved equal and will have a minimum efficiency of 95%. Exact size of boilers will be determined during the design phase of the project.

Due to the fact that the specified boilers do not have a minimum flow requirement, the boiler system will be piped in a primary configuration with the hot water reset schedule being maintained by the boilers.

The existing pumps will be replaced with new hot water pumps. The new pumps will be designed to operate in a lead/lag configuration such that the lag pump shall automatically start should the lead pump fail. The lead/lag assignment shall be reversible through the automatic temperature control system. Preliminary calculations indicate that each pump should be sized to provide a maximum of 700 GPM at 75 feet of head. The speed of the pumps will be controlled by variable frequency drives (VFD). Exact size of pumps will be

determined during the design phase of the project.

CHILLED WATER SYSTEM

As part of the base design the following spaces will be provided with air conditioning:

- Cafeteria.
- Administration area.
- Teacher's planning/work rooms.
- Multipurpose rooms.
- Sped PT/OT spaces.
- Library/Media center.
- Classrooms.
- Music/performing arts areas.
- Computer classrooms.

Locker Rooms, kitchen, gymnasium, electric rooms, and shop areas will not typically be air-conditioned unless specifically directed by school department representatives.

Preliminary calculations indicate that one (1) 350-ton high efficiency air-cooled chiller will be required to produce chilled water to meet the cooling needs of the school on a design day. The chiller will be furnished with a variable frequency drive for increased energy efficiency. The new chiller will be installed on grade. Exact chiller size to be determined. Specified chiller shall be compliant with ASHRAE 90.1.

The chilled water system will be piped in a variable primary configuration. This will permit the use of two-way control valves and variable frequency drives.

Chilled water will be circulated throughout the facility by dedicated chilled water pumps. The chilled water pumps will be designed to operate in a lead/lag configuration such that the lag pump shall automatically start should the lead pump fail. The lead/lag pump assignment shall be reversible through the automatic temperature control system. Preliminary calculations indicate that each pump should be sized to provide a maximum of 700 GPM at 75 feet of head. The speed of the pumps will be controlled by VFD's. Exact size of pumps will be determined.

SUMMARY OF HVAC SYSTEMS

CLASSROOMS

Energy recovery air handling units will be installed in the mechanical mezzanine spaces, which will supply the classrooms with tempered air via a system of ductwork and ceiling mounted induction units. Energy recovery units are an effective way of reducing the overall energy consumption of a building. Energy recovery units will be furnished with the following components:

- Double-wall insulated casings.
- Supply and exhaust fans.

- MERV 13 air filters for superior indoor air quality.
- Energy recovery wheel.
- Hot water heating coil.
- Chilled water cooling coil to dehumidify and cool the supply air.
- Variable frequency drives.

Each classroom will be furnished with induction units. The induction units will utilize dry primary air provided by the energy recovery units, the Code required ventilation air needed, at an inlet static pressure of 0.6" and distributes this air through a bank of specially designed aerodynamic nozzles that discharges the air at high velocity into a mixing chamber that creates a lower pressure. This lower pressure draws room air over a coil that imparts either sensible cooling or heating as it passes over the coil. This induces room air, then mixes with the primary air and is discharged through a grille. This air circulates throughout the room and is gently drawn back up to the return grille of the induction unit. This air circulation produces even and consistent temperatures throughout the room.

A portion of the room air is exhausted to the outside as a relief for the primary air entering through the induction unit. The energy of the exhaust air leaving the classrooms is recovered at the energy recovery rooftop units.

The room thermostat controls water flow through the coil via the automatic temperature control system to maintain individual space temperature control.

Classrooms will also have occupancy sensors to modulate dampers in the supply air duct branches as a means of saving energy during periods when the classrooms are unoccupied.

ADMINISTRATION, LIBRARY, MULTIPURPOSE ROOMS, COMPUTER CLASSROOMS, AND TEACHERS WORKROOMS

Energy recovery air handling units will supply these spaces with tempered air via a system of ductwork and ceiling mounted induction units. The energy recovery units used in these spaces will be very similar to those used for the classrooms. These units will also be installed in the existing mechanical mezzanine areas.

Each space will be furnished with at least one (1) induction unit. The exact number of induction units per space will be determined during the design phase. The induction units will take this source of dry primary air, the Code required ventilation air needed, at an inlet static pressure of 0.6" and distributes this air through a bank of specially designed aerodynamic nozzles that discharges the air at high velocity into a mixing chamber that creates a lower pressure. This lower pressure draws room air over a coil that imparts either sensible cooling or heating as it passes over the coil. This induces room air, then mixes with the primary air and is discharged through a grille. This air circulates throughout the room and is gently drawn back up to the return grille of the induction unit. This air circulation produces even and consistent temperatures throughout the room.

A portion of the room air is exhausted to the outside as a relief for the primary air entering

through the induction unit. The total energy (both latent and sensible) of the exhaust air leaving the spaces is recovered at the energy recovery rooftop units.

The room thermostat controls water flow through the coil via the automatic temperature control system to maintain individual space temperature control.

GYMNASIUM

The existing air handling units serving the gymnasium will be replaced with new heating and ventilating air handling units. Air will be distributed throughout the space via existing ductwork and supply diffusers.

The heating and ventilating units will be fitted with a hot water coil only.

The air handling units will utilize the demand controlled ventilation sequence of operation. This strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

CAFETERIA

A new dedicated air-handling unit or rooftop unit will handle the Cafeteria.

This unit will provide both heating and cooling. The air handling unit will utilize the demand controlled ventilation sequence of operation. This strategy permits the modulation of the outside air dampers and fan speed based on the level of CO2 in the space.

Space temperature will be sensed with remote space mounted sensors and controlled through the building management system.

KITCHEN

The kitchen areas will be handled by a new roof mounted, gas fired make-up air handling unit specifically designed to provide tempered air to the kitchen in order to offset the amount of air being exhausted through the kitchen hood.

The kitchen hood exhaust system shall be provided with a new Mellink kitchen hood exhaust control system, which is designed to vary the speed of the kitchen hood exhaust fan in response to the intensity of the cooking operations taking place. Essentially, the fan will operate at higher speeds when higher heat and smoke producing cooking is taking place. The Mellink system will also modulate the outside air damper and fan speed of the make-up air unit.

CONTROLS

Griffith & Vary, Inc. recommends this facility be furnished with a Building Management System. This system will feature full Digital Direct Controls (DDC). This system will be capable of controlling the following:

- Space temperature set point.
- Start and stop of all energy recovery rooftop units and air-handling units.
- Start and stop of chillers.
- Enable/Disable boilers.
- Start and stop of chilled water pumps.
- Start and stop of hot water pumps.
- Schedule occupied/unoccupied times for various spaces.
- Monitoring of supply and return temperatures for hot water and chilled water.
- Optimization of plant efficiency.
- Monitoring of mechanical equipment (fans, pumps, boilers, chiller, etc.) and indication of any alarms, which may result from equipment failures.

HVAC LIFE-CYCLE COST ESTIMATE

Pursuant to the requirements of MGL Chapter 149, Section 44M, the following schematic level life-cycle cost estimates have been prepared, which will define the cost associated with the installation and energy consumption related to the HVAC systems in this particular school project. It should be noted that the following estimates are based on schematic level plans and system sizes and will most likely change as the project design develops more completely.

The construction costs were calculated using the latest edition of the RS Means Mechanical Cost Data book. Energy costs were calculated with the aid of the latest version of the Hourly Analysis Program published by the Carrier Corporation, which utilized typical natural gas and electric rates published by the Energy Information Administration. Maintenance costs were also obtained from RS Means.

Summary of Costs:

- HVAC Construction Cost: $7,459,120.00
- HVAC Systems Annual Electric Energy Cost: $176,035.00
- HVAC Systems Annual Gas Energy Cost: $23,900.00
- HVAC Systems Annual Maintenance Cost: $7,030.00

Option 2B
Building Systems Narratives: Electrical

ELECTRIC SERVICE

A new building electric service will be provided to the Addition, served via a pad mounted transformer located on site, and installed by the electric utility company. Primary service conduits in concrete duct bank will be provided from the electric utility pole to the transformer via electric utility co. standard manholes. Secondary service feeders and conduits in concrete duct bank will be provided from the transformer to the new switchboard in the Addition. The electric utility co. meter will be mounted on the transformer.

TELEPHONE SERVICE

New telephone service conduits will be provided from a utility pole to the demarcation point (MDF Room) in the Addition.

FIRE ALARM SERVICE

The new fire alarm system will call the Fire Department per Fire Department Standards.

CABLE TV SERVICE

New CATV service conduits will be provided from a utility pole to the building demarcation point (MDF Room) in the Addition.

POWER DISTRIBUTION

The new switchboard will be located in the main electric room within the Addition. The existing 800 amp 120/208 volt, three phase, four wire switchboard with associated existing power distribution will be replaced with new. Preliminary load calculations indicate that the switchboard will be rated at 4000 amperes, 277/480 volt, three phase, four wire. The main will be provided with a surge protection device. A switchboard distribution section will feed 277/480 volt panelboards and major Mechanical and Plumbing equipment. Dry-type transformers will be provided to distribute 120/208 volt power for branch circuit panelboards and the Kitchen panelboards. One of the kitchen panelboards will be provided with a shunt trip main circuit breaker which will trip if fire suppression under hoods in initiated, shutting down all circuits under hoods. Panelboards with surge protection devices for computers will be provided, fed from computer grade K-rated transformers. Zero sequence harmonic filters connected to the computer panelboards will be provided to reduce neutral currents.

EMERGENCY POWER SYSTEM

A diesel fuel generator with a sound attenuated, weatherproof enclosure will be provided on the site. Preliminary load calculations indicate that the generator will be rated at 750kW, 277/480 volt, three phase, four wire. The generator will supply emergency power automatically upon loss of normal power to emergency egress, exterior building mounted, Administration, Student Dining, Mechanical Room, Electric rooms, Kitchen, Student Dining, ganged Toilet rooms, Custodian, Teacher Dining, Receiving, Locker rooms, Nurse's suite, and

Gymnasium lighting, elevators, heating system equipment, fire alarm control panel, telephone system, MDF and IDF rooms, cooling for MDF and IDF rooms, and kitchen walk in cooler and freezer. Two ATS's will be provided in the to separate emergency from optional standby loads. The emergency ATS and associated emergency panelboards will be located in two hour rated closets within the Addition with two hour rated feeders. The optional standby ATS and associated panelboards will be located in normal electric rooms within the Addition. New electric rooms will be provided within the existing building to extend emergency power to the existing building.

FIRE ALARM

An addressable manual and automatic fire alarm system will be provided in the Addition. A new fire alarm control panel will be located in the main electric room of the Addition. The new fire alarm control panel shall interface with the existing addressable Fire Lite MS-9200 fire alarm control panel to maintain existing devices. As part of the project, the existing fire alarm deficiencies shall be addressed so the building is in full compliance with Code at completion of construction. A remote annunciator panel will be provided in the Vestibule at the Main Lobby and where required by the Fire Department. A map of the entire building will be framed and mounted adjacent to the annunciator. A keyed box will be provided outside the Fire Department entries. Manual pull stations will be located within five feet (5') of each egress door and at the entrance to each Stair. Additional pull stations will be provided as required by Code. Heat detectors will be provided at the top of the elevator shaft and any other areas not provided with protection by the fire suppression system. Smoke detectors will be provided in the Corridors, in Stairs at each floor level, in the Elevator Machine Room, and at all elevator landings for early detection of smoke for recall. All devices including tamper, flow, pressure switches, and PIV, associated with the fire suppression system will be connected to the fire alarm system. Audio/visual appliances will be provided in the Corridors, Classrooms and all large areas such as the Auditorium, Gymnasium, Student Dining, and Media Center. Visual devices will be provided in Toilet and Conference rooms. Mechanical equipment will be shut down by the fire alarm system as required by Code.

LIGHTING

Interior

In general, highly efficient fluorescent lighting fixtures and lamps will be provided in the Addition. Lighting levels will be in accordance with I.E.S. (Illuminating Engineering Society of North America) recommendations and the Massachusetts State Building Code energy requirements. Classrooms will be provided with direct/indirect, LED pendant mounted lighting fixtures. Office areas and Conference rooms will be provided with volumetric lighting fixtures. The Gymnasium will be provided with LED high bay lighting fixtures. Storage, Mechanical, and Electrical rooms will be provided with strip lighting fixtures. The Main Lobby, Media Center, and Student Dining will be provided with decorative lighting, probably luminous bowls, down lights, and wall sconces. The Kitchen and Locker rooms will be provided with gasketed wet location lighting fixtures. The Auditorium will be provided with LED surface cylinders, recessed down lights, step lighting, and wall sconces. The Stairs will be provided with wall sconces. Corridors will be provided with prismatic lens troffers. Down lights will be provided at various locations. The Stage will be provided with theatrical lighting fixtures and a dimming system. The dimming system will be connected to the fire alarm system bringing the house lights to full brightness upon initiation of fire alarm system. Edge lit LED exit signs will be provided at all egress doors and at additional locations as required to identify exit discharge routes. Vandal resistant exit signs will be provided in the Gymnasium.

Exterior

Wall and pole mounted site lighting fixtures will be LED type.

SWITCHING

Within the Addition

Lighting fixtures in rooms less than 900 square feet, will be controlled primarily by room occupancy sensors and local low voltage override switches. Lighting fixtures nearest to the exterior walls with windows in Classrooms will be provided with dimming ballasts and will be controlled by daylight sensors. Larger areas not controlled by occupancy sensors and exterior lighting will be controlled through lighting relay panels and low voltage override switches. Digital timer switches will be provided in Storage and Custodial rooms.

DEVICES

Within the Addition

General convenience receptacles will be located throughout the building as required. Receptacles provided in Toilet rooms, near sinks, the Kitchen, and outdoors will be provided with ground fault protection. Circuiting will be provided to Kitchen, Mechanical, and Plumbing equipment, and miscellaneous loads as required.

LIGHTNING PROTECTION

The existing building and the Addition will be provided with a lightning protection system made up of air terminals on the roof with downlead conductors to ground.

BI-DIRECTIONAL AMPLIFIER SYSTEM

A bi-directional amplifier with coaxial cabling above accessible ceilings will be provided in the existing building and the Addition to amplify Fire Department and Police frequencies to ensure that there are no “dead” spots in the building for communication within building.

TECHNOLOGY SYSTEMS BACK BOX AND CONDUIT SYSTEM

Within the Addition

A telephone/data/video/security/clock/speaker conduit system consisting of empty back boxes and conduit with pull strings to above accessible ceilings will be provided for technology. Cable tray will be provided above the Corridor ceilings and MDF and IDF rooms for low voltage wiring.

PV SYSTEM CONDUIT SYSTEM

An empty conduit system with pull strings will be provided for the PV system consisting of photovoltaic panels and an inverter. Conduits will be provided from the switchboard to an exterior mounted disconnect switch for shutting down the PV system if need be. Conduits will also be provided from the exterior disconnect switch to the inverter and from the inverter to the banks of photovoltaic panels.

Option 2B

Building Systems Narratives: Technology

Existing cabling and infrastructure is inadequate, outdated and needs to be replaced. All old data and voice cabling shall be removed and replaced.

The technology labs will be capable of accommodating an entire class of students (28). Network access in the technology labs will be hard wired. Wireless access points will be installed. Labs will contain the same equipment as a classroom. Science labs shall have 14 wired data outlets, and wireless access points installed.

271000 STRUCTURED CABLING

The new network design will support a 10GHZ backbone over single mode and multi-mode fiber and up to 10G over Category 6A to the desktop.

Twelve (12) pairs of single mode fiber and twelve (12) pairs of multi mode fiber will be provided from the MDF to each IDF, to be utilized for data, voice, security systems, etc.

Cat 6A cabling will be provided for data, voice, CCTV, and wireless access points (four data drops at each wireless access point location). Wireless access point outlet placements are intended to provide the capability for complete wireless coverage throughout the school.

Each teacher location will be wired with 4 data ports and a voice port.

Category 6A cabling will be provided for the phone system (Voice over IP).

272100 NETWORK SWITCHES

Network electronics (switches) shall be provided for every data, CCTV and voice port wired, plus 2 ports of every WAP faceplate. All ports shall be Power Over Ethernet. Switches may be proprietary to ensure compatibility with existing district infrastructure.

272133 WIRELESS ACCESS POINTS

3x3 Wireless access points, and a controller if applicable, will be provided, one in each classroom, and a minimum of two in each large group space. Office suites shall also have an access point. Access points may be proprietary to ensure compatibility with existing district infrastructure.

273000

The phone system shall be provided and installed by the owner. The building shall be cabled to support a voice over IP phone system using Cat 6A.

274000

Video and audio presentation equipment (wall mounted wide format ultra short throw projector, voice lift system with amplifier, and up to 4 ceiling speakers) will be permanently installed in classrooms, labs and designated rooms. The PC/laptop in each classroom shall be provided by the owner. Each interactive location shall have a presentation camera.

The Auditorium shall have a theater level presentation and performance sound system. A 10,000 lumen projector shall be included. An assistive listening system shall be provided. Wired and wireless microphones shall be provided. A recording system shall be provided.

Local sound systems and projection shall be provided in each of the two Cafés (5/6 & 7/8) and Gym. These spaces shall also contain assisted listening systems and wired and wireless microphone systems.

Portable recording systems and microphones shall be provided in band and chorus rooms.

274100

An interactive whiteboard with wall mounted projector or interactive wall mounted projector shall be provided in all designated IWB locations (classrooms, conference rooms and Academic team rooms /maker spaces).

275000

A public address system shall be provided. Clocks synchronized with a master clock shall be provided in every classroom and conference room, and where designated on the drawings. The PA system shall be integrated with the owner provided phone system to allow the use of the phone system for paging within the building.

277000

A high definition, 1080p, IPTV system with set top boxes in every classroom shall be provided. TVs with set top boxes shall be provided at designated locations. Coax shall not be run for video distribution purposes within the school. The capability and devices necessary to broadcast three (3) high definition "live" video streams to the IPTV system from any data port within the school shall be provided. A video on demand system shall be provided. An encoder shall be provided in the auditorium to display the local camera as a channel on the IPTV system. Digital signage shall be included. A mini-headend with 4 DVD players and an encoding station shall be included in the media center.

281300

Access control shall be provided. The system may be proprietary to ensure compatibility with district infrastructure. Card readers shall be located as designated on the drawings. The system shall integrate with the CCTV system. Every first floor room with a window shall have a motion sensor. Motion sensors shall also be placed within the hallways and in vestibules to help partition the building into zones for afterhour's use of the facility. Every exterior door shall have door contacts and a request to exit device. Interior doors shall also contain door contacts, card readers and a request to exit device as shown on the drawings. The main entry

shall be equipped with a video entry system. Panic buttons shall be provided as designated on the drawings.

281600

Intrusion detection system and related components shall be provided.

282300

An indoor/outdoor CCTV system (IP based) will be provided. Coverage shall include hallways, stairwells, building perimeter, and parking. Other areas, such as the gym, auditorium, café, and admin shall be included.

Final Evaluation of Alternatives

Construction Cost Estimate

Preferred Schematic Design Estimate

Beverly Public Schools
Middle School - Preferred Options

Beverly, MA

Prepared for:

Architecture Involution LLC

January 13, 2015

PM&C

Beverly Public Schools
Middle School - Preferred Options
Beverly, MA

13-Jan-15

Preferred Schematic Design Estimate

MAIN CONSTRUCTION COST SUMMARY

	Construction Start		Gross Floor Area	$/sf	Estimated Construction Cost
OPTION 1A NEW MIDDLE SCHOOL					
Construct New Middle School - Trade Costs	Jul-15		233,264	$287.37	$67,032,160
Building Demolition - Main Building			103,000	$7.00	$721,000
Allowance for HazMat removals at existing building per UEC estimate					$1,735,000
Sitework - Trade Costs	Jul-15				$6,131,081
SUBTOTAL TRADE COSTS BUILDING and SITEWORK			233,264	$324.18	$75,619,241
Design and Estimating Contingency	10.0%				$7,561,924
Escalation Allowance	4.8%				$3,629,724
SubTotal					$86,810,889
General Conditions		22	Mths	170,000	$3,740,000
General Requirements	2.0%				$1,736,218
Insurances	1.3%				$1,128,542
Bond	1.00%				$868,109
Fee	2.5%				$2,170,272
Permit					NIC
CM Contingency	2.0%				$1,736,218
TOTAL OF ALL CONSTRUCTION ESCALATED TO MID-POINT OF CONSTRUCTION			**233,264**	**$420.94**	**$98,190,248**

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Beverly Public Schools
Middle School - Preferred Options
Beverly, MA

13-Jan-15

Preferred Schematic Design Estimate

OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM

Construct New Middle School - Trade Costs	Jul-15		224,714	$283.15	$63,627,512
Building Demolition - Main Building			103,000	$7.00	$721,000
Allowance for HazMat removals at existing building per UEC estimate					$1,735,000
Sitework - Trade Costs	Jul-15				$6,131,081
SUBTOTAL TRADE COSTS BUILDING and SITEWORK			224,714	$321.36	$72,214,593
Design and Estimating Contingency	10.0%				$7,221,459
Escalation Allowance	4.8%				$3,466,300
SubTotal					$82,902,352
General Conditions		22	Mths	170,000	$3,740,000
General Requirements	2.0%				$1,658,047
Insurances	1.3%				$1,077,731
Bond	1.00%				$829,024
Fee	2.5%				$2,072,559
Permit					NIC
CM Contingency	2.0%				$1,658,047
TOTAL OF ALL CONSTRUCTION ESCALATED TO MID-POINT OF CONSTRUCTION			**224,714**	**$418.03**	**$93,937,760**

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Beverly Public Schools
Middle School - Preferred Options
Beverly, MA

13-Jan-15

Preferred Schematic Design Estimate

OPTION 2A RENOVATION and ADDITION

Construct New Middle School Addition - Trade Costs	Jul-15		165,339	$289.32	$47,836,197
Renovate existing School Building - Trade Costs	Jul-15		88,000	$251.70	$22,149,342
Building Demolition			15,000	$7.00	$105,000
Allowance for HazMat removals at existing building per UEC estimate					$1,735,000
Sitework - Trade Costs	Jul-15				$5,899,404
SUBTOTAL TRADE COSTS BUILDING and SITEWORK			253,339	$306.80	$77,724,943
Design and Estimating Contingency	10.0%				$7,772,494
Escalation Allowance	4.8%				$3,730,797
SubTotal					$89,228,234
General Conditions		22	Mths	170,000	$3,740,000
General Requirements	2.0%				$1,784,565
Insurances	1.3%				$1,159,967
Bond	1.00%				$892,282
Fee	2.5%				$2,230,706
Permit					NIC
CM Contingency	2.0%				$1,784,565
TOTAL OF ALL CONSTRUCTION ESCALATED TO MID-POINT OF CONSTRUCTION			**253,339**	**$397.97**	**$100,820,319**

PM&C

Beverly Public Schools
Middle School - Preferred Options
Beverly, MA

13-Jan-15

Preferred Schematic Design Estimate

OPTION 2B RENOVATION and ADDITION

Construct New Middle School Addition - Trade Costs	Jul-15		215,264	$279.82	$60,235,296
Renovate existing School Building - Trade Costs	Jul-15		20,000	$374.41	$7,488,115
Building Demolition			83,000	$7.00	$581,000
Allowance for HazMat removals at existing building per UEC estimate					$1,735,000
Sitework - Trade Costs	Jul-15				$5,959,224
SUBTOTAL TRADE COSTS BUILDING and SITEWORK			235,264	$323.04	$75,998,635
Design and Estimating Contingency	10.0%				$7,599,864
Escalation Allowance	4.8%				$3,647,934
SubTotal					$87,246,433
General Conditions		22	Mths	170,000	$3,740,000
General Requirements	2.0%				$1,744,929
Insurances	1.3%				$1,134,204
Bond	1.00%				$872,464
Fee	2.5%				$2,181,161
Permit					NIC
CM Contingency	2.0%				$1,744,929
TOTAL OF ALL CONSTRUCTION ESCALATED TO MID-POINT OF CONSTRUCTION			**235,264**	**$419.38**	**$98,664,120**

ALTERNATES (Including Markups):

Covered Bus Barn with PV panels	ADD	**$486,000**
Double Wide Trailer for Offices	ADD	**$250,000**

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[1] HazMat costs are provided by UEC

[2] Costs are based on C. 149a CM at Risk

This preferred schematic cost estimate was produced from drawings and specifications and other documentation prepared by Ai3 Architects and their design team dated January 6th 2015.

This estimate includes all direct construction costs, CM's overhead and profit and design contingency. Cost escalation assumes start dates indicated.

Bidding conditions are expected to be public bidding under Chapter 149a CMr of the Massachusetts General Laws to pre-qualified construction managers, and pre-qualified sub-contractors, open specifications for materials and manufactures.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- All professional fees and insurance
- Building Permit costs
- Land acquisition, feasibility, and financing costs
- All Furnishings, Fixtures and Equipment
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items (e.g. draperies, furniture and equipment)
- Rock excavation; special foundations (unless indicated by design engineers)
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)
- Construction or occupancy phasing or off hours' work, (except as noted in this estimate)

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GFA 233,264

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 1A NEW MIDDLE SCHOOL						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$3,025,467			
	A1020	Special Foundations	$2,841,232			
	A1030	Lowest Floor Construction	$2,677,466	**$8,544,165**	$36.63	12.7%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$4,590,837			
	B1020	Roof Construction	$3,634,401	**$8,225,238**	$35.26	12.3%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$6,138,493			
	B2020	Windows	$3,782,376			
	B2030	Exterior Doors	$193,305	**$10,114,174**	$43.36	15.1%
B30	**ROOFING**					
	B3010	Roof Coverings	$1,510,087			
	B3020	Roof Openings	$116,400	**$1,626,487**	$6.97	2.4%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$4,279,426			
	C1020	Interior Doors	$933,056			
	C1030	Specialties/Millwork	$1,858,018	**$7,070,500**	$30.31	10.5%
C20	**STAIRCASES**					
	C2010	Stair Construction	$283,300			
	C2020	Stair Finishes	$92,950	**$376,250**	$1.61	0.6%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$1,803,557			
	C3020	Floor Finishes	$3,204,255			
	C3030	Ceiling Finishes	$1,198,787	**$6,206,599**	$26.61	9.3%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$302,800	**$302,800**	$1.30	0.5%

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CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 1A NEW MIDDLE SCHOOL						
D20	**PLUMBING**					
	D20	Plumbing	$3,032,432	**$3,032,432**	$13.00	4.5%
D30	**HVAC**					
	D30	HVAC	$8,397,504	**$8,397,504**	$36.00	12.5%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$991,372	**$991,372**	$4.25	1.5%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$1,954,511			
	D5020	Lighting & Power	$2,799,168			
	D5030	Communication & Security Systems	$3,403,938			
	D5040	Other Electrical Systems	$448,867	**$8,606,484**	$36.90	12.8%
E10	**EQUIPMENT**					
	E10	Equipment	$1,380,915	**$1,380,915**	$5.92	2.1%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$2,157,240			
	E2020	Movable Furnishings	NIC	**$2,157,240**	$9.25	3.2%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
TOTAL DIRECT COST (Trade Costs)				**$67,032,160**	$287.37	100.0%

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 1A NEW MIDDLE SCHOOL						
	GROSS FLOOR AREA CALCULATION						
	First Floor	107,621					
	Second Floor	39,893					
	Third Floor	47,236					
	Fourth Floor	38,514					
	TOTAL GROSS FLOOR AREA (GFA)				**233,264**	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
	Perimeter grade beam; 5'-0" deep x 3'-0" wide						
310000	Excavation	**4,762**	cy	9.00	42,858		
310000	Store on site for reuse	**4,762**	cy	8.00	38,096		
310000	Backfill with selected material	**3,095**	cy	6.50	20,118		
033000	Formwork	**17,142**	sf	12.00	205,704		
033000	Re-bar	**200,040**	lbs	1.20	240,048		
033000	Concrete material; 3,000 psi	**1,667**	cy	115.00	191,705		
033000	Placing concrete	**1,667**	cy	40.00	66,680		
	Interior grade beam; 4'-0" deep x 2'-0" wide						
310000	Excavation	**7,111**	cy	9.00	63,999		
310000	Store on site for reuse	**7,111**	cy	8.00	56,888		
310000	Backfill with selected material	**5,618**	cy	6.50	36,517		
033000	Formwork	**19,200**	sf	12.00	230,400		
033000	Re-bar	**179,160**	lbs	1.20	214,992		
033000	Concrete material; 3,000 psi	**1,493**	cy	115.00	171,695		
033000	Placing concrete	**1,493**	cy	40.00	59,720		
	Pile Cap PC1, 5'-2" x 5'-2" x 1'-8"						
310000	Excavation	**1,495**	cy	15.00	22,425		
310000	Store on site for reuse	**1,495**	cy	8.00	11,960		
310000	Backfill with selected material	**1,287**	cy	13.00	16,731		
033000	Formwork	**4,144**	sf	11.00	45,584		
033000	Re-bar	**20,800**	lbs	1.20	24,960		
033000	Concrete material; 3,000 psi	**208**	cy	115.00	23,920		
033000	Placing concrete	**208**	cy	50.00	10,400		
	Pile Cap PC2, 9'-0" x 5'-0" x 4'-0"						
310000	Excavation	**277**	cy	15.00	4,155		
310000	Store on site for reuse	**277**	cy	8.00	2,216		
310000	Backfill with selected material	**165**	cy	13.00	2,145		
033000	Formwork	**1,792**	sf	11.00	19,712		
033000	Re-bar	**11,200**	lbs	1.20	13,440		
033000	Concrete material; 3,000 psi	**112**	cy	115.00	12,880		
033000	Placing concrete	**112**	cy	50.00	5,600		
	Pile Cap PC3, 8'-6" x 7'-0" x 4'-0"						
310000	Excavation	**3,667**	cy	15.00	55,005		
310000	Store on site for reuse	**3,667**	cy	8.00	29,336		
310000	Backfill with selected material	**2,001**	cy	13.00	26,013		
033000	Formwork	**22,320**	sf	11.00	245,520		
033000	Re-bar	**166,600**	lbs	1.20	199,920		
033000	Concrete material; 3,000 psi	**1,666**	cy	115.00	191,590		
033000	Placing concrete	**1,666**	cy	50.00	83,300		

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	OPTION 1A NEW MIDDLE SCHOOL								
53			Pile Cap PC4, 9'-0" x 9'-0" x 4'-0"						
54	310000		Excavation	**351**	cy	15.00	5,265		
55	310000		Store on site for reuse	**351**	cy	8.00	2,808		
56	310000		Backfill with selected material	**175**	cy	13.00	2,275		
57	033000		Formwork	**2,016**	sf	11.00	22,176		
58	033000		Re-bar	**17,600**	lbs	1.20	21,120		
59	033000		Concrete material; 3,000 psi	**176**	cy	115.00	20,240		
60	033000		Placing concrete	**176**	cy	50.00	8,800		
61			Pile Cap PC8, 14'-9" x 13'-0" x 5'-0"						
62	310000		Excavation	**94**	cy	15.00	1,410		
63	310000		Store on site for reuse	**94**	cy	8.00	752		
64	310000		Backfill with selected material	**19**	cy	13.00	247		
65	033000		Formwork	**555**	sf	11.00	6,105		
66	033000		Re-bar	**7,500**	lbs	1.20	9,000		
67	033000		Concrete material; 3,000 psi	**75**	cy	115.00	8,625		
68	033000		Placing concrete	**75**	cy	50.00	3,750		
69			Miscellaneous						
70	310000		Perimeter drain	**2,857**	lf	16.00	45,712		
71	033000		Piers/pilasters	**197**	cy	750.00	147,750		
72	033000		Set anchor bolts grout plates; supplied by others	**1,328**	loc	25.00	33,200		
73			SUBTOTAL					3,025,467	
74									
75		**A1020**	**SPECIAL FOUNDATIONS**						
76	316213		Piling mobilization	**1**	ls	65,000.00	65,000		
77	316213		Load test	**1**	ls	45,000.00	45,000		
78	316213		Vibration monitoring	**1**	ls	35,000.00	35,000		
79	312000		Store surplus material on site	**3,156**	cy	14.00	44,184		
80	316213		Predrilling				NIC		
81	316213		Pile cut offs	**1**	sf	30,000.00	30,000		
82	316213		Precast concrete piles, 16" x 16", spliced, av. 60'	**50,424**	vlf	52.00	2,622,048		
83			SUBTOTAL					2,841,232	
84									
85		**A1030**	**LOWEST FLOOR CONSTRUCTION**						
86			New Structural Slab, 12" thick	*107,621*	*sf*		-		
87	312000		Gravel fill, 8"	**2,671**	cy	28.00	74,788		
88	033001		Rigid insulation	**107,621**	sf	2.00	215,242		
89	033001		Vapor barrier	**107,621**	sf	0.65	69,954		
90	312000		Compact existing sub-grade	**107,621**	sf	0.50	53,811		
91	033001		Formwork	**2,857**	lf	12.00	34,284		
92	033001		Rebar, 6#/SF	**645,726**	lbs	1.20	774,871		
93	033001		Concrete - 12" thick; 4,000 psi	**4,185**	cy	120.00	502,200		
94	033001		Premium for additional rebar at pile caps	**1**	ls	50,000.00	50,000		
95	033001		Placing concrete	**4,185**	cy	45.00	188,325		
96	033001		Finishing and curing concrete	**107,621**	sf	3.00	322,863		
97	033001		Barrier 1 moisture mitigation	**4,185**	cy	65.00	272,025		
98			Elevator Pit						
99	310000		Excavation for elevator pit	**168**	cy	14.00	2,352		
100	310000		Remove off site	**168**	cy	17.37	2,918		
101	310000		Backfill with gravel	**8**	cy	28.00	224		
102			Elevator pit walls						
103	033000		formwork	**960**	sf	9.06	8,698		

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		OPTION 1A NEW MIDDLE SCHOOL						
104	033000	reinforcement	**1,440**	lbs	1.00	1,440		
105	033000	Concrete material; 3,000 psi	**12**	cy	111.00	1,332		
106	033000	placing concrete in walls	**12**	cy	40.00	480		
107		Slab						
108	033000	formwork	**120**	sf	9.06	1,087		
109	033000	reinforcement	**600**	lbs	1.00	600		
110	033000	concrete material in slab	**12**	cy	111.00	1,332		
111	033000	placing concrete in slab; 3,000 psi	**12**	cy	40.00	480		
112		Miscellaneous						
113	071613	Polymer modified Cement waterproofing to elevator pit	**680**	sf	12.00	8,160		
114	033000	Neutralization pit	**1**	loc	4,000.00	4,000		
115	033000	Grease interceptor pit	**1**	loc	2,500.00	2,500		
116	033000	Loading dock	**1**	ls	35,000.00	35,000		
117	033000	Equipment pads	**500**	sf	7.00	3,500		
118	033000	Premium for stepped floor at auditorium	**3,000**	sf	15.00	45,000		
119		SUBTOTAL					2,677,466	
120								
121		***TOTAL - FOUNDATIONS***						**$8,544,165**
122								
123								
124		***A20 BASEMENT CONSTRUCTION***						
125								
126		**A2010 BASEMENT EXCAVATION**						
127		**No Work in this section**						
128		SUBTOTAL						
129								
130		**A2020 BASEMENT WALLS**						
131		**No Work in this section**						
132		SUBTOTAL						
133								
134		***TOTAL - BASEMENT CONSTRUCTION***						
135								
136								
137		***B10 SUPERSTRUCTURE***						
138			12.78	lbs/sf		-		
139		**B1010 FLOOR CONSTRUCTION**	1,491	tns		-		
140		Floor Structure - Steel:						
141	051200	Beams/columns/bracing ; w-sections	**817**	tns	3,300.00	2,696,100		
142	051200	Premium for HSS	**204**	tns	200.00	40,800		
143	051500	Shear studs	**15,705**	ea	6.00	94,230		
144		Floor Structure						
145	053100	Metal floor decking; 2", 18 gage	**125,643**	sf	3.50	439,751		
146	033000	Mesh reinforcement in concrete topping	**144,489**	sf	0.90	130,040		
147	033000	Concrete topping to metal decking, 5 1/4" thick; Light weight	**2,138**	cy	140.00	299,320		
148	033000	Placing concrete topping	**125,643**	sf	2.00	251,286		
149	033000	Concrete to risers at Auditorium/lecture	**267**	cy	700.00	186,900		
150	033000	Moisture Mitigation; admixture	**2,138**	cy	40.00	85,520		
151		Miscellaneous						
152	033000	Rebar at slab edges	**15,000**	lbs	1.00	15,000		
153	078400	Firestopping at floor penetrations	**3**	floors	2,500.00	7,500		
154	078400	Fire stopping at slab edges	**2,857**	lf	4.00	11,428		
155	033000	Additional labor at sloped slab in auditorium	**2,100**	sf	6.00	12,600		
156	033000	Concrete steps to auditorium	**52**	lfr	75.00	3,900		
157	078400	Miscellaneous fire stopping	**1**	ls	20,000.00	20,000		
158	055000	Relieving angles	**4705**	lf	55.00	Incl in Structure		

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		OPTION 1A NEW MIDDLE SCHOOL						
159	051200	Base plates	**13,280**	lbs	1.75	23,240		
160	051200	Moment connections	**12**	ea	500.00	6,000		
161	051200	Supply anchor bolts installed by others	**1,328**	ea	12.00	15,936		
162	078100	Spray-applied fireproofing to beams and columns only	**125,643**	sf	2.00	251,286		
163		SUBTOTAL					4,590,837	
164								
165		**B1020 ROOF CONSTRUCTION**						
166		Roof Structure - Steel:						
167	051200	Beams/columns/bracing ; w-sections	**674**	tns	3,200.00	2,156,800		
168	051200	Premium for HSS	**169**	tns	3,400.00	574,600		
169	051200	Premium for trusses	**1**	ls	25,000.00	25,000		
170	051200	Bridging to roof trusses	**1**	ls	50,000.00	50,000		
171		Roof Structure						
172	053100	Metal roof decking; 1 1/2, 20 gage galv., type B	**82,603**	sf	2.50	206,508		
173	053100	Metal roof decking; 3", NA	**25,018**	sf	6.50	162,617		
174		Miscellaneous						
175	051200	Support framing to roof screen ; HSS galvanized	**13**	tns	3,800.00	49,400		
176	078100	Spray-applied fireproofing to beams and deck	**82,603**	sf	2.00	165,206		
177	033000	Concrete slab for Roof Top equipment	**15,090**	sf	8.00	120,720		
178	055000	Angle framing at roof details	**1**	ls	160,000.00	Incl in Structure		
179	051200	Canopy frame	**3,000**	sf	20.00	60,000		
180	051200	Canopy frame at loading dock	**800**	sf	20.00	16,000		
181	051200	Moment connections	**93**	ea	350.00	32,550		
182	051200	Chiller dunnage	**1**	ls	15,000.00	15,000		
183		SUBTOTAL					$3,634,401	
184								
185		***TOTAL - SUPERSTRUCTURE***						**$8,225,238**
186								
187								
188		***B20 EXTERIOR CLOSURE***						
189								
190		**B2010 EXTERIOR WALLS - 65% of exterior walls**	*72,501*	*sf*		-		
191		Interior skin						
192	042000	8" CMU back up to exterior wall	**10,400**	sf	20.00	208,000		
193	054000	8" metal stud back-up	**62,101**	sf	9.50	589,960		
194	090002	GWB to inside of exterior wall	**72,501**	sf	2.60	188,503		
195	061600	Gypsum densglass sheathing board	**72,501**	sf	2.50	181,253		
196	072726	Air/Vapor barrier to exterior walls, fluid applied	**72,501**	sf	6.00	435,006		
197	072100	Rigid insulation to CMU walls, 3"	**10,400**	sf	2.50	26,000		
198	072100	Rigid insulation, 3"	**62,101**	sf	2.50	155,253		
199		Exterior skin						
200	042000	Allowance for masonry; 50%	**36,251**	sf	34.00	1,232,534		
201	042000	Allowance for metal panels/GFRC	**36,251**	sf	55.00	1,993,805		
202	042000	Premium for brick accent bands	**1**	ls	60,000.00	60,000		
203		Fiberglass Trim and Custom Shapes						
204		Fiberglass Cornice						
205	068200	GFRP cornice	**2,857**	lf	135.00	385,695		
206	068200	Fiberglass window surrounds	**1**	ls	25,000.00	25,000		
207	061000	Wood blocking to Fiberglass Trim	**5,714**	lf	6.00	34,284		
208	090009	Paint/touchup to Fiberglass Trim	**1**	ls	15,000.00	15,000		
209		Precast trim and custom pieces						
210	047200	Precast sills to windows/pilasters/decorative shapes	**1**	ls	175,000.00	175,000		
211		Miscellaneous						

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		OPTION 1A NEW MIDDLE SCHOOL						
212	089200	Louvered equipment enclosure, prefinished louvered aluminum (10' high)	**340**	lf	320.00	108,800		
213	072420	EIFS soffits including: applied finish at canopy	**3,800**	sf	18.00	68,400		
214	072420	GFRP Trim at canopy	**512**	lf	35.00	17,920		
215	101400	Logo signs/banners	1	ls	15,000.00	15,000		
216	042000	Scaffold to exterior walls	111,540	sf	2.00	223,080		
217		SUBTOTAL					$6,138,493	
218								
219		**B2020 WINDOWS - 35% of exterior area**	*39,039*	*sf*		-		
220	085113	Aluminum windows; 80%	**31,231**	sf	80.00	2,498,480		
221	084413	Curtainwall; 20%	**7,808**	sf	110.00	858,880		
222	055000	Sun shade allowance	**1,900**	lf	140.00	266,000		
223	089000	Louvers	**192**	sf	55.00	10,560		
224	055000	Lintels to windows and doors ; supply only installed in 04200	**464**	lf	14.00	6,496		
225	072726	Air/Vapor barrier at window & louver openings	**11,830**	lf	4.50	53,235		
226	079200	Backer rod & sealant at window & louver openings	**11,830**	lf	3.50	41,405		
227	061000	Wood blocking at window openings	**11,830**	lf	4.00	47,320		
228		SUBTOTAL					$3,782,376	
229								
230		**B2030 EXTERIOR DOORS**						
231		Hollow metal doors, frames and HW						
232	081113	Single leaf	**3**	ea	1,600.00	4,800		
233	081113	Double leaf	**3**	pr	3,200.00	9,600		
234		Exterior Doors - Aluminum						
235	084413	3'-0" x 7'-0" w/ glazed panels	**6**	ea	3,800.00	22,800		
236	084413	6'-0" x 7'-0" w/ glazed panels	**19**	pr	7,500.00	142,500		
237		Miscellaneous						
238	083323	Overhead door 8' x 8'	**1**	ea	3,840.00	3,840		
239	083323	Overhead door 8' x 9'	**1**	ea	4,320.00	4,320		
240	079200	Backer rod & sealant to exterior doors	**605**	lf	5.00	3,025		
241	061000	Wood blocking at door openings	**605**	lf	4.00	2,420		
242		SUBTOTAL					$193,305	
243								
244		***TOTAL - EXTERIOR CLOSURE***						**$10,114,174**
245								
246								
247		***B30 ROOFING***						
248								
249		**B3010 ROOF COVERINGS**						
250		Flat Roofing:						
251	075419	White EPDM roof membrane mechanically fastened with 6" insulation	**103,835**	sf	10.50	1,090,268		
252	075419	Membrane roof walkway pads	**5,192**	sf	5.00	25,960		
253		Sloped roofing						
254	073113	Standing seam	**3,786**	sf	32.00	121,152		
255		Miscellaneous Roofing						
256	076200	Through wall flashing	**1**	ls	30,000.00	30,000		
257	076200	Factory fabricated fascia trim/roof edge	**2,857**	lf	18.00	51,426		
258	076200	Snow guard tabs	**473**	ea	25.00	11,825		
259	079513	Roof expansion joints	**1**	ls	5,000.00	5,000		
260	072726	Air/Vapor barrier at roof edges	**2,857**	lf	8.00	22,856		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1A NEW MIDDLE SCHOOL						
261	061000	Wood blocking at expansion joints and roof edges	**1**	ls	50,000.00	50,000		
262	075419	Canopies; roofing	**3,800**	sf	25.00	95,000		
263	077200	Finials	**2**	ea	2,000.00	NIC		
264	077200	Roof ladders	**4**	loc	1,650.00	6,600		
265		SUBTOTAL					$1,510,087	
266								
267		**B3020 ROOF OPENINGS**						
268	077200	Skylight allowance	**1**	ls	90,000.00	90,000		
269	077200	Elevator PH and vent	**2**	ea	3,000.00	6,000		
270	077200	Smoke hatches	**3**	ea	3,900.00	11,700		
271	077200	Roof hatches and ladder	**3**	ea	2,900.00	8,700		
272		SUBTOTAL					$116,400	
273								
274		***TOTAL - ROOFING***						**$1,626,487**
275								
276								
277		***C10 INTERIOR CONSTRUCTION***						
278								
279		**C1010 PARTITIONS**						
280	042000	Allowance for interior partitions	**233,264**	gsf	15.00	3,498,960		
281	055000	Support framing for Operable partition	**30**	lf	120.00	3,600		
282	102228	Operable partition	**420**	sf	45.00	18,900		
283	79200	Sealants & caulking at partitions	**233,264**	gsf	0.15	34,990		
284	102228	Acoustic folding panel door in gym	**3,060**	sf	55.00	168,300		
285	055000	Misc metals to support folding wall in gym	**102**	lf	90.00	9,180		
286	084313	Glass folding doors at learning center	**1,630**	sf	120.00	195,600		
287	088000	Interior glazed borrowed lights and partitions	**233,264**	gsf	1.50	349,896		
288		SUBTOTAL					4,279,426	
289								
290		**C1020 INTERIOR DOORS**						
291	084313	Allowance for interior doors	**233,264**	gsf	4.00	933,056		
292		SUBTOTAL					$933,056	
293								
294		**C1030 SPECIALTIES / MILLWORK**						
295		*Toilet Partitions*						
296	102113	ADA	**24**	ea	1,323.00	31,752		
297	102113	Standard	**24**	ea	823.00	19,752		
298	102113	Urinal screens	**24**	ea	392.00	9,408		
299	102113	Changing cubicles at girls locker	**13**	ea	1,200.00	15,600		
300	102113	Premolded shower bases	**4**	ea	600.00	2,400		
301	102113	Premolded shower bases; HC	**5**	ea	1,400.00	7,000		
302	055000	Miscellaneous support at toilet partitions	**48**	loc	150.00	7,200		
303	102813	*Toilet Accessories*						
304	102813	Gang bathrooms	**24**	rms	2,500.00	60,000		
305	102813	Individual bathrooms	**24**	rms	600.00	14,400		
306	102813	Custodian closet	**8**	rms	500.00	4,000		
307	102813	Folding Shower Seats	**5**	ea	250.00	1,250		
308	102813	Shower and changing cubical curtains	**22**	ea	100.00	2,200		
309								
310	055000	Metal catwalk to auditorium; including stairs	**1**	ls	60,000.00	60,000		
311		*Auditorium*						
312	062000	Wood sliding glass door at control room in Auditorium; 14'-2" wide x 8'-0" high	**1**	ea	5,500.00	5,500		
313	051200	Support framing for auditorium lighting	**1**	ls	5,000.00	5,000		
314	061000	Stair construction at Auditorium stage	**66**	lfr	90.00	5,940		
315		*Library/Media Center*						

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		OPTION 1A NEW MIDDLE SCHOOL						
316	062000	Wood trim & shelving at library	**213**	lf	220.00	46,860		
317	062000	Tiered seating in library, circular	**28**	lf	250.00	7,000		
318		*HS Student Dining*						
319	062000	Wood trim	**115**	lf	42.00	4,830		
320	062000	Misc. trim	**1**	ls	4,000.00	4,000		
321	062000	Signage	**1**	ls	8,000.00	8,000		
322	062000	Crown molding	**132**	lf	35.00	4,620		
323	062000	Recycling Center	**22**	lf	400.00	8,800		
324		*MS Student Dining*						
325	062000	Wood trim	**231**	lf	42.00	9,702		
326	062000	Misc. trim	**1**	ls	5,000.00	5,000		
327	062000	Signage	**1**	ls	10,000.00	10,000		
328	062000	Crown molding	**89**	lf	35.00	3,115		
329	062000	Recycling Center	**22**	lf	400.00	8,800		
330		*Band/Chorus*						
331	062000	Wood columns/piers	**189**	sf	45.00	8,505		
332	062000	Wood trim	**462**	lf	18.00	8,316		
333	062000	Misc. trim	**1**	ls	1,000.00	1,000		
334	123000	tall storage	**4**	ea	1,200.00	4,800		
335	123000	cubbies	**32**	lf	250.00	8,000		
336	123000	Band Chorus storage - Wegner	**1**	ls	30,000.00	F,F&E		
337	123000	Large storage	**3**	loc	1,500.00	4,500		
338		*Gym/Athletics*						
339	062000	Signage/graphics	**1**	ls	20,000.00	20,000		
340	101116	*Visual display boards*						
341	101116	Marker/tack Boards	**233,264**	gsf	1.00	233,264		
342	101116	8' IWB	**75**	loc	5,400.00	405,000		
343	061000	Backer panels in electrical closets	**1**	ls	1,000.00	1,000		
344	088000	Mirrors at choral and ensemble	**134**	sf	26.00	3,484		
345	088000	Mirrors at PE Alt allowance	**168**	sf	26.00	4,368		
346	055000	Support to projection screens	**1**	ls	2,000.00	2,000		
347	055000	SS lockable time capsule	**1**	ea	1,500.00	1,500		
348	055000	Supports for stage lighting	**1**	ls	10,000.00	10,000		
349	055000	Elevator support framing	**1**	ls	2,500.00	2,500		
350	079513	Expansion joint cover assemblies	**1**	ls	25,000.00	25,000		
351	105113	Metal corridor lockers; single tier	**1,395**	opng	180.00	251,100		
352	033000	Concrete base at lockers	**1**	ls	12,000.00	12,000		
353	105113	Open face lockers in locker room single tier	**32**	opn	200.00	6,400		
354	105113	12" wide x 12" high Metal gym lockers; double tier	**440**	opn	180.00	79,200		
355	105113	15' wide x 24" high Metal gym lockers; double tier	**268**	opn	220.00	58,960		
356	105113	Lockers @ Kitchen	**10**	opn	240.00	2,400		
357	105113	Lockers @ Custodian	**6**	opn	240.00	1,440		
358	105113	Locker room benches	**48**	lf	150.00	7,200		
359	104400	Fire extinguisher cabinets	**78**	ea	350.00	27,300		
360	055100	Handrails at auditorium	**84**	lf	55.00	4,620		
361	055100	Guardrails at auditorium	**52**	lf	175.00	9,100		
362	055100	Guardrails at floor openings 2nd floor including rails at radius	**390**	lf	220.00	85,800		
363	104400	Emergency key cabinets	**1**	ls	500.00	500		
364	101400	Signage	**1**	ls	80,000.00	80,000		
365	101400	Signage at library	**1**	ls	1,500.00	Incl		
366	101400	Building directory	**2**	ea	1,000.00	Incl		

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		OPTION 1A NEW MIDDLE SCHOOL						
367	101400	Exterior signage	**1**	ls	5,850.00	Incl		
368	101400	Dedication plaque	**1**	ea	1,400.00	Incl		
369	055000	Misc metals	**233,264**	sf	0.50	116,632		
370		SUBTOTAL					1,858,018	
371								
372		***TOTAL - INTERIOR CONSTRUCTION***						**$7,070,500**
373								
374								
375		***C20 STAIRCASES***						
376								
377		**C2010 STAIR CONSTRUCTION**						
378	055100	Monumental stairs	**2**	flt	35,000.00	70,000		
379	055100	Egress stairs	**9**	flt	22,000.00	198,000		
380	033000	Concrete fill to stairs	**1**	ls	12,000.00	12,000		
381	055100	Roof access ladders	**3**	ea	1,100.00	3,300		
382		SUBTOTAL					$283,300	
383								
384		**C2020 STAIR FINISHES**						
385	090009	High performance coating to stairs including all railings etc.	**11**	flt	2,500.00	27,500		
386	090006	Stair finish to monumental stairs	**350**	lfr	25.00	8,750		
387	090006	Rubber base; stairs	**1,350**	lf	3.00	4,050		
388	090006	Rubber tile at stairs - landings	**3,150**	sf	9.00	28,350		
389	090006	Rubber tile at stairs - treads & risers	**1,350**	lft	18.00	24,300		
390		SUBTOTAL					$92,950	
391								
392		***TOTAL - STAIRCASES***						**$376,250**
393								
394								
395		***C30 INTERIOR FINISHES***						
396								
397		**C3010 WALL FINISHES**						
398	090009	Paint to GWB/CMU walls	**233,264**	gsf	1.50	349,896		
399	090003	Ceramic wall tile in shower rooms full height	**4,374**	sf	18.00	78,732		
400	090003	Ceramic wall tile in shower rooms wainscoting	**3,114**	sf	18.00	56,052		
401	090003	Ceramic wall tile toilet rooms; full height at wet wall, wainscoting elsewhere	**13,320**	sf	18.00	239,760		
402	090003	Ceramic wall tile in custodian rooms	**420**	sf	16.00	6,720		
403	062000	Wood paneling and trim at auditorium including railings, pilasters etc.	**1**	ls	175,000.00	175,000		
404		*Library/Media Center*						
405	062000	Wood columns/piers at library	**1,440**	sf	45.00	64,800		
406	062000	Wood trim & molding at library entry complete	**1**	ls	12,000.00	NIC		
407	062000	Wood Paneling in library	**334**	sf	60.00	20,040		
408	062000	Wood trim @ chair rail band at library	**240**	lf	42.00	10,080		
409		*HS Student Dining*						
410	098414	Sound absorption panels	**143**	sf	22.00	3,146		
411		*MS Student Dining*						
412	098414	Sound absorption panels	**171**	sf	22.00	3,762		
413		*Band/Chorus*						
414	062000	Wood columns/piers	**189**	sf	45.00	8,505		
415	098414	Sound absorption panels	**1,232**	sf	22.00	27,104		
416	098414	Sound absorption panels @ ensemble	**700**	sf	22.00	15,400		

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		OPTION 1A NEW MIDDLE SCHOOL						
417		*Lobby*						
418	062000	Wood trim and paneling to lobby	**1**	ls	80,000.00	80,000		
419		*Gym/Athletics*						
420	098414	Sound absorption panels @ alt gym	**500**	sf	22.00	11,000		
421	098414	Sound absorption panels @ gym	**1,000**	sf	22.00	22,000		
422	090003	Porcelain tile to walls at student dining	**2,208**	sf	20.00	44,160		
423	090003	Porcelain tile to columns at student dining	**630**	sf	22.00	13,860		
424	090003	Porcelain wall tile to corridors	**22,172**	sf	20.00	443,440		
425	090003	Porcelain tile to walls at stairs	**5,830**	sf	20.00	116,600		
426	090003	FRP to kitchen	**1,500**	sf	9.00	13,500		
427		SUBTOTAL					$1,803,557	
428								
429		**C3020 FLOOR FINISHES**						
430	062000	Wood base	**242**	lf	8.00	1,936		
431	062000	Wood base to gym and PE alternatives	**524**	lf	9.00	4,716		
432	096466	Wood strip flooring to stage	**2,041**	sf	8.00	16,328		
433	096466	Oak T&G wood strip flooring to stairs at stage	**48**	lfr	25.00	1,200		
434	096400	Gymnasium wood flooring	**15,400**	sf	16.00	246,400		
435	096800	Carpet to floors; library	**5,739**	sf	5.00	28,695		
436	096800	Carpet to floors; auditorium	**3,023**	sf	5.00	15,115		
437	096800	Carpet to floors; selected classrooms & offices	**8,101**	sf	5.00	40,505		
438	090003	Epoxy Terrazzo to main corridor and lobby floors	**78,829**	sf	26.00	2,049,554		
439	090003	Terrazzo base	**4,622**	lf	18.00	83,196		
440	090003	Quarry tile to floors	**3,001**	sf	18.00	54,018		
441	090003	Quarry tile base	**473**	lf	14.00	6,622		
442	090003	Ceramic mosaic tiles to floors; toilets & showers	**10,571**	sf	16.60	175,479		
443	090003	Ceramic tile base	**2,500**	lf	12.00	30,000		
444	090006	VCT to floors	**57,023**	sf	3.60	205,283		
445	090006	Seamless sheet vinyl	**8,467**	sf	7.00	59,269		
446	090006	Vinyl cove base	**10,368**	lf	2.80	29,030		
447	090009	Painted concrete floor	**12,341**	sf	1.50	18,512		
448	090006	Rubber flooring	**13,162**	sf	10.00	131,620		
449	090006	Static control resilient flooring	**753**	sf	9.00	6,777		
450		SUBTOTAL					$3,204,255	
451								
452		**C3030 CEILING FINISHES**						
453	090002	GWB ceilings; allowance	**5,000**	sf	10.00	50,000		
454	090002	GWB soffits; allowance	**1**	ls	100,000.00	100,000		
455	090002	Acoustical clouds in Auditorium	**1,895**	sf	70.00	132,650		
456	090002	Wood ceilings	**2,000**	sf	35.00	70,000		
457	090009	Paint to ceilings	**5,000**	sf	1.00	5,000		
458	090009	Paint exposed structure - gym, auditorium	**25,881**	sf	2.50	64,703		
459	090009	Paint exposed structure	**9,269**	sf	1.50	13,904		
460	095100	ACT 1 ceiling 2 x 4	**55,475**	sf	3.75	208,031		
461	095100	ACT 2 ceiling 2 x 2	**110,404**	sf	4.50	496,818		
462	095100	ACT 3 ceiling 2 x 4 to kitchen, locker rooms, toilets etc.	**13,572**	sf	4.25	57,681		
463		SUBTOTAL					1,198,787	
464								
465		***TOTAL - INTERIOR FINISHES***						**$6,206,599**

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		OPTION 1A NEW MIDDLE SCHOOL						
466								
467								
468		***D10 CONVEYING SYSTEMS***						
469								
470		**D1010 ELEVATOR**						
471	142424	Passenger elevator, 4 stop, 1 opening; 3500 lbs; 120 fpm	**1**	ea	160,000.00	160,000		
472	142424	Passenger elevator, 4 stop, 1 opening; 2000 lbs; 120 fpm	**1**	ea	140,000.00	140,000		
473	055000	6 x 4 x 3/8 angle to elevator pit	**30**	lf	25.00	750		
474	055000	Pit ladders	**2**	ea	650.00	1,300		
475	055000	Sill angles	**30**	lf	25.00	750		
476		SUBTOTAL					$302,800	
477								
478		***TOTAL - CONVEYING SYSTEMS***						**$302,800**
479								
480								
481		***D20 PLUMBING***						
482								
483		**D20 PLUMBING, GENERALLY**						
484	220000	Complete plumbing systems	**233,264**	gsf	13.00	3,032,432		
485		SUBTOTAL					$3,032,432	
486								
487		***TOTAL - PLUMBING***						**$3,032,432**
488								
489		***D30 HVAC***						
490								
491		**D30 HVAC, GENERALLY**						
492	230000	HVAC Allowance	**233,264**	gsf	36.00	8,397,504		
493		SUBTOTAL					$8,397,504	
494								
495		***TOTAL - HVAC***						**$8,397,504**
496								
497								
498		***D40 FIRE PROTECTION***						
499								
500		**D40 FIRE PROTECTION, GENERALLY**						
501	210000	Allowance for wet sprinkler system	**233,264**	sf	3.50	816,424		
502	210000	Allowance for standpipe system	**233,264**	sf	0.75	174,948		
503		SUBTOTAL					991,372	
504								
505		***TOTAL - FIRE PROTECTION***						**$991,372**
506								
507								
508		***D50 ELECTRICAL***						
509								
510		**D5010 SERVICE & DISTRIBUTION**						
511		**Gear & Distribution**						
512		Normal Power						
513	260000	Allowance for switchgear, feeders, panels, etc.	**233,264**	sf	4.55	1,061,351		
514		Emergency power						
515	260000	750kW diesel fueled WP enclosed generator	**1**	ea	270,000.00	270,000		

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516	260000	Allowance for switchgear, feeders, panels, etc.	**233,264**	sf	1.00	233,264		
517		UPS System						
518	260000	Allowance for UPS system	**1**	ea	30,000.00	30,000		
519		Equipment Wiring						
520	260000	Allowance for mechanical equipment feeds & connections	**233,264**	sf	1.50	349,896		
521	260000	Allowance for empty conduits for PV system	**1**	ls	10,000.00	10,000		
522		SUBTOTAL					$1,954,511	
523								
524	**D5020**	**LIGHTING & POWER**						
525		Lighting & Branch Power						
526	260000	Allowance for light fixtures incl. wiring	**233,264**	sf	9.00	2,099,376		
527		Lighting Control						
528	260000	Allowance for lighting control incl. wiring	**233,264**	sf	1.25	291,580		
529		Branch devices				-		
530	260000	Allowance for branch power receptacles incl. wiring	**233,264**	sf	1.75	408,212		
531		SUBTOTAL					$2,799,168	
532								
533	**D5030**	**COMMUNICATION & SECURITY SYSTEMS**						
534		Voice & Data						
535	260000	Allowance for voice & data system c/w wiring, devices, racks, patch panels, etc.	**233,264**	sf	2.55	594,823		
536	260000	Switching	**1**	ls	300,000.00	300,000		
537	260000	Wireless devices	**1**	ls	150,000.00	150,000		
538	260000	Phone system	**1**	ls	150,000.00	150,000		
539		Fire Alarm						
540	260000	Allowance for addressable fire alarm system incl. bi-directional amplifier system	**233,264**	sf	2.50	583,160		
541		Master Clock System						
542	260000	Allowance for wireless clock system and PA	**233,264**	sf	0.80	186,611		
543		Security System						
544	260000	Allowance for security system	**233,264**	sf	2.15	501,518		
545		Audio Visual Systems						
546	260000	Auditorium rigging equipment		ls		**See Equipment**		
547	260000	Theatrical dimming system equipment & installation	**1**	ls	200,000.00	200,000		
548	260000	Allowance for Theater lighting to Auditorium	**1**	ls	100,000	100,000		
549	260000	Allowance for assisted listening systems	**233,264**	sf	0.10	23,326		
550	260000	Allowance for Lecture Hall AV system	**1**	ls	75,000.00	75,000		
551	260000	Allowance for Auditorium AV system	**1**	ls	125,000.00	125,000		
552	260000	Allowance for Gym AV system	**1**	ls	40,000.00	40,000		
553	260000	Allowance for PE Alternatives sound system	**1**	ls	25,000.00	25,000		
554	260000	Allowance for Cafe sound system	**1**	ls	25,000.00	25,000		
555	260000	Allowance for IPTV system	**1**	ls	300,000.00	300,000		
556	260000	Allowance for TV Studio rough-in	**1**	ls	7,500.00	7,500		
557	260000	Allowance for TV Studio AV systems				**See Equipment**		
558		Gymnasium Equipment						
559	260000	Scoreboard with controls and shot clock & wireless controller, allow	**2**	ea	5,000.00	10,000		
560	260000	Shot Clock with remote control station, allow	**2**	ea	3,500.00	7,000		
561		SUBTOTAL					$3,403,938	
562								
563	**D5040**	**OTHER ELECTRICAL SYSTEMS**						
564		Miscellaneous						
565	260000	Grounding & bonding	**233,264**	sf	0.15	34,990		

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		OPTION 1A NEW MIDDLE SCHOOL						
566	260000	Lightning protection system, allow	**233,264**	sf	0.30	69,979		
567	260000	Temp power and lights	**233,264**	sf	0.60	139,958		
568	260000	Electrical general conditions / requirements	**1**	ls	203,940.43	203,940		
569		SUBTOTAL					$448,867	
570								
571		***TOTAL - ELECTRICAL***						**$8,606,484**
572								
573								
574		***E10 EQUIPMENT***						
575								
576		**E10 EQUIPMENT, GENERALLY**						
577	116100	Theater & stage equipment including stage curtains & rigging	**1**	ls	230,000.00	230,000		
578	260000	TV Studio track, curtain, & grid	**1**	ls	53,000.00	53,000		
579	119000	Lecture hall equipment - dimming, control, & performance fixtures - Allow	**1**	ls	30,000.00	30,000		
580	102123	Cubicle curtain & track	**6**	loc	500.00	3,000		
581	115213	Projection screen; gymnasium	**1**	ea	9,000.00	9,000		
582	115213	Projection screen; stage proscenium	**1**	ea	9,000.00	9,000		
583	115213	Projection screen; cafeteria	**1**	ea	2,200.00	2,200		
584	115213	Projection screen; lecture hall	**1**	ea	2,200.00	2,200		
585	115213	TV Display- free standing	**5**	ea	5,000.00	FFE		
586	114000	Food service equipment	**1**	ls	500,000.00	500,000		
587	116653	Gym dividing curtain	**4,887**	sf	16.00	78,192		
588	116623	Wall pads to gym	**1,020**	sf	9.63	9,823		
589	116623	Fold up basketball stops, electric	**12**	ea	7,800.00	93,600		
590	126613	Telescoping bleachers; fixed	**1,000**	seat	120.00	120,000		
591	116623	Mat hoist gym	**4**	ea	8,000.00	32,000		
592	116623	Folding mats	**1**	ls	5,000.00	5,000		
593	116623	Volley ball standards	**1**	ls	1,500.00	1,500		
594	115313	Equipment for tv editing and production	**1**	ls	25,000.00	25,000		
595								
596	115313	Kiln	**2**	ea	3,000.00	6,000		
597	115313	Science classrooms equipment; fume hoods	**2**	ea	8,200.00	16,400		
598	115300	Science classrooms equipment; other equipment	**1**	ls	100,000.00	100,000		
599	115300	Equipment at central chemical storage	**1**	loc	20,000.00	20,000		
600	113100	Residential appliances	**1**	ls	35,000.00	35,000		
601		SUBTOTAL					$1,380,915	
602								
603		***TOTAL - EQUIPMENT***						**$1,380,915**
604								
605								
606		***E20 FURNISHINGS***						
607								
608		**E2010 FIXED FURNISHINGS**						
609	124813	Recessed entry mats	**400**	sf	45.00	18,000		
610	124813	Walk off mats	**400**	sf	15.00	6,000		
611	122400	Roller blinds to windows	**39,039**	sf	6.00	234,234		
612	126100	Auditorium seating	**463**	seat	280.00	129,640		
613	126100	Small seminar seating	**112**	seat	200.00	22,400		
614	064000	Display case at art	**20**	lf	400.00	8,000		
615	064000	Display case with bench at radius	**132**	lf	500.00	66,000		
616	064000	Display case at cafeteria	**2**	loc	15,000.00	30,000		
617	062000	Window sill	**1,869**	lf	30.00	56,070		
618	090009	Stain, paint to wood trim and panels	**1**	ls	15,000.00	15,000		
619	062000	Wood chair rail at porcelain hall wainscoting	**2,812**	lf	15.00	42,180		

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GFA 233,264

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1A NEW MIDDLE SCHOOL						
620	064000	Custom wood notice boards (15 locations)	**225**	sf	60.00	13,500		
621	123000	Classroom Casework and specialties	**233,264**	gsf	6.50	1,516,216		
622		SUBTOTAL					$2,157,240	
623								
624	**E2020**	**MOVABLE FURNISHINGS**						
625		All movable furnishings to be provided and installed by owner						
626		SUBTOTAL					NIC	
627								
628		***TOTAL - FURNISHINGS***						**$2,157,240**
629								
630								
631	***F10***	***SPECIAL CONSTRUCTION***						
632								
633	**F10**	**SPECIAL CONSTRUCTION**						
634		No items in this section						
635		SUBTOTAL						
636								
637		***TOTAL - SPECIAL CONSTRUCTION***						
638								
639								
640	***F20***	***SELECTIVE BUILDING DEMOLITION***						
641								
642	**F2010**	**BUILDING ELEMENTS DEMOLITION**						
643		See main summary for demolition of existing buildings						
644		SUBTOTAL						
645								
646	**F2020**	**HAZARDOUS COMPONENTS ABATEMENT**						
647	013280	Removal of Asbestos Containing Materials in existing building - Included in Summary						
648		SUBTOTAL						
649								
650		***TOTAL - SELECTIVE BUILDING DEMOLITION***						

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK OPTION 1a						
1								
2		***G SITEWORK***						
3								
4		**G10 SITE PREPARATION & DEMOLITION**						
5		Site Demolitions and Relocations						
6	024100	Site construction fence	**4,000**	lf	11.00	44,000		
7	024100	Pavement/curbing removal - grind up asphalt to reuse	**150,000**	sf	1.00	150,000		
8	024100	Remove and dispose concrete sidewalk	**30,000**	sf	1.25	37,500		
9	024100	Demolish existing buildings				Summary		
10	024100	Remove and dispose of fencing	**1**	ls	5,000.00	5,000		
11	024100	Tree removal	**60**	ea	750.00	45,000		
12	024100	Misc Tree Protection	**1**	ls	2,500.00	2,500		
13	024100	Cap existing waterline	**1**	ls	1,000.00	1,000		
14	024100	Cut and cap existing utilities	**12**	loc	1,000.00	12,000		
15	024100	Remove and dispose of existing drainage structures and utilities	**1**	ls	20,000.00	20,000		
16	024100	Miscellaneous demolition	**1**	ls	50,000.00	50,000		
17		SUBTOTAL					367,000	
18								
19		Site Earthwork						
20	310000	Construction entrances/wheel washes (allowance)	**2**	loc	12,000.00	24,000		
21	311000	Strip topsoil, store on site for reuse	**14,815**	cy	8.00	118,520		
22	310000	Cut/fill	**1**	ls	500,000.00	500,000		
23	310000	Fine grading	**58,172**	sy	0.50	29,086		
24	312500	Silt fence/erosion control (allowance)	**4,000**	lf	12.00	48,000		
25	312500	Erosion Control monitoring & maintenance	**1**	ls	20,000.00	20,000		
26		Hazardous Waste Remediation						
27	024100	No work in this section						
28		SUBTOTAL					739,606	
29								
30		**G20 SITE IMPROVEMENTS**						
31		Roadways and Parking Lots						
32		Bituminous concrete paving	*212,355*			-		
33	320000	gravel base; 12" thick	**7,865**	cy	30.00	235,950		
34	320000	bituminous concrete; 4" thick	**23,595**	sy	26.00	613,470		
35	320000	6"x18" granite curb	**8,639**	lf	32.00	276,448		
36	320000	Single solid lines, 4" thick	**325**	space	25.00	8,125		
37	320000	Wheelchair Parking	**10**	space	75.00	750		
38	320000	Crosswalk Hatching	**3**	loc	900.00	2,700		
39	320000	Other road markings	**1**	ls	7,500.00	7,500		
40	320000	HC curb cuts	**10**	loc	350.00	3,500		
41	042000	Entrance sign	**1**	ls	15,000.00	15,000		
42	321724	New traffic signs	**1**	ls	10,000.00	10,000		
43								
44		Raised Crosswalk						
45		*Concrete pavers*						
46	033000	Precast concrete pavers	**2,727**	sf	16.00	43,632		
47	320000	gravel base; 8" thick	**68**	cy	25.00	1,700		
48	033000	concrete base; 8" thick	**2,727**	sf	9.00	24,543		
49	320000	6"x18" granite curb	**330**	lf	32.00	10,560		
50		Precast Concrete pavers						
51		*Concrete pavers*						
52	033000	Precast concrete pavers	**6,345**	sf	16.00	101,520		
53	320000	gravel base; 8" thick	**157**	cy	25.00	3,925		
54	033000	concrete base; 6" thick	**6,345**	sf	6.00	38,070		
55	033000	granite banding	**400**	lf	35.00	14,000		
56		Pedestrian paving						
57		Bituminous concrete paving	*82,240*			-		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK OPTION 1a						
58	320000	gravel base; 12" thick	**3,046**	cy	30.00	91,380		
59	320000	bituminous concrete; 4" thick	**9,138**	sy	24.00	219,312		
60		*Exposed aggregate concrete*						
61	320000	gravel base; 8" thick	**288**	cy	25.00	7,200		
62	033000	concrete paving; 4" thick	**10,374**	sf	9.00	93,366		
63								
64		Site Improvements						
65	129300	Bicycle racks	**24**	ea	600.00	14,400		
66	129300	Flag pole	**1**	loc	7,500.00	7,500		
67	129300	Ornamental trash/recycling receptacles	**20**	ea	800.00	16,000		
68	129300	Ornamental bollards	**10**	ea	800.00	8,000		
69	129300	6' steel benches	**10**	ea	2,500.00	25,000		
70	129300	Seatwalls	**1**	ls	50,000.00	50,000		
71	129300	Ramps	**1**	ls	15,000.00	15,000		
72	129300	Retaining walls	**1**	ls	100,000.00	100,000		
73	129300	Fencing	**500**	lf	35.00	17,500		
74								
75		*Athletic Fields*						
76	310000	Gravel base - assumed 12" thick	**511**	cy	28.00	14,308		
77	310000	Soil mix; reuse amended soil from on-site spoils (taken in base estimate)	**487**	cy	50.00	24,350		
78	329900	Seeding	**13,150**	sf	0.25	3,288		
79	323114	Vinyl CL Fencing; 6'	**700**	lf	35.00	24,500		
80	323114	Gate, single	**4**	ea	1,200.00	4,800		
81	116800	Scoreboard	**1**	ea	8,000.00	8,000		
82	116800	Soccer goals (movable)	**2**	pr	2,500.00	5,000		
83								
84	116800	Miscellaneous site improvements	**1**	ls	350,000.00	350,000		
85								
86		Landscaping & Plantings:						
87	329900	Spread existing amended topsoil @ seeded areas	**7,759**	cy	18.00	139,662		
88	329900	Re-seed existing wetland area	**50,000**	sf	0.50	25,000		
89	329900	New seeded areas - L&S	**159,506**	sf	0.15	23,926		
90		*Trees*						
91	329900	Shade trees	**95**	ea	1,100.00	104,500		
92	329900	Evergreen tree	**55**	ea	1,000.00	55,000		
93	329900	Shrubs	**87**	ea	170.00	14,790		
94	329900	Other plantings	**1**	ls	50,000.00	50,000		
95	329900	Allowance for irrigation at fields	**13,150**	sf	2.00	26,300		
96		SUBTOTAL					2,949,475	
97								
98	**G30**	**CIVIL MECHANICAL UTILITIES**						
99		Water supply						
100	331000	Allowance for water service	**1**	ls	250,000.00	250,000		
101		Sanitary sewer						
102	333000	Allowance for sanitary service	**1**	ls	100,000.00	100,000		
103	330000	Storm Sewer						
104	330513	Allowance for storm service	**1**	ls	1,200,000.00	1,200,000		
105		Gas and Electrical service						
106		E&B trench for new lines, pipe and install by utilities						
107	310000	New gas service - Allowance	**1,000**	lf	25.00	25,000		
108		SUBTOTAL					1,575,000	
109								

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK OPTION 1a							
110 **G40**	**SITE ELECTRICAL**						
111							
112	Site Electrical & Communications						
113	Allowance for site electrical & communications	**1**	ls	500,000.00	500,000		
114	SUBTOTAL					500,000	
115							
116							
117	**SUBTOTAL SITE DEVELOPMENT**						**$6,131,081**

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Schematic Design Estimate

GFA 224,714

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$2,858,788			
	A1020	Special Foundations	$2,757,478			
	A1030	Lowest Floor Construction	$2,434,379	**$8,050,645**	$35.83	12.7%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$4,385,953			
	B1020	Roof Construction	$3,579,926	**$7,965,879**	$35.45	12.5%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$5,957,388			
	B2020	Windows	$3,672,292			
	B2030	Exterior Doors	$193,305	**$9,822,985**	$43.71	15.4%
B30	**ROOFING**					
	B3010	Roof Coverings	$1,414,662			
	B3020	Roof Openings	$104,700	**$1,519,362**	$6.76	2.4%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$4,137,068			
	C1020	Interior Doors	$898,856			
	C1030	Specialties/Millwork	$1,743,983	**$6,779,907**	$30.17	10.7%
C20	**STAIRCASES**					
	C2010	Stair Construction	$283,300			
	C2020	Stair Finishes	$92,950	**$376,250**	$1.67	0.6%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$1,615,732			
	C3020	Floor Finishes	$3,161,736			
	C3030	Ceiling Finishes	$1,035,676	**$5,813,144**	$25.87	9.1%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$302,800	**$302,800**	$1.35	0.5%

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Schematic Design Estimate

GFA 224,714

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
D20	**PLUMBING**					
	D20	Plumbing	$2,921,282	**$2,921,282**	$13.00	4.6%
D30	**HVAC**					
	D30	HVAC	$8,089,704	**$8,089,704**	$36.00	12.7%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$955,035	**$955,035**	$4.25	1.5%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$1,894,234			
	D5020	Lighting & Power	$2,696,569			
	D5030	Communication & Security Systems	$2,909,683			
	D5040	Other Electrical Systems	$423,461	**$7,923,947**	$35.26	12.5%
E10	**EQUIPMENT**					
	E10	Equipment	$1,141,915	**$1,141,915**	$5.08	1.8%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$1,964,657			
	E2020	Movable Furnishings	NIC	**$1,964,657**	$8.74	3.1%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
TOTAL DIRECT COST (Trade Costs)				**$63,627,512**	$283.15	100.0%

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GFA 224,714

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
	GROSS FLOOR AREA CALCULATION						
	First Floor	99,071					
	Second Floor	39,893					
	Third Floor	47,236					
	Fourth Floor	38,514					
	TOTAL GROSS FLOOR AREA (GFA)				**224,714**	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
	Perimeter grade beam; 5'-0" deep x 3'-0" wide						
310000	Excavation	**4,537**	cy	9.00	40,833		
310000	Store on site for reuse	**4,537**	cy	8.00	36,296		
310000	Backfill with selected material	**2,949**	cy	6.50	19,169		
033000	Formwork	**16,332**	sf	12.00	195,984		
033000	Re-bar	**190,560**	lbs	1.20	228,672		
033000	Concrete material; 3,000 psi	**1,588**	cy	115.00	182,620		
033000	Placing concrete	**1,588**	cy	40.00	63,520		
	Interior grade beam; 4'-0" deep x 2'-0" wide						
310000	Excavation	**6,387**	cy	9.00	57,483		
310000	Store on site for reuse	**6,387**	cy	8.00	51,096		
310000	Backfill with selected material	**5,046**	cy	6.50	32,799		
033000	Formwork	**17,244**	sf	12.00	206,928		
033000	Re-bar	**160,920**	lbs	1.20	193,104		
033000	Concrete material; 3,000 psi	**1,341**	cy	115.00	154,215		
033000	Placing concrete	**1,341**	cy	40.00	53,640		
	Pile Cap PC1, 5'-2" x 5'-2" x 1'-8"						
310000	Excavation	**1,495**	cy	15.00	22,425		
310000	Store on site for reuse	**1,495**	cy	8.00	11,960		
310000	Backfill with selected material	**1,287**	cy	13.00	16,731		
033000	Formwork	**4,144**	sf	11.00	45,584		
033000	Re-bar	**20,800**	lbs	1.20	24,960		
033000	Concrete material; 3,000 psi	**208**	cy	115.00	23,920		
033000	Placing concrete	**208**	cy	50.00	10,400		
	Pile Cap PC2, 9'-0" x 5'-0" x 4'-0"						
310000	Excavation	**277**	cy	15.00	4,155		
310000	Store on site for reuse	**277**	cy	8.00	2,216		
310000	Backfill with selected material	**165**	cy	13.00	2,145		
033000	Formwork	**1,792**	sf	11.00	19,712		
033000	Re-bar	**11,200**	lbs	1.20	13,440		
033000	Concrete material; 3,000 psi	**112**	cy	115.00	12,880		
033000	Placing concrete	**112**	cy	50.00	5,600		
	Pile Cap PC3, 8'-6" x 7'-0" x 4'-0"						
310000	Excavation	**3,504**	cy	15.00	52,560		
310000	Store on site for reuse	**3,504**	cy	8.00	28,032		
310000	Backfill with selected material	**1,912**	cy	13.00	24,856		
033000	Formwork	**21,328**	sf	11.00	234,608		
033000	Re-bar	**159,200**	lbs	1.20	191,040		
033000	Concrete material; 3,000 psi	**1,592**	cy	115.00	183,080		
033000	Placing concrete	**1,592**	cy	50.00	79,600		

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GFA 224,714

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
53		Pile Cap PC4, 9'-0" x 9'-0" x 4'-0"						
54	310000	Excavation	**351**	cy	15.00	5,265		
55	310000	Store on site for reuse	**351**	cy	8.00	2,808		
56	310000	Backfill with selected material	**175**	cy	13.00	2,275		
57	033000	Formwork	**2,016**	sf	11.00	22,176		
58	033000	Re-bar	**17,600**	lbs	1.20	21,120		
59	033000	Concrete material; 3,000 psi	**176**	cy	115.00	20,240		
60	033000	Placing concrete	**176**	cy	50.00	8,800		
61		Pile Cap PC8, 14'-9" x 13'-0" x 5'-0"						
62	310000	Excavation	**94**	cy	15.00	1,410		
63	310000	Store on site for reuse	**94**	cy	8.00	752		
64	310000	Backfill with selected material	**19**	cy	13.00	247		
65	033000	Formwork	**555**	sf	11.00	6,105		
66	033000	Re-bar	**7,500**	lbs	1.20	9,000		
67	033000	Concrete material; 3,000 psi	**75**	cy	115.00	8,625		
68	033000	Placing concrete	**75**	cy	50.00	3,750		
69		Miscellaneous						
70	310000	Perimeter drain	**2,722**	lf	16.00	43,552		
71	033000	Piers/pilasters	**192**	cy	750.00	144,000		
72	033000	Set anchor bolts grout plates; supplied by others	**1,296**	loc	25.00	32,400		
73		SUBTOTAL					2,858,788	
74								
75	**A1020**	**SPECIAL FOUNDATIONS**						
76	316213	Piling mobilization	**1**	ls	65,000.00	65,000		
77	316213	Load test	**1**	ls	45,000.00	45,000		
78	316213	Vibration monitoring	**1**	ls	35,000.00	35,000		
79	312000	Store surplus material on site	**3,057**	cy	14.00	42,798		
80	316213	Predrilling				NIC		
81	316213	Pile cut offs	**1**	sf	30,000.00	30,000		
82	316213	Precast concrete piles, 16" x 16", spliced, av. 60'	**48,840**	vlf	52.00	2,539,680		
83		SUBTOTAL					2,757,478	
84								
85	**A1030**	**LOWEST FLOOR CONSTRUCTION**						
86		New Structural Slab, 12" thick	*99,071*	*sf*		-		
87	312000	Gravel fill, 8"	**2,458**	cy	28.00	68,824		
88	033001	Rigid insulation	**99,071**	sf	2.00	198,142		
89	033001	Vapor barrier	**99,071**	sf	0.65	64,396		
90	312000	Compact existing sub-grade	**99,071**	sf	0.50	49,536		
91	033001	Formwork	**2,722**	lf	12.00	32,664		
92	033001	Rebar, 6#/SF	**594,426**	lbs	1.20	713,311		
93	033001	Concrete - 12" thick; 4,000 psi	**3,853**	cy	120.00	462,360		
94	033001	Premium for additional rebar at pile caps	**1**	ls	50,000.00	50,000		
95	033001	Placing concrete	**3,853**	cy	45.00	173,385		
96	033001	Finishing and curing concrete	**99,071**	sf	3.00	297,213		
97	033001	Barrier 1 moisture mitigation	**3,853**	cy	65.00	250,445		
98		Elevator Pit						
99	310000	Excavation for elevator pit	**168**	cy	14.00	2,352		
100	310000	Remove off site	**168**	cy	17.37	2,918		
101	310000	Backfill with gravel	**8**	cy	28.00	224		
102		Elevator pit walls						
103	033000	formwork	**960**	sf	9.06	8,698		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
104	033000	reinforcement	**1,440**	lbs	1.00	1,440		
105	033000	Concrete material; 3,000 psi	**12**	cy	111.00	1,332		
106	033000	placing concrete in walls	**12**	cy	40.00	480		
107		Slab						
108	033000	formwork	**120**	sf	9.06	1,087		
109	033000	reinforcement	**600**	lbs	1.00	600		
110	033000	concrete material in slab	**12**	cy	111.00	1,332		
111	033000	placing concrete in slab; 3,000 psi	**12**	cy	40.00	480		
112		Miscellaneous						
113	071613	Polymer modified Cement waterproofing to elevator pit	**680**	sf	12.00	8,160		
114	033000	Loading dock	**1**	ls	35,000.00	35,000		
115	033000	Neutralization pit	**1**	loc	4,000.00	4,000		
116	033000	Grease interceptor pit	**1**	loc	2,500.00	2,500		
117	033000	Equipment pads	**500**	sf	7.00	3,500		
118		SUBTOTAL					2,434,379	
119								
120		***TOTAL - FOUNDATIONS***						**$8,050,645**
121								
122								
123		***A20 BASEMENT CONSTRUCTION***						
124								
125		**A2010 BASEMENT EXCAVATION**						
126		**No Work in this section**						
127		SUBTOTAL						
128								
129		**A2020 BASEMENT WALLS**						
130		**No Work in this section**						
131		SUBTOTAL						
132								
133		***TOTAL - BASEMENT CONSTRUCTION***						
134								
135								
136		***B10 SUPERSTRUCTURE***						
137			13.27	lbs/sf		-		
138		**B1010 FLOOR CONSTRUCTION**	1,491	tns		-		
139		Floor Structure - Steel:						
140	051200	Beams/columns/bracing ; w-sections	**817**	tns	3,300.00	2,696,100		
141	051200	Premium for HSS	**204**	tns	200.00	40,800		
142	051500	Shear studs	**15,705**	ea	6.00	94,230		
143		Floor Structure						
144	053100	Metal floor decking; 2", 18 gage	**125,643**	sf	3.50	439,751		
145	033000	Mesh reinforcement in concrete topping	**144,489**	sf	0.90	130,040		
146	033000	Concrete topping to metal decking, 5 1/4" thick; Light weight	**2,138**	cy	140.00	299,320		
147	033000	Placing concrete topping	**125,643**	sf	2.00	251,286		
148	033000	Moisture Mitigation; admixture	**2,138**	cy	40.00	85,520		
149		Miscellaneous						
150	033000	Rebar at slab edges	**15,000**	lbs	1.00	15,000		
151	078400	Firestopping at floor penetrations	**3**	floors	2,500.00	7,500		
152	078400	Fire stopping at slab edges	**2,722**	lf	4.00	10,888		
153	078400	Miscellaneous fire stopping	**1**	ls	20,000.00	20,000		
154	055000	Relieving angles	**4705**	lf	55.00	Incl in Structure		
155	051200	Base plates	**12,960**	lbs	1.75	22,680		
156	051200	Moment connections	**12**	ea	500.00	6,000		
157	051200	Supply anchor bolts installed by others	**1,296**	ea	12.00	15,552		

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		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
158	078100	Spray-applied fireproofing to beams and columns only	**125,643**	sf	2.00	251,286		
159		SUBTOTAL					4,385,953	
160								
161		**B1020 ROOF CONSTRUCTION**						
162		Roof Structure - Steel:						
163	051200	Beams/columns/bracing ; w-sections	**674**	tns	3,200.00	2,156,800		
164	051200	Premium for HSS	**169**	tns	3,400.00	574,600		
165	051200	Premium for trusses	**1**	ls	25,000.00	25,000		
166	051200	Bridging to roof trusses	**1**	ls	50,000.00	50,000		
167		Roof Structure						
168	053100	Metal roof decking; 1 1/2, 20 gage galv., type B	**82,053**	sf	2.50	205,133		
169	053100	Metal roof decking; 3", NA	**17,018**	sf	6.50	110,617		
170		Miscellaneous						
171	051200	Support framing to roof screen ; HSS galvanized	**13**	tns	3,800.00	49,400		
172	078100	Spray-applied fireproofing to beams and deck	**82,053**	sf	2.00	164,106		
173	033000	Concrete slab for Roof Top equipment	**15,090**	sf	8.00	120,720		
174	055000	Angle framing at roof details	**1**	ls	160,000.00	Incl in Structure		
175	051200	Canopy frame	**3,000**	sf	20.00	60,000		
176	051200	Canopy frame at loading dock	**800**	sf	20.00	16,000		
177	051200	Moment connections	**93**	ea	350.00	32,550		
178	051200	Chiller dunnage	**1**	ls	15,000.00	15,000		
179		SUBTOTAL					3,579,926	
180								
181		***TOTAL - SUPERSTRUCTURE***						**$7,965,879**
182								
183								
184		***B20 EXTERIOR CLOSURE***						
185								
186		**B2010 EXTERIOR WALLS - 65% of exterior walls**	*70,220*	*sf*		-		
187		Interior skin						
188	042000	8" CMU back up to exterior wall	**10,400**	sf	20.00	208,000		
189	054000	8" metal stud back-up	**59,820**	sf	9.50	568,290		
190	090002	GWB to inside of exterior wall	**70,220**	sf	2.60	182,572		
191	061600	Gypsum densglass sheathing board	**70,220**	sf	2.50	175,550		
192	072726	Air/Vapor barrier to exterior walls, fluid applied	**70,220**	sf	6.00	421,320		
193	072100	Rigid insulation to CMU walls, 3"	**10,400**	sf	2.50	26,000		
194	072100	Rigid insulation, 3"	**59,820**	sf	2.50	149,550		
195		Exterior skin						
196	042000	Allowance for masonry; 50%	**35,110**	sf	34.00	1,193,740		
197	042000	Allowance for metal panels/GFRC	**35,110**	sf	55.00	1,931,050		
198	042000	Premium for brick accent bands	**1**	ls	60,000.00	60,000		
199		Fiberglass Trim and Custom Shapes						
200		Fiberglass Cornice						
201	068200	GFRP cornice	**2,722**	lf	135.00	367,470		
202	068200	Fiberglass window surrounds	**1**	ls	25,000.00	25,000		
203	061000	Wood blocking to Fiberglass Trim	**5,444**	lf	6.00	32,664		
204	090009	Paint/touchup to Fiberglass Trim	**1**	ls	15,000.00	15,000		
205		Precast trim and custom pieces						
206	047200	Precast sills to windows/pilasters/decorative shapes	**1**	ls	175,000.00	175,000		
207		Miscellaneous						
208	089200	Louvered equipment enclosure, prefinished louvered aluminum (10' high)	**340**	lf	320.00	108,800		

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		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
209	072420	EIFS soffits including: applied finish at canopy	**3,800**	sf	18.00	68,400		
210	072420	GFRP Trim at canopy	**512**	lf	35.00	17,920		
211	101400	Logo signs/banners	1	ls	15,000.00	15,000		
212	042000	Scaffold to exterior walls	108,031	sf	2.00	216,062		
213		SUBTOTAL					5,957,388	
214								
215		**B2020 WINDOWS - 35% of exterior area**	*37,811*	*sf*		-		
216	085113	Aluminum windows; 80%	**30,249**	sf	80.00	2,419,920		
217	084413	Curtainwall; 20%	**7,562**	sf	110.00	831,820		
218	055000	Sun shade allowance	**1,900**	lf	140.00	266,000		
219	089000	Louvers	**192**	sf	55.00	10,560		
220	055000	Lintels to windows and doors ; supply only installed in 04200	**464**	lf	14.00	6,496		
221	072726	Air/Vapor barrier at window & louver openings	**11,458**	lf	4.50	51,561		
222	079200	Backer rod & sealant at window & louver openings	**11,458**	lf	3.50	40,103		
223	061000	Wood blocking at window openings	**11,458**	lf	4.00	45,832		
224		SUBTOTAL					3,672,292	
225								
226		**B2030 EXTERIOR DOORS**						
227		Hollow metal doors, frames and HW						
228	081113	Single leaf	**3**	ea	1,600.00	4,800		
229	081113	Double leaf	**3**	pr	3,200.00	9,600		
230		Exterior Doors - Aluminum						
231	084413	3'-0" x 7'-0" w/ glazed panels	**6**	ea	3,800.00	22,800		
232	084413	6'-0" x 7'-0" w/ glazed panels	**19**	pr	7,500.00	142,500		
233		Miscellaneous						
234	083323	Overhead door 8' x 8'	**1**	ea	3,840.00	3,840		
235	083323	Overhead door 8' x 9'	**1**	ea	4,320.00	4,320		
236	079200	Backer rod & sealant to exterior doors	**605**	lf	5.00	3,025		
237	061000	Wood blocking at door openings	**605**	lf	4.00	2,420		
238		SUBTOTAL					193,305	
239								
240		***TOTAL - EXTERIOR CLOSURE***						**$9,822,985**
241								
242								
243		***B30 ROOFING***						
244								
245		**B3010 ROOF COVERINGS**						
246		Flat Roofing:						
247	075419	White EPDM roof membrane mechanically fastened with 6" insulation	**95,285**	sf	10.50	1,000,493		
248	075419	Membrane roof walkway pads	**4,764**	sf	5.00	23,820		
249		Sloped roofing						
250	073113	Standing seam	**3,786**	sf	32.00	121,152		
251		Miscellaneous Roofing						
252	076200	Through wall flashing	**1**	ls	30,000.00	30,000		
253	076200	Factory fabricated fascia trim/roof edge	**2,722**	lf	18.00	48,996		
254	076200	Snow guard tabs	**473**	ea	25.00	11,825		
255	079513	Roof expansion joints	**1**	ls	5,000.00	5,000		
256	072726	Air/Vapor barrier at roof edges	**2,722**	lf	8.00	21,776		
257	061000	Wood blocking at expansion joints and roof edges	**1**	ls	50,000.00	50,000		
258	075419	Canopies; roofing	**3,800**	sf	25.00	95,000		

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		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
259	077200	Finials	**2**	ea	2,000.00	NIC		
260	077200	Roof ladders	**4**	loc	1,650.00	6,600		
261		SUBTOTAL					1,414,662	
262								
263		**B3020 ROOF OPENINGS**						
264	077200	Skylight allowance	**1**	ls	90,000.00	90,000		
265	077200	Elevator PH and vent	**2**	ea	3,000.00	6,000		
266	077200	Roof hatches and ladder	**3**	ea	2,900.00	8,700		
267		SUBTOTAL					104,700	
268								
269		***TOTAL - ROOFING***						**$1,519,362**
270								
271								
272		***C10 INTERIOR CONSTRUCTION***						
273								
274		**C1010 PARTITIONS**						
275	042000	Allowance for interior partitions	**224,714**	gsf	15.00	3,370,710		
276	055000	Support framing for Operable partition	**30**	lf	120.00	3,600		
277	102228	Operable partition	**420**	sf	45.00	18,900		
278	79200	Sealants & caulking at partitions	**224,714**	gsf	0.15	33,707		
279	102228	Acoustic folding panel door in gym	**3,060**	sf	55.00	168,300		
280	055000	Misc metals to support folding wall in gym	**102**	lf	90.00	9,180		
281	084313	Glass folding doors at learning center	**1,630**	sf	120.00	195,600		
282	088000	Interior glazed borrowed lights and partitions	**224,714**	gsf	1.50	337,071		
283		SUBTOTAL					4,137,068	
284								
285		**C1020 INTERIOR DOORS**						
286	084313	Allowance for interior doors	**224,714**	gsf	4.00	898,856		
287		SUBTOTAL					898,856	
288								
289		**C1030 SPECIALTIES / MILLWORK**						
290		*Toilet Partitions*						
291	102113	ADA	**24**	ea	1,323.00	31,752		
292	102113	Standard	**24**	ea	823.00	19,752		
293	102113	Urinal screens	**24**	ea	392.00	9,408		
294	102113	Changing cubicles at girls locker	**13**	ea	1,200.00	15,600		
295	102113	Premolded shower bases	**4**	ea	600.00	2,400		
296	102113	Premolded shower bases; HC	**5**	ea	1,400.00	7,000		
297	055000	Miscellaneous support at toilet partitions	**48**	loc	150.00	7,200		
298	102813	*Toilet Accessories*						
299	102813	Gang bathrooms	**24**	rms	2,500.00	60,000		
300	102813	Individual bathrooms	**24**	rms	600.00	14,400		
301	102813	Custodian closet	**8**	rms	500.00	4,000		
302	102813	Folding Shower Seats	**5**	ea	250.00	1,250		
303	102813	Shower and changing cubical curtains	**22**	ea	100.00	2,200		
304								
305		*Library/Media Center*						
306	062000	Wood trim & shelving at library	**213**	lf	220.00	46,860		
307	062000	Tiered seating in library, circular	**28**	lf	250.00	7,000		
308		*HS Student Dining*						
309	062000	Wood trim	**115**	lf	42.00	4,830		
310	062000	Misc. trim	**1**	ls	4,000.00	4,000		
311	062000	Signage	**1**	ls	8,000.00	8,000		
312	062000	Crown molding	**132**	lf	35.00	4,620		
313	062000	Recycling Center	**22**	lf	400.00	8,800		
314		*MS Student Dining*						

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		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
315	062000	Wood trim	**231**	lf	42.00	9,702		
316	062000	Misc. trim	**1**	ls	5,000.00	5,000		
317	062000	Signage	**1**	ls	10,000.00	10,000		
318	062000	Crown molding	**89**	lf	35.00	3,115		
319	062000	Recycling Center	**22**	lf	400.00	8,800		
320		*Band/Chorus*						
321	062000	Wood columns/piers	**189**	sf	45.00	8,505		
322	062000	Wood trim	**462**	lf	18.00	8,316		
323	062000	Misc. trim	**1**	ls	1,000.00	1,000		
324	123000	tall storage	**4**	ea	1,200.00	4,800		
325	123000	cubbies	**32**	lf	250.00	8,000		
326	123000	Band Chorus storage - Wegner	**1**	ls	30,000.00	F,F&E		
327	123000	Large storage	**3**	loc	1,500.00	4,500		
328		*Gym/Athletics*						
329	062000	Signage/graphics	**1**	ls	20,000.00	20,000		
330	101116	*Visual display boards*						
331	101116	Marker/tack Boards	**224,714**	gsf	1.00	224,714		
332	101116	8' IWB	**75**	loc	5,400.00	405,000		
333	061000	Backer panels in electrical closets	**1**	ls	1,000.00	1,000		
334	088000	Mirrors at choral and ensemble	**134**	sf	26.00	3,484		
335	088000	Mirrors at PE Alt allowance	**168**	sf	26.00	4,368		
336	055000	Support to projection screens	**1**	ls	2,000.00	2,000		
337	055000	SS lockable time capsule	**1**	ea	1,500.00	1,500		
338	055000	Elevator support framing	**1**	ls	2,500.00	2,500		
339	079513	Expansion joint cover assemblies	**1**	ls	25,000.00	25,000		
340	105113	Metal corridor lockers; single tier	**1,395**	opng	180.00	251,100		
341	033000	Concrete base at lockers	**1**	ls	12,000.00	12,000		
342	105113	Open face lockers in locker room single tier	**32**	opn	200.00	6,400		
343	105113	12" wide x 12" high Metal gym lockers; double tier	**440**	opn	180.00	79,200		
344	105113	15' wide x 24" high Metal gym lockers; double tier	**268**	opn	220.00	58,960		
345	105113	Lockers @ Kitchen	**10**	opn	240.00	2,400		
346	105113	Lockers @ Custodian	**6**	opn	240.00	1,440		
347	105113	Locker room benches	**48**	lf	150.00	7,200		
348	104400	Fire extinguisher cabinets	**75**	ea	350.00	26,250		
349	055100	Guardrails at floor openings 2nd floor including rails at radius	**390**	lf	220.00	85,800		
350	104400	Emergency key cabinets	**1**	ls	500.00	500		
351	101400	Signage	**1**	ls	80,000.00	80,000		
352	101400	Signage at library	**1**	ls	1,500.00	Incl		
353	101400	Building directory	**2**	ea	1,000.00	Incl		
354	101400	Exterior signage	**1**	ls	5,850.00	Incl		
355	101400	Dedication plaque	**1**	ea	1,400.00	Incl		
356	055000	Misc metals	**224,714**	sf	0.50	112,357		
357		SUBTOTAL					1,743,983	
358								
359		***TOTAL - INTERIOR CONSTRUCTION***						**$6,779,907**
360								
361								
362		***C20 STAIRCASES***						
363								
364		**C2010 STAIR CONSTRUCTION**						
365	055100	Monumental stairs	**2**	flt	35,000.00	70,000		
366	055100	Egress stairs	**9**	flt	22,000.00	198,000		
367	033000	Concrete fill to stairs	**1**	ls	12,000.00	12,000		
368	055100	Roof access ladders	**3**	ea	1,100.00	3,300		

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		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
369		SUBTOTAL					283,300	
370								
371	**C2020**	**STAIR FINISHES**						
372	090009	High performance coating to stairs including all railings etc.	**11**	flt	2,500.00	27,500		
373	090006	Stair finish to monumental stairs	**350**	lfr	25.00	8,750		
374	090006	Rubber base; stairs	**1,350**	lf	3.00	4,050		
375	090006	Rubber tile at stairs - landings	**3,150**	sf	9.00	28,350		
376	090006	Rubber tile at stairs - treads & risers	**1,350**	lft	18.00	24,300		
377		SUBTOTAL					92,950	
378								
379		***TOTAL - STAIRCASES***						**$376,250**
380								
381								
382	***C30***	***INTERIOR FINISHES***						
383								
384	**C3010**	**WALL FINISHES**						
385	090009	Paint to GWB/CMU walls	**224,714**	gsf	1.50	337,071		
386	090003	Ceramic wall tile in shower rooms full height	**4,374**	sf	18.00	78,732		
387	090003	Ceramic wall tile in shower rooms wainscoting	**3,114**	sf	18.00	56,052		
388	090003	Ceramic wall tile toilet rooms; full height at wet wall, wainscoting elsewhere	**13,320**	sf	18.00	239,760		
389	090003	Ceramic wall tile in custodian rooms	**420**	sf	16.00	6,720		
390		*Library/Media Center*						
391	062000	Wood columns/piers at library	**1,440**	sf	45.00	64,800		
392	062000	Wood trim & molding at library entry complete	**1**	ls	12,000.00	NIC		
393	062000	Wood Paneling in library	**334**	sf	60.00	20,040		
394	062000	Wood trim @ chair rail band at library	**240**	lf	42.00	10,080		
395		*HS Student Dining*						
396	098414	Sound absorption panels	**143**	sf	22.00	3,146		
397		*MS Student Dining*						
398	098414	Sound absorption panels	**171**	sf	22.00	3,762		
399		*Band/Chorus*						
400	062000	Wood columns/piers	**189**	sf	45.00	8,505		
401	098414	Sound absorption panels	**1,232**	sf	22.00	27,104		
402	098414	Sound absorption panels @ ensemble	**700**	sf	22.00	15,400		
403		*Lobby*						
404	062000	Wood trim and paneling to lobby	**1**	ls	80,000.00	80,000		
405		*Gym/Athletics*						
406	098414	Sound absorption panels @ alt gym	**500**	sf	22.00	11,000		
407	098414	Sound absorption panels @ gym	**1,000**	sf	22.00	22,000		
408	090003	Porcelain tile to walls at student dining	**2,208**	sf	20.00	44,160		
409	090003	Porcelain tile to columns at student dining	**630**	sf	22.00	13,860		
410	090003	Porcelain wall tile to corridors	**22,172**	sf	20.00	443,440		
411	090003	Porcelain tile to walls at stairs	**5,830**	sf	20.00	116,600		
412	090003	FRP to kitchen	**1,500**	sf	9.00	13,500		
413		SUBTOTAL					1,615,732	
414								
415	**C3020**	**FLOOR FINISHES**						
416	062000	Wood base	**242**	lf	8.00	1,936		
417	062000	Wood base to gym and PE alternatives	**524**	lf	9.00	4,716		
418	096400	Gymnasium wood flooring	**15,400**	sf	16.00	246,400		
419	096800	Carpet to floors; library	**5,739**	sf	5.00	28,695		

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Beverly Public Schools
Middle School - Preferred Options
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GFA 224,714

	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
			OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
420	096800		Carpet to floors; selected classrooms & offices	**11,124**	sf	5.00	55,620		
421	090003		Epoxy Terrazzo to main corridor and lobby floors	**78,829**	sf	26.00	2,049,554		
422	090003		Terrazzo base	**4,622**	lf	18.00	83,196		
423	090003		Quarry tile to floors	**3,001**	sf	18.00	54,018		
424	090003		Quarry tile base	**473**	lf	14.00	6,622		
425	090003		Ceramic mosaic tiles to floors; toilets & showers	**10,571**	sf	16.60	175,479		
426	090003		Ceramic tile base	**2,500**	lf	12.00	30,000		
427	090006		VCT to floors	**50,941**	sf	3.60	183,388		
428	090006		Seamless sheet vinyl	**8,467**	sf	7.00	59,269		
429	090006		Vinyl cove base	**9,262**	lf	2.80	25,934		
430	090009		Painted concrete floor	**12,341**	sf	1.50	18,512		
431	090006		Rubber flooring	**13,162**	sf	10.00	131,620		
432	090006		Static control resilient flooring	**753**	sf	9.00	6,777		
433			SUBTOTAL					3,161,736	
434									
435		**C3030**	**CEILING FINISHES**						
436	090002		GWB ceilings; allowance	**5,000**	sf	10.00	50,000		
437	090002		GWB soffits; allowance	**1**	ls	100,000.00	100,000		
438	090002		Wood ceilings	**2,000**	sf	35.00	70,000		
439	090009		Paint to ceilings	**5,000**	sf	1.00	5,000		
440	090009		Paint exposed structure - gym, auditorium	**25,881**	sf	2.50	64,703		
441	090009		Paint exposed structure	**9,269**	sf	1.50	13,904		
442	095100		ACT 1 ceiling 2 x 4	**47,352**	sf	3.75	177,570		
443	095100		ACT 2 ceiling 2 x 2	**110,404**	sf	4.50	496,818		
444	095100		ACT 3 ceiling 2 x 4 to kitchen, locker rooms, toilets etc.	**13,572**	sf	4.25	57,681		
445			SUBTOTAL					1,035,676	
446									
447			***TOTAL - INTERIOR FINISHES***						**$5,813,144**
448									
449									
450		***D10***	***CONVEYING SYSTEMS***						
451									
452		**D1010**	**ELEVATOR**						
453	142424		Passenger elevator, 4 stop, 1 opening; 3500 lbs; 120 fpm	**1**	ea	160,000.00	160,000		
454	142424		Passenger elevator, 4 stop, 1 opening; 2000 lbs; 120 fpm	**1**	ea	140,000.00	140,000		
455	055000		6 x 4 x 3/8 angle to elevator pit	**30**	lf	25.00	750		
456	055000		Pit ladders	**2**	ea	650.00	1,300		
457	055000		Sill angles	**30**	lf	25.00	750		
458			SUBTOTAL					302,800	
459									
460			***TOTAL - CONVEYING SYSTEMS***						**$302,800**
461									
462									
463		***D20***	***PLUMBING***						
464									
465		**D20**	**PLUMBING, GENERALLY**						
466	220000		Complete plumbing systems	**224,714**	gsf	13.00	2,921,282		
467			SUBTOTAL					2,921,282	
468									

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GFA 224,714

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
469		***TOTAL - PLUMBING***						**$2,921,282**
470								
471		***D30 HVAC***						
472								
473		**D30 HVAC, GENERALLY**						
474	230000	HVAC Allowance	**224,714**	gsf	36.00	8,089,704		
475		SUBTOTAL					8,089,704	
476								
477		***TOTAL - HVAC***						**$8,089,704**
478								
479								
480		***D40 FIRE PROTECTION***						
481								
482		**D40 FIRE PROTECTION, GENERALLY**						
483	210000	Allowance for wet sprinkler system	**224,714**	sf	3.50	786,499		
484	210000	Allowance for standpipe system	**224,714**	sf	0.75	168,536		
485		SUBTOTAL					955,035	
486								
487		***TOTAL - FIRE PROTECTION***						**$955,035**
488								
489								
490		***D50 ELECTRICAL***						
491								
492		**D5010 SERVICE & DISTRIBUTION**						
493		**Gear & Distribution**						
494		Normal Power						
495	260000	Allowance for switchgear, feeders, panels, etc.	**224,714**	sf	4.55	1,022,449		
496		Emergency power						
497	260000	750kW diesel fueled WP enclosed generator	**1**	ea	270,000.00	270,000		
498	260000	Allowance for switchgear, feeders, panels, etc.	**224,714**	sf	1.00	224,714		
499		UPS System						
500	260000	Allowance for UPS system	**1**	ea	30,000.00	30,000		
501		Equipment Wiring						
502	260000	Allowance for mechanical equipment feeds & connections	**224,714**	sf	1.50	337,071		
503	260000	Allowance for empty conduits for PV system	**1**	ls	10,000.00	10,000		
504		SUBTOTAL					1,894,234	
505								
506		**D5020 LIGHTING & POWER**						
507		Lighting & Branch Power						
508	260000	Allowance for light fixtures incl. wiring	**224,714**	sf	9.00	2,022,426		
509		Lighting Control						
510	260000	Allowance for lighting control incl. wiring	**224,714**	sf	1.25	280,893		
511		Branch devices				-		
512	260000	Allowance for branch power receptacles incl. wiring	**224,714**	sf	1.75	393,250		
513		SUBTOTAL					2,696,569	
514								
515		**D5030 COMMUNICATION & SECURITY SYSTEMS**						
516		Voice & Data						
517	260000	Allowance for voice & data system c/w wiring, devices, racks, patch panels, etc.	**224,714**	sf	2.55	573,021		

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GFA 224,714

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
518	260000	Switching	**1**	ls	300,000.00	300,000		
519	260000	Wireless devices	**1**	ls	150,000.00	150,000		
520	260000	Phone system	**1**	ls	150,000.00	150,000		
521		Fire Alarm						
522	260000	Allowance for addressable fire alarm system incl. bi-directional amplifier system	**224,714**	sf	2.50	561,785		
523		Master Clock System						
524	260000	Allowance for wireless clock system and PA	**224,714**	sf	0.80	179,771		
525		Security System						
526	260000	Allowance for security system	**224,714**	sf	2.15	483,135		
527		Audio Visual Systems						
528	260000	Allowance for assisted listening systems	**224,714**	sf	0.10	22,471		
529	260000	Allowance for Lecture Hall AV system	**1**	ls	75,000.00	75,000		
530	260000	Allowance for Gym AV system	**1**	ls	40,000.00	40,000		
531	260000	Allowance for PE Alternatives sound system	**1**	ls	25,000.00	25,000		
532	260000	Allowance for Cafe sound system	**1**	ls	25,000.00	25,000		
533	260000	Allowance for IPTV system	**1**	ls	300,000.00	300,000		
534	260000	Allowance for TV Studio rough-in	**1**	ls	7,500.00	7,500		
535	260000	Allowance for TV Studio AV systems				**See Equipment**		
536		Gymnasium Equipment						
537	260000	Scoreboard with controls and shot clock & wireless controller, allow	**2**	ea	5,000.00	10,000		
538	260000	Shot Clock with remote control station, allow	**2**	ea	3,500.00	7,000		
539		SUBTOTAL					2,909,683	
540								
541		**D5040 OTHER ELECTRICAL SYSTEMS**						
542		Miscellaneous						
543	260000	Grounding & bonding	**224,714**	sf	0.15	33,707		
544	260000	Lightning protection system, allow	**224,714**	sf	0.30	67,414		
545	260000	Temp power and lights	**224,714**	sf	0.60	134,828		
546	260000	Electrical general conditions / requirements	**1**	ls	187,512.15	187,512		
547		SUBTOTAL					423,461	
548								
549		***TOTAL - ELECTRICAL***						**$7,923,947**
550								
551								
552		***E10 EQUIPMENT***						
553								
554		**E10 EQUIPMENT, GENERALLY**						
555	260000	TV Studio track, curtain, & grid	**1**	ls	53,000.00	53,000		
556	119000	Lecture hall equipment - dimming, control, & performance fixtures - Allow	**1**	ls	30,000.00	30,000		
557	102123	Cubicle curtain & track	**6**	loc	500.00	3,000		
558	115213	Projection screen; gymnasium	**1**	ea	9,000.00	9,000		
559	115213	Projection screen; cafeteria	**1**	ea	2,200.00	2,200		
560	115213	Projection screen; lecture hall	**1**	ea	2,200.00	2,200		
561	115213	TV Display- free standing	**5**	ea	5,000.00	FFE		
562	114000	Food service equipment	**1**	ls	500,000.00	500,000		
563	116653	Gym dividing curtain	**4,887**	sf	16.00	78,192		
564	116623	Wall pads to gym	**1,020**	sf	9.63	9,823		
565	116623	Fold up basketball stops, electric	**12**	ea	7,800.00	93,600		
566	126613	Telescoping bleachers; fixed	**1,000**	seat	120.00	120,000		
567	116623	Mat hoist gym	**4**	ea	8,000.00	32,000		
568	116623	Folding mats	**1**	ls	5,000.00	5,000		
569	116623	Volley ball standards	**1**	ls	1,500.00	1,500		
570	115313	Equipment for tv editing and production	**1**	ls	25,000.00	25,000		
571								

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 1B NEW MIDDLE SCHOOL WITHOUT AUDITORIUM						
572	115313	Kiln	**2**	ea	3,000.00	6,000		
573	115313	Science classrooms equipment; fume hoods	**2**	ea	8,200.00	16,400		
574	115300	Science classrooms equipment; other equipment	**1**	ls	100,000.00	100,000		
575	115300	Equipment at central chemical storage	**1**	loc	20,000.00	20,000		
576	113100	Residential appliances	**1**	ls	35,000.00	35,000		
577		SUBTOTAL					1,141,915	
578								
579		***TOTAL - EQUIPMENT***						**$1,141,915**
580								
581								
582		***E20 FURNISHINGS***						
583								
584		**E2010 FIXED FURNISHINGS**						
585	124813	Recessed entry mats	**400**	sf	45.00	18,000		
586	124813	Walk off mats	**400**	sf	15.00	6,000		
587	122400	Roller blinds to windows	**37,811**	sf	6.00	226,866		
588	126100	Small seminar seating	**112**	seat	200.00	22,400		
589	064000	Display case at art	**20**	lf	400.00	8,000		
590	064000	Display case with bench at radius	**132**	lf	500.00	66,000		
591	064000	Display case at cafeteria	**2**	loc	15,000.00	30,000		
592	062000	Window sill	**1,869**	lf	30.00	56,070		
593	090009	Stain, paint to wood trim and panels	**1**	ls	15,000.00	15,000		
594	062000	Wood chair rail at porcelain hall wainscoting	**2,812**	lf	15.00	42,180		
595	064000	Custom wood notice boards (15 locations)	**225**	sf	60.00	13,500		
596	123000	Classroom Casework and specialties	**224,714**	gsf	6.50	1,460,641		
597		SUBTOTAL					1,964,657	
598								
599		**E2020 MOVABLE FURNISHINGS**						
600		All movable furnishings to be provided and installed by owner						
601		SUBTOTAL					NIC	
602								
603		***TOTAL - FURNISHINGS***						**$1,964,657**
604								
605								
606		***F10 SPECIAL CONSTRUCTION***						
607								
608		**F10 SPECIAL CONSTRUCTION**						
609		No items in this section						
610		SUBTOTAL						
611								
612		***TOTAL - SPECIAL CONSTRUCTION***						
613								
614								
615		***F20 SELECTIVE BUILDING DEMOLITION***						
616								
617		**F2010 BUILDING ELEMENTS DEMOLITION**						
618		See main summary for demolition of existing buildings						
619		SUBTOTAL						
620								
621		**F2020 HAZARDOUS COMPONENTS ABATEMENT**						
622	013280	Removal of Asbestos Containing Materials in existing building - Included in Summary						
623		SUBTOTAL						
624								
625		***TOTAL - SELECTIVE BUILDING DEMOLITION***						

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Schematic Design Estimate

GFA 88,000

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2A RENOVATION						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$880,000			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$440,000	**$1,320,000**	$15.00	6.0%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$0			
	B1020	Roof Construction	$2,376,000	**$2,376,000**	$27.00	10.7%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$1,928,865			
	B2020	Windows	$1,459,967			
	B2030	Exterior Doors	$42,579	**$3,431,411**	$38.99	15.5%
B30	**ROOFING**					
	B3010	Roof Coverings	$1,295,316			
	B3020	Roof Openings	$11,700	**$1,307,016**	$14.85	5.9%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$1,465,200			
	C1020	Interior Doors	$352,000			
	C1030	Specialties/Millwork	$456,175	**$2,273,375**	$25.83	10.3%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$452,929			
	C3020	Floor Finishes	$442,898			
	C3030	Ceiling Finishes	$499,400	**$1,395,227**	$15.85	6.3%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%

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GFA 88,000

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2A RENOVATION						
D20	**PLUMBING**					
	D20	Plumbing	$1,100,000	**$1,100,000**	$12.50	5.0%
D30	**HVAC**					
	D30	HVAC	$3,168,000	**$3,168,000**	$36.00	14.3%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$374,000	**$374,000**	$4.25	1.7%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$620,400			
	D5020	Lighting & Power	$1,056,000			
	D5030	Communication & Security Systems	$1,137,800			
	D5040	Other Electrical Systems	$162,755	**$2,976,955**	$33.83	13.4%
E10	**EQUIPMENT**					
	E10	Equipment	$292,000	**$292,000**	$3.32	1.3%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$815,358			
	E2020	Movable Furnishings	NIC	**$815,358**	$9.27	3.7%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$1,320,000			
	F2020	Hazardous Components Abatement	$0	**$1,320,000**	$15.00	6.0%
TOTAL DIRECT COST (Trade Costs)				**$22,149,342**	$251.70	100.0%

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GFA 88,000

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
OPTION 2A RENOVATION							
	GROSS FLOOR AREA CALCULATION						
	First Floor	88,000					
	TOTAL GROSS FLOOR AREA (GFA)				**88,000**	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
033000	Allowance for new foundations for bracing/seismic upgrades	**88,000**	sf	10.00	880,000		
	SUBTOTAL					880,000	
	A1020 SPECIAL FOUNDATIONS						
	No Work in this section						
	SUBTOTAL					-	
	A1030 LOWEST FLOOR CONSTRUCTION						
033000	Allowance to trench and Patch existing slabs	**88,000**	sf	5.00	440,000		
	SUBTOTAL					440,000	
	TOTAL - FOUNDATIONS						**$1,320,000**
	A20 BASEMENT CONSTRUCTION						
	A2010 BASEMENT EXCAVATION						
	No Work in this section						
	SUBTOTAL						
	A2020 BASEMENT WALLS						
	No Work in this section						
	SUBTOTAL						
	TOTAL - BASEMENT CONSTRUCTION						
	B10 SUPERSTRUCTURE						
	B1010 FLOOR CONSTRUCTION						
	No Work in this section						
	SUBTOTAL					-	
	B1020 ROOF CONSTRUCTION						
051200	Allowance for seismic upgrades and bracing	**88,000**	sf	25.00	2,200,000		
	Miscellaneous						
078100	Spray-applied fireproofing to beams and deck	**88,000**	sf	2.00	176,000		
	SUBTOTAL					$2,376,000	
	TOTAL - SUPERSTRUCTURE						**$2,376,000**

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A RENOVATION						
52		***B20 EXTERIOR CLOSURE***						
53								
54		**B2010 EXTERIOR WALLS - 70% of exterior walls**	*34,889*	*sf*		-		
55		Interior skin						
56	042000	Allowance to insulate exterior wall	**34,889**	sf	15.00	523,335		
57		Exterior skin						
58	042000	Allowance to patch existing masonry; 100%	**34,889**	sf	36.00	1,256,004		
59	042000	Scaffold to exterior walls	**49,842**	sf	3.00	149,526		
60		SUBTOTAL					$1,928,865	
61								
62		**B2020 WINDOWS - 30% of exterior area**	*14,953*	*sf*		-		
63	085113	Remove existing glazing	**14,953**	sf	8.00	119,624		
64	085113	Aluminum windows; 80%	**11,962**	sf	80.00	956,960		
65	084413	Curtainwall; 20%	**2,991**	sf	110.00	329,010		
66	072726	Air/Vapor barrier at window & louver openings	**4,531**	lf	4.50	20,390		
67	079200	Backer rod & sealant at window & louver openings	**4,531**	lf	3.50	15,859		
68	061000	Wood blocking at window openings	**4,531**	lf	4.00	18,124		
69		SUBTOTAL					$1,459,967	
70								
71		**B2030 EXTERIOR DOORS**						
72		Exterior Doors - Aluminum						
73	084413	3'-0" x 7'-0" w/ glazed panels	**3**	ea	3,800.00	11,400		
74	084413	6'-0" x 7'-0" w/ glazed panels	**4**	pr	7,500.00	30,000		
75		Miscellaneous						
76	079200	Backer rod & sealant to exterior doors	**131**	lf	5.00	655		
77	061000	Wood blocking at door openings	**131**	lf	4.00	524		
78		SUBTOTAL					$42,579	
79								
80		***TOTAL - EXTERIOR CLOSURE***						**$3,431,411**
81								
82								
83		***B30 ROOFING***						
84								
85		**B3010 ROOF COVERINGS**						
86		Flat Roofing:						
87	075419	Remove existing roofing	**88,000**	sf	3.00	264,000		
88	075419	White EPDM roof membrane mechanically fastened with 6" insulation	**88,000**	sf	10.50	924,000		
89	075419	Membrane roof walkway pads	**4,400**	sf	5.00	22,000		
90		Miscellaneous Roofing						
91	076200	Through wall flashing	**1**	ls	30,000.00	30,000		
92	076200	Factory fabricated fascia trim/roof edge	**1,166**	lf	18.00	20,988		
93	079513	Roof expansion joints	**1**	ls	5,000.00	5,000		
94	072726	Air/Vapor barrier at roof edges	**1,166**	lf	8.00	9,328		
95	061000	Wood blocking at expansion joints and roof edges	**1**	ls	20,000.00	20,000		
96		SUBTOTAL					$1,295,316	
97								
98		**B3020 ROOF OPENINGS**						
99	077200	Smoke hatches	**3**	ea	3,900.00	11,700		
100		SUBTOTAL					$11,700	
101								
102		***TOTAL - ROOFING***						**$1,307,016**
103								

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Beverly Public Schools
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Preferred Schematic Design Estimate GFA 88,000

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A RENOVATION						
104								
105		***C10 INTERIOR CONSTRUCTION***						
106								
107		**C1010 PARTITIONS**						
108	042000	Allowance for interior partitions	**88,000**	gsf	15.00	1,320,000		
109	79200	Sealants & caulking at partitions	**88,000**	gsf	0.15	13,200		
110	088000	Interior glazed borrowed lights and partitions	**88,000**	gsf	1.50	132,000		
111		SUBTOTAL					1,465,200	
112								
113		**C1020 INTERIOR DOORS**						
114	084313	Allowance for interior doors	**88,000**	gsf	4.00	352,000		
115		SUBTOTAL					$352,000	
116								
117		**C1030 SPECIALTIES / MILLWORK**						
118								
119	055000	Metal catwalk to auditorium; including stairs	**1**	ls	60,000.00	60,000		
120		*Auditorium*						
121	062000	Wood sliding glass door at control room in Auditorium; 14'-2" wide x 8'-0" high	**1**	ea	5,500.00	5,500		
122	051200	Support framing for auditorium lighting	**1**	ls	5,000.00	5,000		
123	061000	Stair construction at Auditorium stage	**66**	lfr	90.00	5,940		
124		*Library/Media Center*						
125	062000	Wood trim & shelving at library	**213**	lf	220.00	46,860		
126	062000	Tiered seating in library, circular	**28**	lf	250.00	7,000		
127		*Band/Chorus*						
128	062000	Wood columns/piers	**189**	sf	45.00	8,505		
129	062000	Wood trim	**462**	lf	18.00	8,316		
130	062000	Misc. trim	**1**	ls	1,000.00	1,000		
131	123000	tall storage	**4**	ea	1,200.00	4,800		
132	123000	cubbies	**32**	lf	250.00	8,000		
133	123000	Band Chorus storage - Wegner	**1**	ls	30,000.00	F,F&E		
134	123000	Large storage	**3**	loc	1,500.00	4,500		
135	101116	*Visual display boards*						
136	101116	Marker/tack Boards	**88,000**	gsf	1.00	88,000		
137	101116	8' IWB	**6**	loc	5,400.00	32,400		
138	061000	Backer panels in electrical closets	**1**	ls	1,000.00	1,000		
139	088000	Mirrors at choral and ensemble	**134**	sf	26.00	3,484		
140	055000	Supports for stage lighting	**1**	ls	10,000.00	10,000		
141	104400	Fire extinguisher cabinets	**29**	ea	350.00	10,150		
142	055100	Handrails at auditorium	**84**	lf	55.00	4,620		
143	055100	Guardrails at auditorium	**52**	lf	175.00	9,100		
144	055000	Misc metals	**88,000**	sf	1.50	132,000		
145		SUBTOTAL					456,175	
146								
147		***TOTAL - INTERIOR CONSTRUCTION***						**$2,273,375**
148								
149								
150		***C20 STAIRCASES***						
151								
152		**C2010 STAIR CONSTRUCTION**						
153		**Included in New Addition**						
154		SUBTOTAL						
155								
156		**C2020 STAIR FINISHES**						

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		OPTION 2A RENOVATION						
157		**Included in New Addition**						
158		SUBTOTAL						
159								
160		***TOTAL - STAIRCASES***						
161								
162								
163		***C30 INTERIOR FINISHES***						
164								
165		**C3010 WALL FINISHES**						
166	090009	Paint to GWB/CMU walls	**88,000**	gsf	1.50	132,000		
167	062000	Wood paneling and trim at auditorium including railings, pilasters etc.	**1**	ls	175,000.00	175,000		
168		*Library/Media Center*						
169	062000	Wood columns/piers at library	**1,440**	sf	45.00	64,800		
170	062000	Wood trim & molding at library entry complete	**1**	ls	12,000.00	NIC		
171	062000	Wood Paneling in library	**334**	sf	60.00	20,040		
172	062000	Wood trim @ chair rail band at library	**240**	lf	42.00	10,080		
173		*Band/Chorus*						
174	062000	Wood columns/piers	**189**	sf	45.00	8,505		
175	098414	Sound absorption panels	**1,232**	sf	22.00	27,104		
176	098414	Sound absorption panels @ ensemble	**700**	sf	22.00	15,400		
177		SUBTOTAL					$452,929	
178								
179		**C3020 FLOOR FINISHES**						
180	062000	Wood base	**242**	lf	8.00	1,936		
181	096466	Wood strip flooring to stage	**2,041**	sf	8.00	16,328		
182	096466	Oak T&G wood strip flooring to stairs at stage	**48**	lfr	25.00	1,200		
183	096800	Carpet to floors; library	**5,739**	sf	5.00	28,695		
184	096800	Carpet to floors; auditorium	**3,023**	sf	5.00	15,115		
185	090003	Patch/Repair Epoxy Terrazzo to main corridor and lobby floors	**7,168**	sf	20.00	143,360		
186	090006	VCT to floors	**65,629**	sf	3.60	236,264		
187		SUBTOTAL					$442,898	
188								
189		**C3030 CEILING FINISHES**						
190	090002	Acoustical clouds in Auditorium	**1,895**	sf	70.00	132,650		
191	090002	Wood ceilings	**2,000**	sf	35.00	70,000		
192	090009	Paint exposed structure - auditorium	**7,400**	sf	2.50	18,500		
193	095100	ACT 1 ceiling 2 x 4	**74,200**	sf	3.75	278,250		
194		SUBTOTAL					499,400	
195								
196		***TOTAL - INTERIOR FINISHES***						**$1,395,227**
197								
198								
199		***D10 CONVEYING SYSTEMS***						
200								
201		**D1010 ELEVATOR**						
202		**Included in New Addition**						
203		SUBTOTAL						
204								
205		***TOTAL - CONVEYING SYSTEMS***						
206								
207								

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A RENOVATION						
208		***D20 PLUMBING***						
209								
210		**D20 PLUMBING, GENERALLY**						
211	220000	Complete plumbing systems	**88,000**	gsf	12.50	1,100,000		
212		SUBTOTAL					$1,100,000	
213								
214		***TOTAL - PLUMBING***						**$1,100,000**
215								
216		***D30 HVAC***						
217								
218		**D30 HVAC, GENERALLY**						
219	230000	HVAC Allowance	**88,000**	gsf	36.00	3,168,000		
220		SUBTOTAL					$3,168,000	
221								
222		***TOTAL - HVAC***						**$3,168,000**
223								
224								
225		***D40 FIRE PROTECTION***						
226								
227		**D40 FIRE PROTECTION, GENERALLY**						
228	210000	Allowance for wet sprinkler system	**88,000**	sf	3.50	308,000		
229	210000	Allowance for standpipe system	**88,000**	sf	0.75	66,000		
230		SUBTOTAL					374,000	
231								
232		***TOTAL - FIRE PROTECTION***						**$374,000**
233								
234								
235		***D50 ELECTRICAL***						
236								
237		**D5010 SERVICE & DISTRIBUTION**						
238		**Gear & Distribution**						
239		Normal Power						
240	260000	Allowance for switchgear, feeders, panels, etc.	**88,000**	sf	4.55	400,400		
241		Emergency power						
242	260000	750kW diesel fueled WP enclosed generator			Incl in New Addition			
243	260000	Allowance for switchgear, feeders, panels, etc.	**88,000**	sf	1.00	88,000		
244		Equipment Wiring						
245	260000	Allowance for mechanical equipment feeds & connections	**88,000**	sf	1.50	132,000		
246		SUBTOTAL					$620,400	
247								
248		**D5020 LIGHTING & POWER**						
249		Lighting & Branch Power						
250	260000	Allowance for light fixtures incl. wiring	**88,000**	sf	9.00	792,000		
251		Lighting Control						
252	260000	Allowance for lighting control incl. wiring	**88,000**	sf	1.25	110,000		
253		Branch devices				-		
254	260000	Allowance for branch power receptacles incl. wiring	**88,000**	sf	1.75	154,000		
255		SUBTOTAL					$1,056,000	
256								

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	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 2A RENOVATION								
257		**D5030**	**COMMUNICATION & SECURITY SYSTEMS**						
258			Voice & Data						
259	260000		Allowance for voice & data system c/w wiring, devices, racks, patch panels, etc.	**88,000**	sf	2.55	224,400		
260			Fire Alarm						
261	260000		Allowance for addressable fire alarm system incl. bi-directional amplifier system	**88,000**	sf	2.50	220,000		
262			Master Clock System						
263	260000		Allowance for wireless clock system and PA	**88,000**	sf	0.80	70,400		
264			Security System						
265	260000		Allowance for security system	**88,000**	sf	2.15	189,200		
266			Audio Visual Systems						
267	260000		Auditorium rigging equipment		ls		**See Equipment**		
268	260000		Theatrical dimming system equipment & installation	**1**	ls	200,000.00	200,000		
269	260000		Allowance for Theater lighting to Auditorium	**1**	ls	100,000	100,000		
270	260000		Allowance for assisted listening systems	**88,000**	sf	0.10	8,800		
271	260000		Allowance for Auditorium AV system	**1**	ls	125,000.00	125,000		
272			SUBTOTAL					$1,137,800	
273									
274		**D5040**	**OTHER ELECTRICAL SYSTEMS**						
275			Miscellaneous						
276	260000		Grounding & bonding	**88,000**	sf	0.15	13,200		
277	260000		Lightning protection system, allow	**88,000**	sf	0.30	26,400		
278	260000		Temp power and lights	**88,000**	sf	0.60	52,800		
279	260000		Electrical general conditions / requirements	**1**	ls	70,355.00	70,355		
280			SUBTOTAL					$162,755	
281									
282			***TOTAL - ELECTRICAL***						**$2,976,955**
283									
284									
285		***E10***	***EQUIPMENT***						
286									
287		**E10**	**EQUIPMENT, GENERALLY**						
288	116100		Theater & stage equipment including stage curtains & rigging	**1**	ls	230,000.00	230,000		
289	260000		TV Studio track, curtain, & grid	**1**	ls	53,000.00	53,000		
290	115213		Projection screen; stage proscenium	**1**	ea	9,000.00	9,000		
291			SUBTOTAL					$292,000	
292									
293			***TOTAL - EQUIPMENT***						**$292,000**
294									
295									
296		***E20***	***FURNISHINGS***						
297									
298		**E2010**	**FIXED FURNISHINGS**						
299	124813		Recessed entry mats	**400**	sf	45.00	18,000		
300	124813		Walk off mats	**400**	sf	15.00	6,000		
301	122400		Roller blinds to windows	**14,953**	sf	6.00	89,718		
302	126100		Auditorium seating	**463**	seat	280.00	129,640		
303	123000		Classroom Casework and specialties	**88,000**	gsf	6.50	572,000		
304			SUBTOTAL					$815,358	
305									
306		**E2020**	**MOVABLE FURNISHINGS**						
307			All movable furnishings to be provided and installed by owner						
308			SUBTOTAL					NIC	
309									

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A RENOVATION						
310		***TOTAL - FURNISHINGS***						**$815,358**
311								
312								
313		***F10 SPECIAL CONSTRUCTION***						
314								
315		**F10 SPECIAL CONSTRUCTION**						
316		No items in this section						
317		SUBTOTAL						
318								
319		***TOTAL - SPECIAL CONSTRUCTION***						
320								
321								
322		***F20 SELECTIVE BUILDING DEMOLITION***						
323								
324		**F2010 BUILDING ELEMENTS DEMOLITION**						
325	122400	Gut demolition	**88,000**	sf	15.00	1,320,000		
326		SUBTOTAL					$1,320,000	
327								
328		**F2020 HAZARDOUS COMPONENTS ABATEMENT**						
329	013280	Removal of Asbestos Containing Materials in existing building - Included in Summary						
330		SUBTOTAL						
331								
332		***TOTAL - SELECTIVE BUILDING DEMOLITION***						**$1,320,000**

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Schematic Design Estimate

GFA 165,339

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2A NEW ADDITION						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$2,027,208			
	A1020	Special Foundations	$2,317,766			
	A1030	Lowest Floor Construction	$1,571,616	**$5,916,590**	$35.78	12.4%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$3,605,886			
	B1020	Roof Construction	$2,257,170	**$5,863,056**	$35.46	12.3%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$3,897,005			
	B2020	Windows	$2,390,577			
	B2030	Exterior Doors	$123,959	**$6,411,541**	$38.78	13.4%
B30	**ROOFING**					
	B3010	Roof Coverings	$985,738			
	B3020	Roof Openings	$104,700	**$1,090,438**	$6.60	2.3%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$3,148,475			
	C1020	Interior Doors	$661,356			
	C1030	Specialties/Millwork	$1,558,940	**$5,368,771**	$32.47	11.2%
C20	**STAIRCASES**					
	C2010	Stair Construction	$283,300			
	C2020	Stair Finishes	$92,950	**$376,250**	$2.28	0.8%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$1,363,990			
	C3020	Floor Finishes	$2,752,863			
	C3030	Ceiling Finishes	$824,153	**$4,941,006**	$29.88	10.3%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$302,800	**$302,800**	$1.83	0.6%

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CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2A NEW ADDITION						
D20	**PLUMBING**					
	D20	Plumbing	$2,066,738	**$2,066,738**	$12.50	4.3%
D30	**HVAC**					
	D30	HVAC	$5,952,204	**$5,952,204**	$36.00	12.4%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$702,691	**$702,691**	$4.25	1.5%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$1,475,640			
	D5020	Lighting & Power	$1,984,068			
	D5030	Communication & Security Systems	$2,428,746			
	D5040	Other Electrical Systems	$320,817	**$6,209,271**	$37.55	13.0%
E10	**EQUIPMENT**					
	E10	Equipment	$1,141,915	**$1,141,915**	$6.91	2.4%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$1,492,926			
	E2020	Movable Furnishings	NIC	**$1,492,926**	$9.03	3.1%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
TOTAL DIRECT COST (Trade Costs)				**$47,836,197**	$289.32	100.0%

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A NEW ADDITION						
		GROSS FLOOR AREA CALCULATION						
1								
2		First Floor	62,192					
3		Second Floor	32,416					
4		Third Floor	39,359					
5		Fourth Floor	31,372					
6								
7		***TOTAL GROSS FLOOR AREA (GFA)***				**165,339**	***sf***	
8								
9								
10		***A10 FOUNDATIONS***						
11								
12		**A1010 STANDARD FOUNDATIONS**						
13		Perimeter grade beam; 5'-0" deep x 3'-0" wide						
14	310000	Excavation	**2,455**	cy	9.00	22,095		
15	310000	Store on site for reuse	**2,455**	cy	8.00	19,640		
16	310000	Backfill with selected material	**1,596**	cy	6.50	10,374		
17	033000	Formwork	**8,838**	sf	12.00	106,056		
18	033000	Re-bar	**103,080**	lbs	1.20	123,696		
19	033000	Concrete material; 3,000 psi	**859**	cy	115.00	98,785		
20	033000	Placing concrete	**859**	cy	40.00	34,360		
21		Interior grade beam; 4'-0" deep x 2'-0" wide						
22	310000	Excavation	**4,317**	cy	9.00	38,853		
23	310000	Store on site for reuse	**4,317**	cy	8.00	34,536		
24	310000	Backfill with selected material	**3,410**	cy	6.50	22,165		
25	033000	Formwork	**11,656**	sf	12.00	139,872		
26	033000	Re-bar	**108,840**	lbs	1.20	130,608		
27	033000	Concrete material; 3,000 psi	**907**	cy	115.00	104,305		
28	033000	Placing concrete	**907**	cy	40.00	36,280		
29		Pile Cap PC1, 5'-2" x 5'-2" x 1'-8"						
30	310000	Excavation	**1,495**	cy	15.00	22,425		
31	310000	Store on site for reuse	**1,495**	cy	8.00	11,960		
32	310000	Backfill with selected material	**1,287**	cy	13.00	16,731		
33	033000	Formwork	**4,144**	sf	11.00	45,584		
34	033000	Re-bar	**20,800**	lbs	1.20	24,960		
35	033000	Concrete material; 3,000 psi	**208**	cy	115.00	23,920		
36	033000	Placing concrete	**208**	cy	50.00	10,400		
37		Pile Cap PC2, 9'-0" x 5'-0" x 4'-0"						
38	310000	Excavation	**277**	cy	15.00	4,155		
39	310000	Store on site for reuse	**277**	cy	8.00	2,216		
40	310000	Backfill with selected material	**165**	cy	13.00	2,145		
41	033000	Formwork	**1,792**	sf	11.00	19,712		
42	033000	Re-bar	**11,200**	lbs	1.20	13,440		
43	033000	Concrete material; 3,000 psi	**112**	cy	115.00	12,880		
44	033000	Placing concrete	**112**	cy	50.00	5,600		
45		Pile Cap PC3, 8'-6" x 7'-0" x 4'-0"						
46	310000	Excavation	**2,648**	cy	15.00	39,720		
47	310000	Store on site for reuse	**2,648**	cy	8.00	21,184		
48	310000	Backfill with selected material	**1,445**	cy	13.00	18,785		
49	033000	Formwork	**16,120**	sf	11.00	177,320		
50	033000	Re-bar	**120,300**	lbs	1.20	144,360		
51	033000	Concrete material; 3,000 psi	**1,203**	cy	115.00	138,345		
52	033000	Placing concrete	**1,203**	cy	50.00	60,150		

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		OPTION 2A NEW ADDITION						
53		Pile Cap PC4, 9'-0" x 9'-0" x 4'-0"						
54	310000	Excavation	**351**	cy	15.00	5,265		
55	310000	Store on site for reuse	**351**	cy	8.00	2,808		
56	310000	Backfill with selected material	**175**	cy	13.00	2,275		
57	033000	Formwork	**2,016**	sf	11.00	22,176		
58	033000	Re-bar	**17,600**	lbs	1.20	21,120		
59	033000	Concrete material; 3,000 psi	**176**	cy	115.00	20,240		
60	033000	Placing concrete	**176**	cy	50.00	8,800		
61		Pile Cap PC8, 14'-9" x 13'-0" x 5'-0"						
62	310000	Excavation	**94**	cy	15.00	1,410		
63	310000	Store on site for reuse	**94**	cy	8.00	752		
64	310000	Backfill with selected material	**19**	cy	13.00	247		
65	033000	Formwork	**555**	sf	11.00	6,105		
66	033000	Re-bar	**7,500**	lbs	1.20	9,000		
67	033000	Concrete material; 3,000 psi	**75**	cy	115.00	8,625		
68	033000	Placing concrete	**75**	cy	50.00	3,750		
69		Miscellaneous						
70	310000	Perimeter drain	**1,473**	lf	16.00	23,568		
71	033000	Piers/pilasters	**167**	cy	750.00	125,250		
72	033000	Set anchor bolts grout plates; supplied by others	**1,128**	loc	25.00	28,200		
73		SUBTOTAL					2,027,208	
74								
75	**A1020**	**SPECIAL FOUNDATIONS**						
76	316213	Piling mobilization	**1**	ls	65,000.00	65,000		
77	316213	Load test	**1**	ls	45,000.00	45,000		
78	316213	Vibration monitoring	**1**	ls	35,000.00	35,000		
79	312000	Store surplus material on site	**2,537**	cy	14.00	35,518		
80	316213	Predrilling				NIC		
81	316213	Pile cut offs	**1**	sf	30,000.00	30,000		
82	316213	Precast concrete piles, 16" x 16", spliced, av. 60'	**40,524**	vlf	52.00	2,107,248		
83		SUBTOTAL					2,317,766	
84								
85	**A1030**	**LOWEST FLOOR CONSTRUCTION**						
86		New Structural Slab, 12" thick	*62,192*	*sf*		-		
87	312000	Gravel fill, 8"	**1,543**	cy	28.00	43,204		
88	033001	Rigid insulation	**62,192**	sf	2.00	124,384		
89	033001	Vapor barrier	**62,192**	sf	0.65	40,425		
90	312000	Compact existing sub-grade	**62,192**	sf	0.50	31,096		
91	033001	Formwork	**1,473**	lf	12.00	17,676		
92	033001	Rebar, 6#/SF	**373,152**	lbs	1.20	447,782		
93	033001	Concrete - 12" thick; 4,000 psi	**2,419**	cy	120.00	290,280		
94	033001	Premium for additional rebar at pile caps	**1**	ls	50,000.00	50,000		
95	033001	Placing concrete	**2,419**	cy	45.00	108,855		
96	033001	Finishing and curing concrete	**62,192**	sf	3.00	186,576		
97	033001	Barrier 1 moisture mitigation	**2,419**	cy	65.00	157,235		
98		Elevator Pit						
99	310000	Excavation for elevator pit	**168**	cy	14.00	2,352		
100	310000	Remove off site	**168**	cy	17.37	2,918		
101	310000	Backfill with gravel	**8**	cy	28.00	224		
102		Elevator pit walls						
103	033000	formwork	**960**	sf	9.06	8,698		

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		OPTION 2A NEW ADDITION						
104	033000	reinforcement	**1,440**	lbs	1.00	1,440		
105	033000	Concrete material; 3,000 psi	**12**	cy	111.00	1,332		
106	033000	placing concrete in walls	**12**	cy	40.00	480		
107		Slab						
108	033000	formwork	**120**	sf	9.06	1,087		
109	033000	reinforcement	**600**	lbs	1.00	600		
110	033000	concrete material in slab	**12**	cy	111.00	1,332		
111	033000	placing concrete in slab; 3,000 psi	**12**	cy	40.00	480		
112		Miscellaneous						
113	071613	Polymer modified Cement waterproofing to elevator pit	**680**	sf	12.00	8,160		
114	033000	Loading dock	**1**	ls	35,000.00	35,000		
115	033000	Neutralization pit	**1**	loc	4,000.00	4,000		
116	033000	Grease interceptor pit	**1**	loc	2,500.00	2,500		
117	033000	Equipment pads	**500**	sf	7.00	3,500		
118		SUBTOTAL					1,571,616	
119								
120		***TOTAL - FOUNDATIONS***						**$5,916,590**
121								
122								
123		***A20 BASEMENT CONSTRUCTION***						
124								
125		**A2010 BASEMENT EXCAVATION**						
126		**No Work in this section**						
127		SUBTOTAL						
128								
129		**A2020 BASEMENT WALLS**						
130		**No Work in this section**						
131		SUBTOTAL						
132								
133		***TOTAL - BASEMENT CONSTRUCTION***						
134								
135								
136		***B10 SUPERSTRUCTURE***						
137			12.81	lbs/sf		-		
138		**B1010 FLOOR CONSTRUCTION**	1,059	tns		-		
139		Floor Structure - Steel:						
140	051200	Beams/columns/bracing ; w-sections	**670**	tns	3,300.00	2,211,000		
141	051200	Premium for HSS	**168**	tns	200.00	33,600		
142	051500	Shear studs	**12,893**	ea	6.00	77,358		
143		Floor Structure						
144	053100	Metal floor decking; 2", 18 gage	**103,147**	sf	3.50	361,015		
145	033000	Mesh reinforcement in concrete topping	**118,619**	sf	0.90	106,757		
146	033000	Concrete topping to metal decking, 5 1/4" thick; Light weight	**1,755**	cy	140.00	245,700		
147	033000	Placing concrete topping	**103,147**	sf	2.00	206,294		
148	033000	Moisture Mitigation; admixture	**1,755**	cy	40.00	70,200		
149		Miscellaneous						
150	033000	Rebar at slab edges	**15,000**	lbs	1.00	15,000		
151	078400	Firestopping at floor penetrations	**3**	floors	2,500.00	7,500		
152	078400	Fire stopping at slab edges	**1,473**	lf	4.00	5,892		
153	078400	Miscellaneous fire stopping	**1**	ls	20,000.00	20,000		
154	055000	Relieving angles	**4705**	lf	55.00	Incl in Structure		
155	051200	Base plates	**11,280**	lbs	1.75	19,740		
156	051200	Moment connections	**12**	ea	500.00	6,000		
157	051200	Supply anchor bolts installed by others	**1,128**	ea	12.00	13,536		

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		OPTION 2A NEW ADDITION						
158	078100	Spray-applied fireproofing to beams and columns only	**103,147**	sf	2.00	206,294		
159		SUBTOTAL					3,605,886	
160								
161		**B1020 ROOF CONSTRUCTION**						
162		Roof Structure - Steel:						
163	051200	Beams/columns/bracing ; w-sections	**389**	tns	3,200.00	1,244,800		
164	051200	Premium for HSS	**97**	tns	3,400.00	329,800		
165	051200	Premium for trusses	**1**	ls	25,000.00	25,000		
166	051200	Bridging to roof trusses	**1**	ls	50,000.00	50,000		
167		Roof Structure						
168	053100	Metal roof decking; 1 1/2, 20 gage galv., type B	**45,174**	sf	2.50	112,935		
169	053100	Metal roof decking; 3", NA	**17,018**	sf	6.50	110,617		
170		Miscellaneous						
171	051200	Support framing to roof screen ; HSS galvanized	**13**	tns	3,800.00	49,400		
172	078100	Spray-applied fireproofing to beams and deck	**45,174**	sf	2.00	90,348		
173	033000	Concrete slab for Roof Top equipment	**15,090**	sf	8.00	120,720		
174	055000	Angle framing at roof details	**1**	ls	160,000.00	Incl in Structure		
175	051200	Canopy frame	**3,000**	sf	20.00	60,000		
176	051200	Canopy frame at loading dock	**800**	sf	20.00	16,000		
177	051200	Moment connections	**93**	ea	350.00	32,550		
178	051200	Chiller dunnage	**1**	ls	15,000.00	15,000		
179		SUBTOTAL					2,257,170	
180								
181		***TOTAL - SUPERSTRUCTURE***						**$5,863,056**
182								
183								
184		***B20 EXTERIOR CLOSURE***						
185								
186		**B2010 EXTERIOR WALLS - 65% of exterior walls**	*43,665*	*sf*		-		
187		Interior skin						
188	042000	8" CMU back up to exterior wall	**10,400**	sf	20.00	208,000		
189	054000	8" metal stud back-up	**33,265**	sf	9.50	316,018		
190	090002	GWB to inside of exterior wall	**43,665**	sf	2.60	113,529		
191	061600	Gypsum densglass sheathing board	**43,665**	sf	2.50	109,163		
192	072726	Air/Vapor barrier to exterior walls, fluid applied	**43,665**	sf	6.00	261,990		
193	072100	Rigid insulation to CMU walls, 3"	**10,400**	sf	2.50	26,000		
194	072100	Rigid insulation, 3"	**33,265**	sf	2.50	83,163		
195		Exterior skin						
196	042000	Allowance for masonry; 50%	**21,833**	sf	34.00	742,322		
197	042000	Allowance for metal panels/GFRC	**21,833**	sf	55.00	1,200,815		
198	042000	Premium for brick accent bands	**1**	ls	60,000.00	60,000		
199		Fiberglass Trim and Custom Shapes						
200		Fiberglass Cornice						
201	068200	GFRP cornice	**1,473**	lf	135.00	198,855		
202	068200	Fiberglass window surrounds	**1**	ls	25,000.00	25,000		
203	061000	Wood blocking to Fiberglass Trim	**2,946**	lf	6.00	17,676		
204	090009	Paint/touchup to Fiberglass Trim	**1**	ls	15,000.00	15,000		
205		Precast trim and custom pieces						
206	047200	Precast sills to windows/pilasters/decorative shapes	**1**	ls	175,000.00	175,000		
207		Miscellaneous						
208	089200	Louvered equipment enclosure, prefinished louvered aluminum (10' high)	**340**	lf	320.00	108,800		

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		OPTION 2A NEW ADDITION						
209	072420	EIFS soffits including: applied finish at canopy	**3,800**	sf	18.00	68,400		
210	072420	GFRP Trim at canopy	**512**	lf	35.00	17,920		
211	101400	Logo signs/banners	**1**	ls	15,000.00	15,000		
212	042000	Scaffold to exterior walls	**67,177**	sf	2.00	134,354		
213		SUBTOTAL					3,897,005	
214								
215		**B2020 WINDOWS - 35% of exterior area**	*23,512*	*sf*		-		
216	085113	Aluminum windows; 80%	**18,810**	sf	80.00	1,504,800		
217	084413	Curtainwall; 20%	**4,702**	sf	110.00	517,220		
218	055000	Sun shade allowance	**1,900**	lf	140.00	266,000		
219	089000	Louvers	**192**	sf	55.00	10,560		
220	055000	Lintels to windows and doors ; supply only installed in 04200	**464**	lf	14.00	6,496		
221	072726	Air/Vapor barrier at window & louver openings	**7,125**	lf	4.50	32,063		
222	079200	Backer rod & sealant at window & louver openings	**7,125**	lf	3.50	24,938		
223	061000	Wood blocking at window openings	**7,125**	lf	4.00	28,500		
224		SUBTOTAL					2,390,577	
225								
226		**B2030 EXTERIOR DOORS**						
227		Hollow metal doors, frames and HW						
228	081113	Single leaf	**3**	ea	1,600.00	4,800		
229	081113	Double leaf	**3**	pr	3,200.00	9,600		
230		Exterior Doors - Aluminum						
231	084413	3'-0" x 7'-0" w/ glazed panels	**4**	ea	3,800.00	15,200		
232	084413	6'-0" x 7'-0" w/ glazed panels	**11**	pr	7,500.00	82,500		
233		Miscellaneous						
234	083323	Overhead door 8' x 8'	**1**	ea	3,840.00	3,840		
235	083323	Overhead door 8' x 9'	**1**	ea	4,320.00	4,320		
236	079200	Backer rod & sealant to exterior doors	**411**	lf	5.00	2,055		
237	061000	Wood blocking at door openings	**411**	lf	4.00	1,644		
238		SUBTOTAL					123,959	
239								
240		***TOTAL - EXTERIOR CLOSURE***						**$6,411,541**
241								
242								
243		***B30 ROOFING***						
244								
245		**B3010 ROOF COVERINGS**						
246		Flat Roofing:						
247	075419	White EPDM roof membrane mechanically fastened with 6" insulation	**58,406**	sf	10.50	613,263		
248	075419	Membrane roof walkway pads	**2,920**	sf	5.00	14,600		
249		Sloped roofing						
250	073113	Standing seam	**3,786**	sf	32.00	121,152		
251		Miscellaneous Roofing						
252	076200	Through wall flashing	**1**	ls	30,000.00	30,000		
253	076200	Factory fabricated fascia trim/roof edge	**1,473**	lf	18.00	26,514		
254	076200	Snow guard tabs	**473**	ea	25.00	11,825		
255	079513	Roof expansion joints	**1**	ls	5,000.00	5,000		
256	072726	Air/Vapor barrier at roof edges	**1,473**	lf	8.00	11,784		
257	061000	Wood blocking at expansion joints and roof edges	**1**	ls	50,000.00	50,000		
258	075419	Canopies; roofing	**3,800**	sf	25.00	95,000		

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		OPTION 2A NEW ADDITION						
259	077200	Finials	**2**	ea	2,000.00	NIC		
260	077200	Roof ladders	**4**	loc	1,650.00	6,600		
261		SUBTOTAL					985,738	
262								
263		**B3020 ROOF OPENINGS**						
264	077200	Skylight allowance	**1**	ls	90,000.00	90,000		
265	077200	Elevator PH and vent	**2**	ea	3,000.00	6,000		
266	077200	Roof hatches and ladder	**3**	ea	2,900.00	8,700		
267		SUBTOTAL					104,700	
268								
269		***TOTAL - ROOFING***						**$1,090,438**
270								
271								
272		***C10 INTERIOR CONSTRUCTION***						
273								
274		**C1010 PARTITIONS**						
275	042000	Allowance for interior partitions	**165,339**	gsf	15.00	2,480,085		
276	055000	Support framing for Operable partition	**30**	lf	120.00	3,600		
277	102228	Operable partition	**420**	sf	45.00	18,900		
278	79200	Sealants & caulking at partitions	**165,339**	gsf	0.15	24,801		
279	102228	Acoustic folding panel door in gym	**3,060**	sf	55.00	168,300		
280	055000	Misc metals to support folding wall in gym	**102**	lf	90.00	9,180		
281	084313	Glass folding doors at learning center	**1,630**	sf	120.00	195,600		
282	088000	Interior glazed borrowed lights and partitions	**165,339**	gsf	1.50	248,009		
283		SUBTOTAL					3,148,475	
284								
285		**C1020 INTERIOR DOORS**						
286	084313	Allowance for interior doors	**165,339**	gsf	4.00	661,356		
287		SUBTOTAL					661,356	
288								
289		**C1030 SPECIALTIES / MILLWORK**						
290		*Toilet Partitions*						
291	102113	ADA	**24**	ea	1,323.00	31,752		
292	102113	Standard	**24**	ea	823.00	19,752		
293	102113	Urinal screens	**24**	ea	392.00	9,408		
294	102113	Changing cubicles at girls locker	**13**	ea	1,200.00	15,600		
295	102113	Premolded shower bases	**4**	ea	600.00	2,400		
296	102113	Premolded shower bases; HC	**5**	ea	1,400.00	7,000		
297	055000	Miscellaneous support at toilet partitions	**48**	loc	150.00	7,200		
298	102813	*Toilet Accessories*						
299	102813	Gang bathrooms	**24**	rms	2,500.00	60,000		
300	102813	Individual bathrooms	**24**	rms	600.00	14,400		
301	102813	Custodian closet	**8**	rms	500.00	4,000		
302	102813	Folding Shower Seats	**5**	ea	250.00	1,250		
303	102813	Shower and changing cubical curtains	**22**	ea	100.00	2,200		
304								
305		*HS Student Dining*						
306	062000	Wood trim	**115**	lf	42.00	4,830		
307	062000	Misc. trim	**1**	ls	4,000.00	4,000		
308	062000	Signage	**1**	ls	8,000.00	8,000		
309	062000	Crown molding	**132**	lf	35.00	4,620		
310	062000	Recycling Center	**22**	lf	400.00	8,800		
311		*MS Student Dining*						
312	062000	Wood trim	**231**	lf	42.00	9,702		
313	062000	Misc. trim	**1**	ls	5,000.00	5,000		
314	062000	Signage	**1**	ls	10,000.00	10,000		

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		OPTION 2A NEW ADDITION						
315	062000	Crown molding	**89**	lf	35.00	3,115		
316	062000	Recycling Center	**22**	lf	400.00	8,800		
317		*Gym/Athletics*						
318	062000	Signage/graphics	1	ls	20,000.00	20,000		
319	101116	*Visual display boards*						
320	101116	Marker/tack Boards	**165,339**	gsf	1.00	165,339		
321	101116	8' IWB	**75**	loc	5,400.00	405,000		
322	061000	Backer panels in electrical closets	**1**	ls	1,000.00	1,000		
323	088000	Mirrors at choral and ensemble	**134**	sf	26.00	3,484		
324	088000	Mirrors at PE Alt allowance	**168**	sf	26.00	4,368		
325	055000	Support to projection screens	**1**	ls	2,000.00	2,000		
326	055000	SS lockable time capsule	**1**	ea	1,500.00	1,500		
327	055000	Elevator support framing	**1**	ls	2,500.00	2,500		
328	079513	Expansion joint cover assemblies	**1**	ls	25,000.00	25,000		
329	105113	Metal corridor lockers; single tier	**1,395**	opng	180.00	251,100		
330	033000	Concrete base at lockers	**1**	ls	12,000.00	12,000		
331	105113	Open face lockers in locker room single tier	**32**	opn	200.00	6,400		
332	105113	12" wide x 12" high Metal gym lockers; double tier	**440**	opn	180.00	79,200		
333	105113	15' wide x 24" high Metal gym lockers; double tier	**268**	opn	220.00	58,960		
334	105113	Lockers @ Kitchen	**10**	opn	240.00	2,400		
335	105113	Lockers @ Custodian	**6**	opn	240.00	1,440		
336	105113	Locker room benches	**48**	lf	150.00	7,200		
337	104400	Fire extinguisher cabinets	**55**	ea	350.00	19,250		
338	055100	Guardrails at floor openings 2nd floor including rails at radius	**390**	lf	220.00	85,800		
339	104400	Emergency key cabinets	**1**	ls	500.00	500		
340	101400	Signage	**1**	ls	80,000.00	80,000		
341	101400	Signage at library	**1**	ls	1,500.00	Incl		
342	101400	Building directory	**2**	ea	1,000.00	Incl		
343	101400	Exterior signage	**1**	ls	5,850.00	Incl		
344	101400	Dedication plaque	**1**	ea	1,400.00	Incl		
345	055000	Misc metals	**165,339**	sf	0.50	82,670		
346		SUBTOTAL					1,558,940	
347								
348		***TOTAL - INTERIOR CONSTRUCTION***						**$5,368,771**
349								
350								
351		***C20 STAIRCASES***						
352								
353		**C2010 STAIR CONSTRUCTION**						
354	055100	Monumental stairs	**2**	flt	35,000.00	70,000		
355	055100	Egress stairs	**9**	flt	22,000.00	198,000		
356	033000	Concrete fill to stairs	**1**	ls	12,000.00	12,000		
357	055100	Roof access ladders	**3**	ea	1,100.00	3,300		
358		SUBTOTAL					283,300	
359								
360		**C2020 STAIR FINISHES**						
361	090009	High performance coating to stairs including all railings etc.	**11**	flt	2,500.00	27,500		
362	090006	Stair finish to monumental stairs	**350**	lfr	25.00	8,750		
363	090006	Rubber base; stairs	**1,350**	lf	3.00	4,050		
364	090006	Rubber tile at stairs - landings	**3,150**	sf	9.00	28,350		
365	090006	Rubber tile at stairs - treads & risers	**1,350**	lft	18.00	24,300		
366		SUBTOTAL					92,950	

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OPTION 2A NEW ADDITION							
	TOTAL - STAIRCASES						**$376,250**
	C30 INTERIOR FINISHES						
	C3010 WALL FINISHES						
090009	Paint to GWB/CMU walls	**165,339**	gsf	1.50	248,009		
090003	Ceramic wall tile in shower rooms full height	**4,374**	sf	18.00	78,732		
090003	Ceramic wall tile in shower rooms wainscoting	**3,114**	sf	18.00	56,052		
090003	Ceramic wall tile toilet rooms; full height at wet wall, wainscoting elsewhere	**13,320**	sf	18.00	239,760		
090003	Ceramic wall tile in custodian rooms	**420**	sf	16.00	6,720		
	HS Student Dining						
098414	Sound absorption panels	**143**	sf	22.00	3,146		
	MS Student Dining						
098414	Sound absorption panels	**171**	sf	22.00	3,762		
	Band/Chorus						
062000	Wood columns/piers	**189**	sf	45.00	8,505		
098414	Sound absorption panels	**1,232**	sf	22.00	27,104		
098414	Sound absorption panels @ ensemble	**700**	sf	22.00	15,400		
	Lobby						
062000	Wood trim and paneling to lobby	**1**	ls	80,000.00	80,000		
	Gym/Athletics						
098414	Sound absorption panels @ alt gym	**500**	sf	22.00	11,000		
098414	Sound absorption panels @ gym	**1,000**	sf	22.00	22,000		
090003	Porcelain tile to walls at student dining	**2,208**	sf	20.00	44,160		
090003	Porcelain tile to columns at student dining	**630**	sf	22.00	13,860		
090003	Porcelain wall tile to corridors	**18,784**	sf	20.00	375,680		
090003	Porcelain tile to walls at stairs	**5,830**	sf	20.00	116,600		
090003	FRP to kitchen	**1,500**	sf	9.00	13,500		
	SUBTOTAL					1,363,990	
	C3020 FLOOR FINISHES						
062000	Wood base	**242**	lf	8.00	1,936		
062000	Wood base to gym and PE alternatives	**524**	lf	9.00	4,716		
096400	Gymnasium wood flooring	**15,400**	sf	16.00	246,400		
096800	Carpet to floors; selected classrooms & offices	**16,863**	sf	5.00	84,315		
090003	Epoxy Terrazzo to main corridor and lobby floors	**71,466**	sf	26.00	1,858,116		
090003	Terrazzo base	**3,738**	lf	18.00	67,284		
090003	Quarry tile to floors	**3,001**	sf	18.00	54,018		
090003	Quarry tile base	**473**	lf	14.00	6,622		
090003	Ceramic mosaic tiles to floors; toilets & showers	**10,571**	sf	16.60	175,479		
090003	Ceramic tile base	**2,500**	lf	12.00	30,000		
090006	VCT to floors	**1,898**	sf	3.60	6,833		
090006	Seamless sheet vinyl	**8,467**	sf	7.00	59,269		
090006	Vinyl cove base	**345**	lf	2.80	966		
090009	Painted concrete floor	**12,341**	sf	1.50	18,512		
090006	Rubber flooring	**13,162**	sf	10.00	131,620		
090006	Static control resilient flooring	**753**	sf	9.00	6,777		
	SUBTOTAL					2,752,863	

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		OPTION 2A NEW ADDITION						
418		**C3030 CEILING FINISHES**						
419	090002	GWB ceilings; allowance	**5,000**	sf	10.00	50,000		
420	090002	GWB soffits; allowance	**1**	ls	100,000.00	100,000		
421	090002	Wood ceilings	**2,000**	sf	35.00	70,000		
422	090009	Paint to ceilings	**5,000**	sf	1.00	5,000		
423	090009	Paint exposed structure - gym, auditorium	**25,881**	sf	2.50	64,703		
424	090009	Paint exposed structure	**9,269**	sf	1.50	13,904		
425	095100	ACT 1 ceiling 2 x 4	**(9,054)**	sf	3.75	-33,953		
426	095100	ACT 2 ceiling 2 x 2	**110,404**	sf	4.50	496,818		
427	095100	ACT 3 ceiling 2 x 4 to kitchen, locker rooms, toilets etc.	**13,572**	sf	4.25	57,681		
428		SUBTOTAL					824,153	
429								
430		***TOTAL - INTERIOR FINISHES***						**$4,941,006**
431								
432								
433		***D10 CONVEYING SYSTEMS***						
434								
435		**D1010 ELEVATOR**						
436	142424	Passenger elevator, 4 stop, 1 opening; 3500 lbs; 120 fpm	**1**	ea	160,000.00	160,000		
437	142424	Passenger elevator, 4 stop, 1 opening; 2000 lbs; 120 fpm	**1**	ea	140,000.00	140,000		
438	055000	6 x 4 x 3/8 angle to elevator pit	**30**	lf	25.00	750		
439	055000	Pit ladders	**2**	ea	650.00	1,300		
440	055000	Sill angles	**30**	lf	25.00	750		
441		SUBTOTAL					302,800	
442								
443		***TOTAL - CONVEYING SYSTEMS***						**$302,800**
444								
445								
446		***D20 PLUMBING***						
447								
448		**D20 PLUMBING, GENERALLY**						
449	220000	Complete plumbing systems	**165,339**	gsf	12.50	2,066,738		
450		SUBTOTAL					2,066,738	
451								
452		***TOTAL - PLUMBING***						**$2,066,738**
453								
454		***D30 HVAC***						
455								
456		**D30 HVAC, GENERALLY**						
457	230000	HVAC Allowance	**165,339**	gsf	36.00	5,952,204		
458		SUBTOTAL					5,952,204	
459								
460		***TOTAL - HVAC***						**$5,952,204**
461								
462								
463		***D40 FIRE PROTECTION***						
464								
465		**D40 FIRE PROTECTION, GENERALLY**						
466	210000	Allowance for wet sprinkler system	**165,339**	sf	3.50	578,687		
467	210000	Allowance for standpipe system	**165,339**	sf	0.75	124,004		

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Middle School - Preferred Options
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GFA 165,339

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A NEW ADDITION						
468		SUBTOTAL					702,691	
469								
470		***TOTAL - FIRE PROTECTION***						**$702,691**
471								
472								
473		***D50 ELECTRICAL***						
474								
475		**D5010 SERVICE & DISTRIBUTION**						
476		**Gear & Distribution**						
477		Normal Power						
478	260000	Allowance for switchgear, feeders, panels, etc.	**165,339**	sf	4.55	752,292		
479		Emergency power						
480	260000	750kW diesel fueled WP enclosed generator	**1**	ea	270,000.00	270,000		
481	260000	Allowance for switchgear, feeders, panels, etc.	**165,339**	sf	1.00	165,339		
482		UPS System						
483	260000	Allowance for UPS system	**1**	ea	30,000.00	30,000		
484		Equipment Wiring						
485	260000	Allowance for mechanical equipment feeds & connections	**165,339**	sf	1.50	248,009		
486	260000	Allowance for empty conduits for PV system	**1**	ls	10,000.00	10,000		
487		SUBTOTAL					1,475,640	
488								
489		**D5020 LIGHTING & POWER**						
490		Lighting & Branch Power						
491	260000	Allowance for light fixtures incl. wiring	**165,339**	sf	9.00	1,488,051		
492		Lighting Control						
493	260000	Allowance for lighting control incl. wiring	**165,339**	sf	1.25	206,674		
494		Branch devices				-		
495	260000	Allowance for branch power receptacles incl. wiring	**165,339**	sf	1.75	289,343		
496		SUBTOTAL					1,984,068	
497								
498		**D5030 COMMUNICATION & SECURITY SYSTEMS**						
499		Voice & Data						
500	260000	Allowance for voice & data system c/w wiring, devices, racks, patch panels, etc.	**165,339**	sf	2.55	421,614		
501	260000	Switching	**1**	ls	300,000.00	300,000		
502	260000	Wireless devices	**1**	ls	150,000.00	150,000		
503	260000	Phone system	**1**	ls	150,000.00	150,000		
504		Fire Alarm						
505	260000	Allowance for addressable fire alarm system incl. bi-directional amplifier system	**165,339**	sf	2.50	413,348		
506		Master Clock System						
507	260000	Allowance for wireless clock system and PA	**165,339**	sf	0.80	132,271		
508		Security System						
509	260000	Allowance for security system	**165,339**	sf	2.15	355,479		
510		Audio Visual Systems						
511	260000	Allowance for assisted listening systems	**165,339**	sf	0.10	16,534		
512	260000	Allowance for Lecture Hall AV system	**1**	ls	75,000.00	75,000		
513	260000	Allowance for Gym AV system	**1**	ls	40,000.00	40,000		
514	260000	Allowance for PE Alternatives sound system	**1**	ls	25,000.00	25,000		
515	260000	Allowance for Cafe sound system	**1**	ls	25,000.00	25,000		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A NEW ADDITION						
516	260000	Allowance for IPTV system	**1**	ls	300,000.00	300,000		
517	260000	Allowance for TV Studio rough-in	**1**	ls	7,500.00	7,500		
518	260000	Allowance for TV Studio AV systems				**See Equipment**		
519		Gymnasium Equipment						
520	260000	Scoreboard with controls and shot clock & wireless controller, allow	**2**	ea	5,000.00	10,000		
521	260000	Shot Clock with remote control station, allow	**2**	ea	3,500.00	7,000		
522		SUBTOTAL					2,428,746	
523								
524		**D5040 OTHER ELECTRICAL SYSTEMS**						
525		Miscellaneous						
526	260000	Grounding & bonding	**165,339**	sf	0.15	24,801		
527	260000	Lightning protection system, allow	**165,339**	sf	0.30	49,602		
528	260000	Temp power and lights	**165,339**	sf	0.60	99,203		
529	260000	Electrical general conditions / requirements	**1**	ls	147,211.35	147,211		
530		SUBTOTAL					320,817	
531								
532		***TOTAL - ELECTRICAL***						**$6,209,271**
533								
534								
535		***E10 EQUIPMENT***						
536								
537		**E10 EQUIPMENT, GENERALLY**						
538	260000	TV Studio track, curtain, & grid	**1**	ls	53,000.00	53,000		
539	119000	Lecture hall equipment - dimming, control, & performance fixtures - Allow	**1**	ls	30,000.00	30,000		
540	102123	Cubicle curtain & track	**6**	loc	500.00	3,000		
541	115213	Projection screen; gymnasium	**1**	ea	9,000.00	9,000		
542	115213	Projection screen; cafeteria	**1**	ea	2,200.00	2,200		
543	115213	Projection screen; lecture hall	**1**	ea	2,200.00	2,200		
544	115213	TV Display- free standing	**5**	ea	5,000.00	FFE		
545	114000	Food service equipment	**1**	ls	500,000.00	500,000		
546	116653	Gym dividing curtain	**4,887**	sf	16.00	78,192		
547	116623	Wall pads to gym	**1,020**	sf	9.63	9,823		
548	116623	Fold up basketball stops, electric	**12**	ea	7,800.00	93,600		
549	126613	Telescoping bleachers; fixed	**1,000**	seat	120.00	120,000		
550	116623	Mat hoist gym	**4**	ea	8,000.00	32,000		
551	116623	Folding mats	**1**	ls	5,000.00	5,000		
552	116623	Volley ball standards	**1**	ls	1,500.00	1,500		
553	115313	Equipment for tv editing and production	**1**	ls	25,000.00	25,000		
554								
555	115313	Kiln	**2**	ea	3,000.00	6,000		
556	115313	Science classrooms equipment; fume hoods	**2**	ea	8,200.00	16,400		
557	115300	Science classrooms equipment; other equipment	**1**	ls	100,000.00	100,000		
558	115300	Equipment at central chemical storage	**1**	loc	20,000.00	20,000		
559	113100	Residential appliances	**1**	ls	35,000.00	35,000		
560		SUBTOTAL					1,141,915	
561								
562		***TOTAL - EQUIPMENT***						**$1,141,915**
563								
564								
565		***E20 FURNISHINGS***						
566								
567		**E2010 FIXED FURNISHINGS**						
568	124813	Recessed entry mats	**400**	sf	45.00	18,000		
569	124813	Walk off mats	**400**	sf	15.00	6,000		
570	122400	Roller blinds to windows	**23,512**	sf	6.00	141,072		
571	126100	Small seminar seating	**112**	seat	200.00	22,400		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A NEW ADDITION						
572	064000	Display case at art	**20**	lf	400.00	8,000		
573	064000	Display case with bench at radius	**132**	lf	500.00	66,000		
574	064000	Display case at cafeteria	**2**	loc	15,000.00	30,000		
575	062000	Window sill	**1,869**	lf	30.00	56,070		
576	090009	Stain, paint to wood trim and panels	**1**	ls	15,000.00	15,000		
577	062000	Wood chair rail at porcelain hall wainscoting	**2,812**	lf	15.00	42,180		
578	064000	Custom wood notice boards (15 locations)	**225**	sf	60.00	13,500		
579	123000	Classroom Casework and specialties	**165,339**	gsf	6.50	1,074,704		
580		SUBTOTAL					1,492,926	
581								
582		**E2020 MOVABLE FURNISHINGS**						
583		All movable furnishings to be provided and installed by owner						
584		SUBTOTAL					NIC	
585								
586		***TOTAL - FURNISHINGS***						**$1,492,926**
587								
588								
589		***F10 SPECIAL CONSTRUCTION***						
590								
591		**F10 SPECIAL CONSTRUCTION**						
592		No items in this section						
593		SUBTOTAL						
594								
595		***TOTAL - SPECIAL CONSTRUCTION***						
596								
597								
598		***F20 SELECTIVE BUILDING DEMOLITION***						
599								
600		**F2010 BUILDING ELEMENTS DEMOLITION**						
601		See main summary for demolition of existing buildings						
602		SUBTOTAL						
603								
604		**F2020 HAZARDOUS COMPONENTS ABATEMENT**						
605	013280	Removal of Asbestos Containing Materials in existing building - Included in Summary						
606		SUBTOTAL						
607								
608		***TOTAL - SELECTIVE BUILDING DEMOLITION***						

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Beverly Middle School
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Schematic Design Estimate

SITEWORK OPTION 2A

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
1								
2		***G SITEWORK***						
3								
4		**G10 SITE PREPARATION & DEMOLITION**						
5		Site Demolitions and Relocations						
6	024100	Site construction fence	**4,000**	lf	11.00	44,000		
7	024100	Pavement/curbing removal - grind up asphalt to reuse	**150,000**	sf	1.00	150,000		
8	024100	Remove and dispose concrete sidewalk	**30,000**	sf	1.25	37,500		
9	024100	Demolish existing buildings				Summary		
10	024100	Remove and dispose of fencing	**1**	ls	5,000.00	5,000		
11	024100	Tree removal	**60**	ea	750.00	45,000		
12	024100	Misc Tree Protection	**1**	ls	2,500.00	2,500		
13	024100	Cap existing waterline	**1**	ls	1,000.00	1,000		
14	024100	Cut and cap existing utilities	**12**	loc	1,000.00	12,000		
15	024100	Remove and dispose of existing drainage structures and utilities	**1**	ls	20,000.00	20,000		
16	024100	Miscellaneous demolition	**1**	ls	50,000.00	50,000		
17		SUBTOTAL					367,000	
18								
19		Site Earthwork						
20	310000	Construction entrances/wheel washes (allowance)	**2**	loc	12,000.00	24,000		
21	311000	Strip topsoil, store on site for reuse	**14,815**	cy	8.00	118,520		
22	310000	Cut/fill	**1**	ls	500,000.00	500,000		
23	310000	Fine grading	**57,697**	sy	0.50	28,849		
24	312500	Silt fence/erosion control (allowance)	**4,000**	lf	12.00	48,000		
25	312500	Erosion Control monitoring & maintenance	**1**	ls	20,000.00	20,000		
26		Hazardous Waste Remediation						
27	024100	No work in this section						
28		SUBTOTAL					739,369	
29								
30		**G20 SITE IMPROVEMENTS**						
31		Roadways and Parking Lots						
32		Bituminous concrete paving	*201,594*			-		
33	320000	gravel base; 12" thick	**7,466**	cy	30.00	223,980		
34	320000	bituminous concrete; 4" thick	**22,399**	sy	26.00	582,374		
35	320000	6"x18" granite curb	**9,868**	lf	32.00	315,776		
36	320000	Single solid lines, 4" thick	**289**	space	25.00	7,225		
37	320000	Wheelchair Parking	**10**	space	75.00	750		
38	320000	Crosswalk Hatching	**3**	loc	900.00	2,700		
39	320000	Other road markings	**1**	ls	7,500.00	7,500		
40	320000	HC curb cuts	**10**	loc	350.00	3,500		
41	042000	Entrance sign	**1**	ls	15,000.00	15,000		
42	321724	New traffic signs	**1**	ls	10,000.00	10,000		
43								
44		Raised Crosswalk						
45		*Concrete pavers*						
46	033000	Precast concrete pavers	**735**	sf	16.00	11,760		
47	320000	gravel base; 8" thick	**18**	cy	25.00	450		
48	033000	concrete base; 8" thick	**735**	sf	9.00	6,615		
49	320000	6"x18" granite curb	**90**	lf	32.00	2,880		
50		Precast Concrete pavers						
51		*Concrete pavers*						
52	033000	Precast concrete pavers	**2,812**	sf	16.00	44,992		
53	320000	gravel base; 8" thick	**70**	cy	25.00	1,750		
54	033000	concrete base; 6" thick	**2,812**	sf	6.00	16,872		
55	033000	granite banding	**260**	lf	35.00	9,100		
56		Pedestrian paving						
57		Bituminous concrete paving	*21,410*			-		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK OPTION 2A						
58	320000	gravel base; 12" thick	**793**	cy	30.00	23,790		
59	320000	bituminous concrete; 4" thick	**2,379**	sy	24.00	57,096		
60		*Exposed aggregate concrete*						
61	320000	gravel base; 8" thick	**618**	cy	25.00	15,450		
62	033000	concrete paving; 4" thick	**22,250**	sf	9.00	200,250		
63								
64		Site Improvements						
65	129300	Bicycle racks	**24**	ea	600.00	14,400		
66	129300	Flag pole	**1**	loc	7,500.00	7,500		
67	129300	Ornamental trash/recycling receptacles	**20**	ea	800.00	16,000		
68	129300	Ornamental bollards	**10**	ea	800.00	8,000		
69	129300	6' steel benches	**10**	ea	2,500.00	25,000		
70	129300	Seatwall	**150**	lf	350.00	52,500		
71	129300	Ramps	**1**	ls	15,000.00	15,000		
72	129300	Concrete retaining walls	**1**	ls	100,000.00	100,000		
73	129300	Fencing	**500**	lf	35.00	17,500		
74								
75	116800	Miscellaneous site improvements	**1**	ls	350,000.00	350,000		
76								
77		*Athletic Fields*						
78	310000	Gravel base - assumed 12" thick	**278**	cy	28.00	7,784		
79	310000	Soil mix; reuse amended soil from on-site spoils (taken in base estimate)	**265**	cy	50.00	13,250		
80	329900	Seeding	**7,150**	sf	0.25	1,788		
81	323114	Vinyl CL Fencing; 6'	**420**	lf	35.00	14,700		
82	323114	Gate, single	**2**	ea	1,200.00	2,400		
83	116800	Scoreboard	**1**	ea	8,000.00	8,000		
84	116800	Soccer goals (movable)	**1**	pr	2,500.00	2,500		
85								
86		Landscaping & Plantings:						
87	329900	Spread existing amended topsoil @ seeded areas	**11,869**	cy	18.00	213,642		
88	329900	Re-seed existing wetland area	**50,000**	sf	0.50	25,000		
89	329900	New seeded areas - L&S	**220,475**	sf	0.15	33,071		
90	329900	New seeded areas - Recreation field	**50,000**	sf	0.20	10,000		
91		*Trees*						
92	329900	Shade trees	**88**	ea	1,100.00	96,800		
93	329900	Evergreen tree	**46**	ea	1,000.00	46,000		
94	329900	Shrubs	**77**	ea	170.00	13,090		
95	329900	Other plantings	**1**	ls	50,000.00	50,000		
96	329900	Allowance for irrigation at fields	**7,150**	sf	2.00	14,300		
97		SUBTOTAL					2,718,035	
98								
99	**G30**	**CIVIL MECHANICAL UTILITIES**						
100		Water supply						
101	331000	Allowance for water service	**1**	ls	250,000.00	250,000		
102		Sanitary sewer						
103	333000	Allowance for sanitary service	**1**	ls	100,000.00	100,000		
104	330000	Storm Sewer						
105	330513	Allowance for storm service	**1**	ls	1,200,000.00	1,200,000		
106		Gas and Electrical service						
107		E&B trench for new lines, pipe and install by utilities						
108	310000	New gas service - Allowance	**1,000**	lf	25.00	25,000		
109		SUBTOTAL					1,575,000	
110								

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK OPTION 2A							
G40	**SITE ELECTRICAL**						
	Site Electrical & Communications						
	Allowance for site electrical & communications	**1**	ls	500,000.00	500,000		
	SUBTOTAL					500,000	
	SUBTOTAL SITE DEVELOPMENT						**$5,899,404**

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GFA 20,000

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2B RENOVATION						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$500,000			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$200,000	**$700,000**	$35.00	9.3%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$0			
	B1020	Roof Construction	$1,040,000	**$1,040,000**	$52.00	13.9%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$492,073			
	B2020	Windows	$388,936			
	B2030	Exterior Doors	$42,579	**$923,588**	$46.18	12.3%
B30	**ROOFING**					
	B3010	Roof Coverings	$340,192			
	B3020	Roof Openings	$11,700	**$351,892**	$17.59	4.7%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$333,000			
	C1020	Interior Doors	$80,000			
	C1030	Specialties/Millwork	$191,215	**$604,215**	$30.21	8.1%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$256,009			
	C3020	Floor Finishes	$147,019			
	C3030	Ceiling Finishes	$257,150	**$660,178**	$33.01	8.8%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%

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GFA 20,000

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2B RENOVATION						
D20	**PLUMBING**					
	D20	Plumbing	$250,000	**$250,000**	$12.50	3.3%
D30	**HVAC**					
	D30	HVAC	$760,000	**$760,000**	$38.00	10.1%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$85,000	**$85,000**	$4.25	1.1%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$141,000			
	D5020	Lighting & Power	$240,000			
	D5030	Communication & Security Systems	$587,000			
	D5040	Other Electrical Systems	$45,200	**$1,013,200**	$50.66	13.5%
E10	**EQUIPMENT**					
	E10	Equipment	$292,000	**$292,000**	$14.60	3.9%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$308,042			
	E2020	Movable Furnishings	NIC	**$308,042**	$15.40	4.1%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$500,000			
	F2020	Hazardous Components Abatement	$0	**$500,000**	$25.00	6.7%
TOTAL DIRECT COST (Trade Costs)				**$7,488,115**	$374.41	100.0%

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GFA 20,000

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 2B RENOVATION						
	GROSS FLOOR AREA CALCULATION						
	First Floor	20,000					
	TOTAL GROSS FLOOR AREA (GFA)				**20,000**	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
033000	Allowance for new foundations for bracing/seismic upgrades	**20,000**	sf	25.00	500,000		
	SUBTOTAL					500,000	
	A1020 SPECIAL FOUNDATIONS						
	No Work in this section						
	SUBTOTAL					-	
	A1030 LOWEST FLOOR CONSTRUCTION						
033000	Allowance to trench and Patch existing slabs	**20,000**	sf	10.00	200,000		
	SUBTOTAL					200,000	
	TOTAL - FOUNDATIONS						**$700,000**
	A20 BASEMENT CONSTRUCTION						
	A2010 BASEMENT EXCAVATION						
	No Work in this section						
	SUBTOTAL						
	A2020 BASEMENT WALLS						
	No Work in this section						
	SUBTOTAL						
	TOTAL - BASEMENT CONSTRUCTION						
	B10 SUPERSTRUCTURE						
	B1010 FLOOR CONSTRUCTION						
	No Work in this section						
	SUBTOTAL					-	
	B1020 ROOF CONSTRUCTION						
051200	Allowance for seismic upgrades and bracing	**20,000**	sf	50.00	1,000,000		
	Miscellaneous						
078100	Spray-applied fireproofing to beams and deck	**20,000**	sf	2.00	40,000		
	SUBTOTAL					$1,040,000	
	TOTAL - SUPERSTRUCTURE						**$1,040,000**
	B20 EXTERIOR CLOSURE						
	B2010 EXTERIOR WALLS - 70% of exterior walls	*9,489*	*sf*		-		
	Interior skin						

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GFA 20,000

	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2B RENOVATION						
56	042000	Allowance to insulate exterior wall	**9,489**	sf	15.00	142,335		
57		Exterior skin						
58	042000	Allowance to patch existing masonry; 100%	**9,489**	sf	34.00	322,626		
59	042000	Scaffold to exterior walls	**13,556**	sf	2.00	27,112		
60		SUBTOTAL					$492,073	
61								
62		**B2020 WINDOWS - 30% of exterior area**	*4,067*	*sf*		-		
63	085113	Remove existing glazing	**4,067**	sf	6.00	24,402		
64	085113	Aluminum windows; 80%	**3,254**	sf	80.00	260,320		
65	084413	Curtainwall; 20%	**813**	sf	110.00	89,430		
66	072726	Air/Vapor barrier at window & louver openings	**1,232**	lf	4.50	5,544		
67	079200	Backer rod & sealant at window & louver openings	**1,232**	lf	3.50	4,312		
68	061000	Wood blocking at window openings	**1,232**	lf	4.00	4,928		
69		SUBTOTAL					$388,936	
70								
71		**B2030 EXTERIOR DOORS**						
72		Exterior Doors - Aluminum						
73	084413	3'-0" x 7'-0" w/ glazed panels	**3**	ea	3,800.00	11,400		
74	084413	6'-0" x 7'-0" w/ glazed panels	**4**	pr	7,500.00	30,000		
75		Miscellaneous						
76	079200	Backer rod & sealant to exterior doors	**131**	lf	5.00	655		
77	061000	Wood blocking at door openings	**131**	lf	4.00	524		
78		SUBTOTAL					$42,579	
79								
80		***TOTAL - EXTERIOR CLOSURE***						**$923,588**
81								
82								
83		***B30 ROOFING***						
84								
85		**B3010 ROOF COVERINGS**						
86		Flat Roofing:						
87	075419	Remove existing roofing	**20,000**	sf	3.00	60,000		
88	075419	White EPDM roof membrane mechanically fastened with 6" insulation	**20,000**	sf	10.50	210,000		
89	075419	Membrane roof walkway pads	**1,000**	sf	5.00	5,000		
90		Miscellaneous Roofing						
91	076200	Through wall flashing	**1**	ls	30,000.00	30,000		
92	076200	Factory fabricated fascia trim/roof edge	**392**	lf	18.00	7,056		
93	079513	Roof expansion joints	**1**	ls	5,000.00	5,000		
94	072726	Air/Vapor barrier at roof edges	**392**	lf	8.00	3,136		
95	061000	Wood blocking at expansion joints and roof edges	**1**	ls	20,000.00	20,000		
96		SUBTOTAL					$340,192	
97								
98		**B3020 ROOF OPENINGS**						
99	077200	Smoke hatches	**3**	ea	3,900.00	11,700		
100		SUBTOTAL					$11,700	
101								
102		***TOTAL - ROOFING***						**$351,892**
103								
104								

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 2B RENOVATION						
	C10 INTERIOR CONSTRUCTION						
	C1010 PARTITIONS						
042000	Allowance for interior partitions	**20,000**	gsf	15.00	300,000		
79200	Sealants & caulking at partitions	**20,000**	gsf	0.15	3,000		
088000	Interior glazed borrowed lights and partitions	**20,000**	gsf	1.50	30,000		
	SUBTOTAL					333,000	
	C1020 INTERIOR DOORS						
084313	Allowance for interior doors	**20,000**	gsf	4.00	80,000		
	SUBTOTAL					$80,000	
	C1030 SPECIALTIES / MILLWORK						
055000	Metal catwalk to auditorium; including stairs	**1**	ls	60,000.00	60,000		
	Auditorium						
062000	Wood sliding glass door at control room in Auditorium; 14'-2" wide x 8'-0" high	**1**	ea	5,500.00	5,500		
051200	Support framing for auditorium lighting	**1**	ls	5,000.00	5,000		
061000	Stair construction at Auditorium stage	**66**	lfr	90.00	5,940		
	Band/Chorus						
062000	Wood columns/piers	**189**	sf	45.00	8,505		
062000	Wood trim	**462**	lf	18.00	8,316		
062000	Misc. trim	**1**	ls	1,000.00	1,000		
123000	tall storage	**4**	ea	1,200.00	4,800		
123000	cubbies	**32**	lf	250.00	8,000		
123000	Band Chorus storage - Wegner	**1**	ls	30,000.00	F,F&E		
123000	Large storage	**3**	loc	1,500.00	4,500		
101116	*Visual display boards*						
101116	Marker/tack Boards	**20,000**	gsf	1.00	20,000		
088000	Mirrors at choral and ensemble	**134**	sf	26.00	3,484		
055000	Supports for stage lighting	**1**	ls	10,000.00	10,000		
104400	Fire extinguisher cabinets	**7**	ea	350.00	2,450		
055100	Handrails at auditorium	**84**	lf	55.00	4,620		
055100	Guardrails at auditorium	**52**	lf	175.00	9,100		
055000	Misc metals	**20,000**	sf	1.50	30,000		
	SUBTOTAL					191,215	
	TOTAL - INTERIOR CONSTRUCTION						**$604,215**
	C20 STAIRCASES						
	C2010 STAIR CONSTRUCTION						
	Included in New Addition						
	SUBTOTAL						
	C2020 STAIR FINISHES						
	Included in New Addition						
	SUBTOTAL						
	TOTAL - STAIRCASES						

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2B RENOVATION						
158		***C30 INTERIOR FINISHES***						
159								
160		**C3010 WALL FINISHES**						
161	090009	Paint to GWB/CMU walls	**20,000**	gsf	1.50	30,000		
162	062000	Wood paneling and trim at auditorium including railings, pilasters etc.	**1**	ls	175,000.00	175,000		
163		*Band/Chorus*						
164	062000	Wood columns/piers	**189**	sf	45.00	8,505		
165	098414	Sound absorption panels	**1,232**	sf	22.00	27,104		
166	098414	Sound absorption panels @ ensemble	**700**	sf	22.00	15,400		
167		SUBTOTAL					$256,009	
168								
169		**C3020 FLOOR FINISHES**						
170	062000	Wood base	**242**	lf	8.00	1,936		
171	096466	Wood strip flooring to stage	**2,041**	sf	8.00	16,328		
172	096466	Oak T&G wood strip flooring to stairs at stage	**48**	lfr	25.00	1,200		
173	096800	Carpet to floors; auditorium	**3,023**	sf	5.00	15,115		
174	090003	Patch/Repair Epoxy Terrazzo to main corridor and lobby floors	**3,797**	sf	20.00	75,940		
175	090006	VCT to floors	**10,139**	sf	3.60	36,500		
176		SUBTOTAL					$147,019	
177								
178		**C3030 CEILING FINISHES**						
179	090002	Acoustical clouds in Auditorium	**1,895**	sf	70.00	132,650		
180	090002	Wood ceilings	**2,000**	sf	35.00	70,000		
181	090009	Paint exposed structure auditorium	**7,400**	sf	2.50	18,500		
182	095100	ACT 1 ceiling 2 x 4	**9,600**	sf	3.75	36,000		
183		SUBTOTAL					257,150	
184								
185		***TOTAL - INTERIOR FINISHES***						**$660,178**
186								
187								
188		***D10 CONVEYING SYSTEMS***						
189								
190		**D1010 ELEVATOR**						
191		**Included in New Addition**						
192		SUBTOTAL						
193								
194		***TOTAL - CONVEYING SYSTEMS***						
195								
196								
197		***D20 PLUMBING***						
198								
199		**D20 PLUMBING, GENERALLY**						
200	220000	Complete plumbing systems	**20,000**	gsf	12.50	250,000		
201		SUBTOTAL					$250,000	
202								
203		***TOTAL - PLUMBING***						**$250,000**
204								
205		***D30 HVAC***						
206								
207		**D30 HVAC, GENERALLY**						
208	230000	HVAC Allowance	**20,000**	gsf	38.00	760,000		

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		OPTION 2B RENOVATION						
209		SUBTOTAL					$760,000	
210								
211		***TOTAL - HVAC***						**$760,000**
212								
213								
214		***D40 FIRE PROTECTION***						
215								
216		**D40 FIRE PROTECTION, GENERALLY**						
217	210000	Allowance for wet sprinkler system	**20,000**	sf	3.50	70,000		
218	210000	Allowance for standpipe system	**20,000**	sf	0.75	15,000		
219		SUBTOTAL					85,000	
220								
221		***TOTAL - FIRE PROTECTION***						**$85,000**
222								
223								
224		***D50 ELECTRICAL***						
225								
226		**D5010 SERVICE & DISTRIBUTION**						
227		**Gear & Distribution**						
228		Normal Power						
229	260000	Allowance for switchgear, feeders, panels, etc.	**20,000**	sf	4.55	91,000		
230		Emergency power						
231	260000	750kW diesel fueled WP enclosed generator			Incl in New Addition			
232	260000	Allowance for switchgear, feeders, panels, etc.	**20,000**	sf	1.00	20,000		
233		Equipment Wiring						
234	260000	Allowance for mechanical equipment feeds & connections	**20,000**	sf	1.50	30,000		
235		SUBTOTAL					$141,000	
236								
237		**D5020 LIGHTING & POWER**						
238		Lighting & Branch Power						
239	260000	Allowance for light fixtures incl. wiring	**20,000**	sf	9.00	180,000		
240		Lighting Control						
241	260000	Allowance for lighting control incl. wiring	**20,000**	sf	1.25	25,000		
242		Branch devices				-		
243	260000	Allowance for branch power receptacles incl. wiring	**20,000**	sf	1.75	35,000		
244		SUBTOTAL					$240,000	
245								
246		**D5030 COMMUNICATION & SECURITY SYSTEMS**						
247		Voice & Data						
248	260000	Allowance for voice & data system c/w wiring, devices, racks, patch panels, etc.	**20,000**	sf	2.55	51,000		
249		Fire Alarm						
250	260000	Allowance for addressable fire alarm system incl. bi-directional amplifier system	**20,000**	sf	2.50	50,000		
251		Master Clock System						
252	260000	Allowance for wireless clock system and PA	**20,000**	sf	0.80	16,000		
253		Security System						
254	260000	Allowance for security system	**20,000**	sf	2.15	43,000		
255		Audio Visual Systems						
256	260000	Auditorium rigging equipment		ls		**See Equipment**		
257	260000	Theatrical dimming system equipment & installation	**1**	ls	200,000.00	200,000		
258	260000	Allowance for Theater lighting to Auditorium	**1**	ls	100,000	100,000		

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	CSI CODE		DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 2B RENOVATION								
259	260000		Allowance for assisted listening systems	**20,000**	sf	0.10	2,000		
260	260000		Allowance for Auditorium AV system	**1**	ls	125,000.00	125,000		
261			SUBTOTAL					$587,000	
262									
263		**D5040**	**OTHER ELECTRICAL SYSTEMS**						
264			Miscellaneous						
265	260000		Grounding & bonding	**20,000**	sf	0.15	3,000		
266	260000		Lightning protection system, allow	**20,000**	sf	0.30	6,000		
267	260000		Temp power and lights	**20,000**	sf	0.60	12,000		
268	260000		Electrical general conditions / requirements	**1**	ls	24,200.00	24,200		
269			SUBTOTAL					$45,200	
270									
271			***TOTAL - ELECTRICAL***						**$1,013,200**
272									
273									
274		***E10***	***EQUIPMENT***						
275									
276		**E10**	**EQUIPMENT, GENERALLY**						
277	116100		Theater & stage equipment including stage curtains & rigging	**1**	ls	230,000.00	230,000		
278	260000		TV Studio track, curtain, & grid	**1**	ls	53,000.00	53,000		
279	115213		Projection screen; stage proscenium	**1**	ea	9,000.00	9,000		
280			SUBTOTAL					$292,000	
281									
282			***TOTAL - EQUIPMENT***						**$292,000**
283									
284									
285		***E20***	***FURNISHINGS***						
286									
287		**E2010**	**FIXED FURNISHINGS**						
288	124813		Recessed entry mats	**400**	sf	45.00	18,000		
289	124813		Walk off mats	**400**	sf	15.00	6,000		
290	122400		Roller blinds to windows	**4,067**	sf	6.00	24,402		
291	126100		Auditorium seating	**463**	seat	280.00	129,640		
292	123000		Classroom Casework and specialties	**20,000**	gsf	6.50	130,000		
293			SUBTOTAL					$308,042	
294									
295		**E2020**	**MOVABLE FURNISHINGS**						
296			All movable furnishings to be provided and installed by owner						
297			SUBTOTAL					NIC	
298									
299			***TOTAL - FURNISHINGS***						**$308,042**
300									
301									
302		***F10***	***SPECIAL CONSTRUCTION***						
303									
304		**F10**	**SPECIAL CONSTRUCTION**						
305			No items in this section						
306			SUBTOTAL						
307									
308			***TOTAL - SPECIAL CONSTRUCTION***						
309									
310									
311		***F20***	***SELECTIVE BUILDING DEMOLITION***						
312									
313		**F2010**	**BUILDING ELEMENTS DEMOLITION**						
314	122400		Gut demolition	**20,000**	sf	25.00	500,000		
315			SUBTOTAL					$500,000	
316									

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2B RENOVATION						
317		**F2020 HAZARDOUS COMPONENTS ABATEMENT**						
318	013280	Removal of Asbestos Containing Materials in existing building - Included in Summary						
319		SUBTOTAL						
320								
321		***TOTAL - SELECTIVE BUILDING DEMOLITION***						**$500,000**

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Schematic Design Estimate

GFA 215,264

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2A NEW ADDITION						
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$2,636,454			
	A1020	Special Foundations	$2,778,420			
	A1030	Lowest Floor Construction	$2,313,958	**$7,728,832**	$35.90	12.8%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$4,231,590			
	B1020	Roof Construction	$3,554,246	**$7,785,836**	$36.17	12.9%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$5,245,302			
	B2020	Windows	$3,225,291			
	B2030	Exterior Doors	$123,959	**$8,594,552**	$39.93	14.3%
B30	**ROOFING**					
	B3010	Roof Coverings	$1,350,405			
	B3020	Roof Openings	$104,700	**$1,455,105**	$6.76	2.4%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$3,979,726			
	C1020	Interior Doors	$861,056			
	C1030	Specialties/Millwork	$1,726,037	**$6,566,819**	$30.51	10.9%
C20	**STAIRCASES**					
	C2010	Stair Construction	$283,300			
	C2020	Stair Finishes	$92,950	**$376,250**	$1.75	0.6%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$1,533,797			
	C3020	Floor Finishes	$2,867,850			
	C3030	Ceiling Finishes	$1,002,012	**$5,403,659**	$25.10	9.0%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$302,800	**$302,800**	$1.41	0.5%

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CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		*SUB-TOTAL*	*TOTAL*	*$/SF*	*%*
OPTION 2A NEW ADDITION						
D20	**PLUMBING**					
	D20	Plumbing	$2,690,800	**$2,690,800**	$12.50	4.5%
D30	**HVAC**					
	D30	HVAC	$7,749,504	**$7,749,504**	$36.00	12.9%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$914,872	**$914,872**	$4.25	1.5%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$1,827,611			
	D5020	Lighting & Power	$2,583,168			
	D5030	Communication & Security Systems	$2,833,138			
	D5040	Other Electrical Systems	$407,125	**$7,651,042**	$35.54	12.7%
E10	**EQUIPMENT**					
	E10	Equipment	$1,141,915	**$1,141,915**	$5.30	1.9%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$1,873,310			
	E2020	Movable Furnishings	NIC	**$1,873,310**	$8.70	3.1%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**HAZMAT REMOVALS**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
TOTAL DIRECT COST (Trade Costs)				**$60,235,296**	$279.82	100.0%

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	OPTION 2A NEW ADDITION						
	GROSS FLOOR AREA CALCULATION						
	First Floor	94,039					
	Second Floor	38,628					
	Third Floor	45,385					
	Fourth Floor	37,212					
	TOTAL GROSS FLOOR AREA (GFA)				**215,264**	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
	Perimeter grade beam; 5'-0" deep x 3'-0" wide						
310000	Excavation	**3,885**	cy	9.00	34,965		
310000	Store on site for reuse	**3,885**	cy	8.00	31,080		
310000	Backfill with selected material	**2,525**	cy	6.50	16,413		
033000	Formwork	**13,986**	sf	12.00	167,832		
033000	Re-bar	**163,200**	lbs	1.20	195,840		
033000	Concrete material; 3,000 psi	**1,360**	cy	115.00	156,400		
033000	Placing concrete	**1,360**	cy	40.00	54,400		
	Interior grade beam; 4'-0" deep x 2'-0" wide						
310000	Excavation	**5,926**	cy	9.00	53,334		
310000	Store on site for reuse	**5,926**	cy	8.00	47,408		
310000	Backfill with selected material	**4,682**	cy	6.50	30,433		
033000	Formwork	**16,000**	sf	12.00	192,000		
033000	Re-bar	**149,280**	lbs	1.20	179,136		
033000	Concrete material; 3,000 psi	**1,244**	cy	115.00	143,060		
033000	Placing concrete	**1,244**	cy	40.00	49,760		
	Pile Cap PC1, 5'-2" x 5'-2" x 1'-8"						
310000	Excavation	**1,495**	cy	15.00	22,425		
310000	Store on site for reuse	**1,495**	cy	8.00	11,960		
310000	Backfill with selected material	**1,287**	cy	13.00	16,731		
033000	Formwork	**4,144**	sf	11.00	45,584		
033000	Re-bar	**20,800**	lbs	1.20	24,960		
033000	Concrete material; 3,000 psi	**208**	cy	115.00	23,920		
033000	Placing concrete	**208**	cy	50.00	10,400		
	Pile Cap PC2, 9'-0" x 5'-0" x 4'-0"						
310000	Excavation	**277**	cy	15.00	4,155		
310000	Store on site for reuse	**277**	cy	8.00	2,216		
310000	Backfill with selected material	**165**	cy	13.00	2,145		
033000	Formwork	**1,792**	sf	11.00	19,712		
033000	Re-bar	**11,200**	lbs	1.20	13,440		
033000	Concrete material; 3,000 psi	**112**	cy	115.00	12,880		
033000	Placing concrete	**112**	cy	50.00	5,600		
	Pile Cap PC3, 8'-6" x 7'-0" x 4'-0"						
310000	Excavation	**3,300**	cy	15.00	49,500		
310000	Store on site for reuse	**3,300**	cy	8.00	26,400		
310000	Backfill with selected material	**1,801**	cy	13.00	23,413		
033000	Formwork	**20,088**	sf	11.00	220,968		
033000	Re-bar	**149,900**	lbs	1.20	179,880		
033000	Concrete material; 3,000 psi	**1,499**	cy	115.00	172,385		
033000	Placing concrete	**1,499**	cy	50.00	74,950		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A NEW ADDITION						
53		Pile Cap PC4, 9'-0" x 9'-0" x 4'-0"						
54	310000	Excavation	**351**	cy	15.00	5,265		
55	310000	Store on site for reuse	**351**	cy	8.00	2,808		
56	310000	Backfill with selected material	**175**	cy	13.00	2,275		
57	033000	Formwork	**2,016**	sf	11.00	22,176		
58	033000	Re-bar	**17,600**	lbs	1.20	21,120		
59	033000	Concrete material; 3,000 psi	**176**	cy	115.00	20,240		
60	033000	Placing concrete	**176**	cy	50.00	8,800		
61		Pile Cap PC8, 14'-9" x 13'-0" x 5'-0"						
62	310000	Excavation	**94**	cy	15.00	1,410		
63	310000	Store on site for reuse	**94**	cy	8.00	752		
64	310000	Backfill with selected material	**19**	cy	13.00	247		
65	033000	Formwork	**555**	sf	11.00	6,105		
66	033000	Re-bar	**7,500**	lbs	1.20	9,000		
67	033000	Concrete material; 3,000 psi	**75**	cy	115.00	8,625		
68	033000	Placing concrete	**75**	cy	50.00	3,750		
69		Miscellaneous						
70	310000	Perimeter drain	**2,331**	lf	16.00	37,296		
71	033000	Piers/pilasters	**186**	cy	750.00	139,500		
72	033000	Set anchor bolts grout plates; supplied by others	**1,256**	loc	25.00	31,400		
73		SUBTOTAL					2,636,454	
74								
75	**A1020**	**SPECIAL FOUNDATIONS**						
76	316213	Piling mobilization	**1**	ls	65,000.00	65,000		
77	316213	Load test	**1**	ls	45,000.00	45,000		
78	316213	Vibration monitoring	**1**	ls	35,000.00	35,000		
79	312000	Store surplus material on site	**3,082**	cy	14.00	43,148		
80	316213	Predrilling				NIC		
81	316213	Pile cut offs	**1**	sf	30,000.00	30,000		
82	316213	Precast concrete piles, 16" x 16", spliced, av. 60'	**49,236**	vlf	52.00	2,560,272		
83		SUBTOTAL					2,778,420	
84								
85	**A1030**	**LOWEST FLOOR CONSTRUCTION**						
86		New Structural Slab, 12" thick	*94,039*	*sf*		-		
87	312000	Gravel fill, 8"	**2,334**	cy	28.00	65,352		
88	033001	Rigid insulation	**94,039**	sf	2.00	188,078		
89	033001	Vapor barrier	**94,039**	sf	0.65	61,125		
90	312000	Compact existing sub-grade	**94,039**	sf	0.50	47,020		
91	033001	Formwork	**2,331**	lf	12.00	27,972		
92	033001	Rebar, 6#/SF	**564,234**	lbs	1.20	677,081		
93	033001	Concrete - 12" thick; 4,000 psi	**3,657**	cy	120.00	438,840		
94	033001	Premium for additional rebar at pile caps	**1**	ls	50,000.00	50,000		
95	033001	Placing concrete	**3,657**	cy	45.00	164,565		
96	033001	Finishing and curing concrete	**94,039**	sf	3.00	282,117		
97	033001	Barrier 1 moisture mitigation	**3,657**	cy	65.00	237,705		
98		Elevator Pit						
99	310000	Excavation for elevator pit	**168**	cy	14.00	2,352		
100	310000	Remove off site	**168**	cy	17.37	2,918		
101	310000	Backfill with gravel	**8**	cy	28.00	224		
102		Elevator pit walls						
103	033000	formwork	**960**	sf	9.06	8,698		

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		OPTION 2A NEW ADDITION						
104	033000	reinforcement	**1,440**	lbs	1.00	1,440		
105	033000	Concrete material; 3,000 psi	**12**	cy	111.00	1,332		
106	033000	placing concrete in walls	**12**	cy	40.00	480		
107		Slab						
108	033000	formwork	**120**	sf	9.06	1,087		
109	033000	reinforcement	**600**	lbs	1.00	600		
110	033000	concrete material in slab	**12**	cy	111.00	1,332		
111	033000	placing concrete in slab; 3,000 psi	**12**	cy	40.00	480		
112		Miscellaneous						
113	071613	Polymer modified Cement waterproofing to elevator pit	**680**	sf	12.00	8,160		
114	033000	Loading dock	**1**	ls	35,000.00	35,000		
114	033000	Neutralization pit	**1**	loc	4,000.00	4,000		
115	033000	Grease interceptor pit	**1**	loc	2,500.00	2,500		
116	033000	Equipment pads	**500**	sf	7.00	3,500		
117		SUBTOTAL					2,313,958	
118								
119		***TOTAL - FOUNDATIONS***						**$7,728,832**
120								
121								
122		***A20 BASEMENT CONSTRUCTION***						
123								
124		**A2010 BASEMENT EXCAVATION**						
125		**No Work in this section**						
126		SUBTOTAL						
127								
128		**A2020 BASEMENT WALLS**						
129		**No Work in this section**						
130		SUBTOTAL						
131								
132		***TOTAL - BASEMENT CONSTRUCTION***						
133								
134								
135		***B10 SUPERSTRUCTURE***						
136			13.58	lbs/sf		-		
137		**B1010 FLOOR CONSTRUCTION**	1,462	tns		-		
138		Floor Structure - Steel:						
139	051200	Beams/columns/bracing ; w-sections	**788**	tns	3,300.00	2,600,400		
140	051200	Premium for HSS	**197**	tns	200.00	39,400		
141	051500	Shear studs	**15,153**	ea	6.00	90,918		
142		Floor Structure						
143	053100	Metal floor decking; 2", 18 gage	**121,225**	sf	3.50	424,288		
144	033000	Mesh reinforcement in concrete topping	**139,409**	sf	0.90	125,468		
145	033000	Concrete topping to metal decking, 5 1/4" thick; Light weight	**2,063**	cy	140.00	288,820		
146	033000	Placing concrete topping	**121,225**	sf	2.00	242,450		
147	033000	Moisture Mitigation; admixture	**2,063**	cy	40.00	82,520		
148		Miscellaneous						
149	033000	Rebar at slab edges	**15,000**	lbs	1.00	15,000		
150	078400	Firestopping at floor penetrations	**3**	floors	2,500.00	7,500		
151	078400	Fire stopping at slab edges	**2,331**	lf	4.00	9,324		
152	078400	Miscellaneous fire stopping	**1**	ls	20,000.00	20,000		
153	055000	Relieving angles	**4705**	lf	55.00	Incl in Structure		
154	051200	Base plates	**12,560**	lbs	1.75	21,980		
155	051200	Moment connections	**12**	ea	500.00	6,000		
156	051200	Supply anchor bolts installed by others	**1,256**	ea	12.00	15,072		

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		OPTION 2A NEW ADDITION						
157	078100	Spray-applied fireproofing to beams and columns only	**121,225**	sf	2.00	242,450		
158		SUBTOTAL					4,231,590	
159								
160		**B1020 ROOF CONSTRUCTION**						
161		Roof Structure - Steel:						
162	051200	Beams/columns/bracing ; w-sections	**674**	tns	3,200.00	2,156,800		
163	051200	Premium for HSS	**169**	tns	3,400.00	574,600		
164	051200	Premium for trusses	**1**	ls	25,000.00	25,000		
165	051200	Bridging to roof trusses	**1**	ls	50,000.00	50,000		
166		Roof Structure						
167	053100	Metal roof decking; 1 1/2, 20 gage galv., type B	**78,539**	sf	2.50	196,348		
168	053100	Metal roof decking; 3", NA	**15,500**	sf	6.50	100,750		
169		Miscellaneous						
170	051200	Support framing to roof screen ; HSS galvanized	**13**	tns	3,800.00	49,400		
171	078100	Spray-applied fireproofing to beams and deck	**78,539**	sf	2.00	157,078		
172	033000	Concrete slab for Roof Top equipment	**15,090**	sf	8.00	120,720		
173	055000	Angle framing at roof details	**1**	ls	160,000.00	Incl in Structure		
174	051200	Canopy frame	**3,000**	sf	20.00	60,000		
175	051200	Canopy frame at loading dock	**800**	sf	20.00	16,000		
176	051200	Moment connections	**93**	ea	350.00	32,550		
177	051200	Chiller dunnage	**1**	ls	15,000.00	15,000		
178		SUBTOTAL					3,554,246	
179								
180		***TOTAL - SUPERSTRUCTURE***						**$7,785,836**
181								
182								
183		***B20 EXTERIOR CLOSURE***						
184								
185		**B2010 EXTERIOR WALLS - 65% of exterior walls**	*60,958*	*sf*		-		
186		Interior skin						
187	042000	8" CMU back up to exterior wall	**10,400**	sf	20.00	208,000		
188	054000	8" metal stud back-up	**50,558**	sf	9.50	480,301		
189	090002	GWB to inside of exterior wall	**60,958**	sf	2.60	158,491		
190	061600	Gypsum densglass sheathing board	**60,958**	sf	2.50	152,395		
191	072726	Air/Vapor barrier to exterior walls, fluid applied	**60,958**	sf	6.00	365,748		
192	072100	Rigid insulation to CMU walls, 3"	**10,400**	sf	2.50	26,000		
193	072100	Rigid insulation, 3"	**50,558**	sf	2.50	126,395		
194		Exterior skin						
195	042000	Allowance for masonry; 50%	**30,479**	sf	34.00	1,036,286		
196	042000	Allowance for metal panels/GFRC	**30,479**	sf	55.00	1,676,345		
197	042000	Premium for brick accent bands	**1**	ls	60,000.00	60,000		
198		Fiberglass Trim and Custom Shapes						
199		Fiberglass Cornice						
200	068200	GFRP cornice	**2,331**	lf	135.00	314,685		
201	068200	Fiberglass window surrounds	**1**	ls	25,000.00	25,000		
202	061000	Wood blocking to Fiberglass Trim	**4,662**	lf	6.00	27,972		
203	090009	Paint/touchup to Fiberglass Trim	**1**	ls	15,000.00	15,000		
204		Precast trim and custom pieces						
205	047200	Precast sills to windows/pilasters/decorative shapes	**1**	ls	175,000.00	175,000		
206		Miscellaneous						
207	089200	Louvered equipment enclosure, prefinished louvered aluminum (10' high)	**340**	lf	320.00	108,800		

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		OPTION 2A NEW ADDITION						
208	072420	EIFS soffits including: applied finish at canopy	**3,800**	sf	18.00	68,400		
209	072420	GFRP Trim at canopy	**512**	lf	35.00	17,920		
210	101400	Logo signs/banners	**1**	ls	15,000.00	15,000		
211	042000	Scaffold to exterior walls	**93,782**	sf	2.00	187,564		
212		SUBTOTAL					5,245,302	
213								
214		**B2020 WINDOWS - 35% of exterior area**	*32,824*	*sf*		-		
215	085113	Aluminum windows; 80%	**26,259**	sf	80.00	2,100,720		
216	084413	Curtainwall; 20%	**6,565**	sf	110.00	722,150		
217	055000	Sun shade allowance	**1,900**	lf	140.00	266,000		
218	089000	Louvers	**192**	sf	55.00	10,560		
219	055000	Lintels to windows and doors ; supply only installed in 04200	**464**	lf	14.00	6,496		
220	072726	Air/Vapor barrier at window & louver openings	**9,947**	lf	4.50	44,762		
221	079200	Backer rod & sealant at window & louver openings	**9,947**	lf	3.50	34,815		
222	061000	Wood blocking at window openings	**9,947**	lf	4.00	39,788		
223		SUBTOTAL					3,225,291	
224								
225		**B2030 EXTERIOR DOORS**						
226		Hollow metal doors, frames and HW						
227	081113	Single leaf	**3**	ea	1,600.00	4,800		
228	081113	Double leaf	**3**	pr	3,200.00	9,600		
229		Exterior Doors - Aluminum						
230	084413	3'-0" x 7'-0" w/ glazed panels	**4**	ea	3,800.00	15,200		
231	084413	6'-0" x 7'-0" w/ glazed panels	**11**	pr	7,500.00	82,500		
232		Miscellaneous						
233	083323	Overhead door 8' x 8'	**1**	ea	3,840.00	3,840		
234	083323	Overhead door 8' x 9'	**1**	ea	4,320.00	4,320		
235	079200	Backer rod & sealant to exterior doors	**411**	lf	5.00	2,055		
236	061000	Wood blocking at door openings	**411**	lf	4.00	1,644		
237		SUBTOTAL					123,959	
238								
239		***TOTAL - EXTERIOR CLOSURE***						**$8,594,552**
240								
241								
242		***B30 ROOFING***						
243								
244		**B3010 ROOF COVERINGS**						
245		Flat Roofing:						
246	075419	White EPDM roof membrane mechanically fastened with 6" insulation	**90,253**	sf	10.50	947,657		
247	075419	Membrane roof walkway pads	**4,513**	sf	5.00	22,565		
248		Sloped roofing						
249	073113	Standing seam	**3,786**	sf	32.00	121,152		
250		Miscellaneous Roofing						
251	076200	Through wall flashing	**1**	ls	30,000.00	30,000		
252	076200	Factory fabricated fascia trim/roof edge	**2,331**	lf	18.00	41,958		
253	076200	Snow guard tabs	**473**	ea	25.00	11,825		
254	079513	Roof expansion joints	**1**	ls	5,000.00	5,000		
255	072726	Air/Vapor barrier at roof edges	**2,331**	lf	8.00	18,648		
256	061000	Wood blocking at expansion joints and roof edges	**1**	ls	50,000.00	50,000		
257	075419	Canopies; roofing	**3,800**	sf	25.00	95,000		

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		OPTION 2A NEW ADDITION						
258	077200	Finials	**2**	ea	2,000.00	NIC		
259	077200	Roof ladders	**4**	loc	1,650.00	6,600		
260		SUBTOTAL					1,350,405	
261								
262		**B3020 ROOF OPENINGS**						
263	077200	Skylight allowance	**1**	ls	90,000.00	90,000		
264	077200	Elevator PH and vent	**2**	ea	3,000.00	6,000		
265	077200	Roof hatches and ladder	**3**	ea	2,900.00	8,700		
266		SUBTOTAL					104,700	
267								
268		***TOTAL - ROOFING***						**$1,455,105**
269								
270								
271		***C10 INTERIOR CONSTRUCTION***						
272								
273		**C1010 PARTITIONS**						
274	042000	Allowance for interior partitions	**215,264**	gsf	15.00	3,228,960		
275	055000	Support framing for Operable partition	**30**	lf	120.00	3,600		
276	102228	Operable partition	**420**	sf	45.00	18,900		
277	79200	Sealants & caulking at partitions	**215,264**	gsf	0.15	32,290		
278	102228	Acoustic folding panel door in gym	**3,060**	sf	55.00	168,300		
279	055000	Misc metals to support folding wall in gym	**102**	lf	90.00	9,180		
280	084313	Glass folding doors at learning center	**1,630**	sf	120.00	195,600		
281	088000	Interior glazed borrowed lights and partitions	**215,264**	gsf	1.50	322,896		
282		SUBTOTAL					3,979,726	
283								
284		**C1020 INTERIOR DOORS**						
285	084313	Allowance for interior doors	**215,264**	gsf	4.00	861,056		
286		SUBTOTAL					861,056	
287								
288		**C1030 SPECIALTIES / MILLWORK**						
289		*Toilet Partitions*						
290	102113	ADA	**24**	ea	1,323.00	31,752		
291	102113	Standard	**24**	ea	823.00	19,752		
292	102113	Urinal screens	**24**	ea	392.00	9,408		
293	102113	Changing cubicles at girls locker	**13**	ea	1,200.00	15,600		
294	102113	Premolded shower bases	**4**	ea	600.00	2,400		
295	102113	Premolded shower bases; HC	**5**	ea	1,400.00	7,000		
296	055000	Miscellaneous support at toilet partitions	**48**	loc	150.00	7,200		
297	102813	*Toilet Accessories*						
298	102813	Gang bathrooms	**24**	rms	2,500.00	60,000		
299	102813	Individual bathrooms	**24**	rms	600.00	14,400		
300	102813	Custodian closet	**8**	rms	500.00	4,000		
301	102813	Folding Shower Seats	**5**	ea	250.00	1,250		
302	102813	Shower and changing cubical curtains	**22**	ea	100.00	2,200		
303								
304		*HS Student Dining*						
305	062000	Wood trim	**115**	lf	42.00	4,830		
306	062000	Misc. trim	**1**	ls	4,000.00	4,000		
307	062000	Signage	**1**	ls	8,000.00	8,000		
308	062000	Crown molding	**132**	lf	35.00	4,620		
309	062000	Recycling Center	**22**	lf	400.00	8,800		
124		*Library/Media Center*						
125	062000	Wood trim & shelving at library	**213**	lf	220.00	46,860		
126	062000	Tiered seating in library, circular	**28**	lf	250.00	7,000		
310		*MS Student Dining*						

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311	062000	Wood trim	**231**	lf	42.00	9,702		
312	062000	Misc. trim	**1**	ls	5,000.00	5,000		
313	062000	Signage	**1**	ls	10,000.00	10,000		
314	062000	Crown molding	**89**	lf	35.00	3,115		
315	062000	Recycling Center	**22**	lf	400.00	8,800		
316		*Gym/Athletics*						
317	062000	Signage/graphics	**1**	ls	20,000.00	20,000		
318	101116	*Visual display boards*						
319	101116	Marker/tack Boards	**215,264**	gsf	1.00	215,264		
320	101116	8' IWB	**81**	loc	5,400.00	437,400		
321	061000	Backer panels in electrical closets	**1**	ls	1,000.00	1,000		
322	088000	Mirrors at choral and ensemble	**134**	sf	26.00	3,484		
323	088000	Mirrors at PE Alt allowance	**168**	sf	26.00	4,368		
324	055000	Support to projection screens	**1**	ls	2,000.00	2,000		
325	055000	SS lockable time capsule	**1**	ea	1,500.00	1,500		
326	055000	Elevator support framing	**1**	ls	2,500.00	2,500		
327	079513	Expansion joint cover assemblies	**1**	ls	25,000.00	25,000		
328	105113	Metal corridor lockers; single tier	**1,395**	opng	180.00	251,100		
329	033000	Concrete base at lockers	**1**	ls	12,000.00	12,000		
330	105113	Open face lockers in locker room single tier	**32**	opn	200.00	6,400		
331	105113	12" wide x 12" high Metal gym lockers; double tier	**440**	opn	180.00	79,200		
332	105113	15' wide x 24" high Metal gym lockers; double tier	**268**	opn	220.00	58,960		
333	105113	Lockers @ Kitchen	**10**	opn	240.00	2,400		
334	105113	Lockers @ Custodian	**6**	opn	240.00	1,440		
335	105113	Locker room benches	**48**	lf	150.00	7,200		
336	104400	Fire extinguisher cabinets	**72**	ea	350.00	25,200		
337	055100	Guardrails at floor openings 2nd floor including rails at radius	**390**	lf	220.00	85,800		
338	104400	Emergency key cabinets	**1**	ls	500.00	500		
339	101400	Signage	**1**	ls	80,000.00	80,000		
340	101400	Signage at library	**1**	ls	1,500.00	Incl		
341	101400	Building directory	**2**	ea	1,000.00	Incl		
342	101400	Exterior signage	**1**	ls	5,850.00	Incl		
343	101400	Dedication plaque	**1**	ea	1,400.00	Incl		
344	055000	Misc metals	**215,264**	sf	0.50	107,632		
345		SUBTOTAL					1,726,037	
346								
347		***TOTAL - INTERIOR CONSTRUCTION***						**$6,566,819**
348								
349								
350		***C20 STAIRCASES***						
351								
352		**C2010 STAIR CONSTRUCTION**						
353	055100	Monumental stairs	**2**	flt	35,000.00	70,000		
354	055100	Egress stairs	**9**	flt	22,000.00	198,000		
355	033000	Concrete fill to stairs	**1**	ls	12,000.00	12,000		
356	055100	Roof access ladders	**3**	ea	1,100.00	3,300		
357		SUBTOTAL					283,300	
358								
359		**C2020 STAIR FINISHES**						
360	090009	High performance coating to stairs including all railings etc.	**11**	flt	2,500.00	27,500		
361	090006	Stair finish to monumental stairs	**350**	lfr	25.00	8,750		
362	090006	Rubber base; stairs	**1,350**	lf	3.00	4,050		

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363	090006	Rubber tile at stairs - landings	**3,150**	sf	9.00	28,350		
364	090006	Rubber tile at stairs - treads & risers	**1,350**	lft	18.00	24,300		
365		SUBTOTAL					92,950	
366								
367		***TOTAL - STAIRCASES***						**$376,250**
368								
369								
370		***C30 INTERIOR FINISHES***						
371								
372		**C3010 WALL FINISHES**						
373	090009	Paint to GWB/CMU walls	**215,264**	gsf	1.50	322,896		
374	090003	Ceramic wall tile in shower rooms full height	**4,374**	sf	18.00	78,732		
375	090003	Ceramic wall tile in shower rooms wainscoting	**3,114**	sf	18.00	56,052		
376	090003	Ceramic wall tile toilet rooms; full height at wet wall, wainscoting elsewhere	**13,320**	sf	18.00	239,760		
377	090003	Ceramic wall tile in custodian rooms	**420**	sf	16.00	6,720		
163		*Library/Media Center*						
164	062000	Wood columns/piers at library	**1,440**	sf	45.00	64,800		
165	062000	Wood trim & molding at library entry complete	**1**	ls	12,000.00	NIC		
166	062000	Wood Paneling in library	**334**	sf	60.00	20,040		
167	062000	Wood trim @ chair rail band at library	**240**	lf	42.00	10,080		
378		*HS Student Dining*						
379	098414	Sound absorption panels	**143**	sf	22.00	3,146		
380		*MS Student Dining*						
381	098414	Sound absorption panels	**171**	sf	22.00	3,762		
382		*Band/Chorus*						
383	062000	Wood columns/piers	**189**	sf	45.00	8,505		
384	098414	Sound absorption panels	**1,232**	sf	22.00	27,104		
385	098414	Sound absorption panels @ ensemble	**700**	sf	22.00	15,400		
386		*Lobby*						
387	062000	Wood trim and paneling to lobby	**1**	ls	80,000.00	80,000		
388		*Gym/Athletics*						
389	098414	Sound absorption panels @ alt gym	**500**	sf	22.00	11,000		
390	098414	Sound absorption panels @ gym	**1,000**	sf	22.00	22,000		
391	090003	Porcelain tile to walls at student dining	**2,208**	sf	20.00	44,160		
392	090003	Porcelain tile to columns at student dining	**630**	sf	22.00	13,860		
393	090003	Porcelain wall tile to corridors	**18,784**	sf	20.00	375,680		
394	090003	Porcelain tile to walls at stairs	**5,830**	sf	20.00	116,600		
395	090003	FRP to kitchen	**1,500**	sf	9.00	13,500		
396		SUBTOTAL					1,533,797	
397								
398		**C3020 FLOOR FINISHES**						
399	062000	Wood base	**242**	lf	8.00	1,936		
400	062000	Wood base to gym and PE alternatives	**524**	lf	9.00	4,716		
401	096400	Gymnasium wood flooring	**15,400**	sf	16.00	246,400		
402	096800	Carpet to floors; library	**5,739**	sf	5.00	28,695		
403	096800	Carpet to floors; selected classrooms & offices	**11,124**	sf	5.00	55,620		
404	090003	Epoxy Terrazzo to main corridor and lobby floors	**68,223**	sf	26.00	1,773,798		
405	090003	Terrazzo base	**3,243**	lf	18.00	58,374		
406	090003	Quarry tile to floors	**3,001**	sf	18.00	54,018		
407	090003	Quarry tile base	**473**	lf	14.00	6,622		
408	090003	Ceramic mosaic tiles to floors; toilets & showers	**10,571**	sf	16.60	175,479		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		OPTION 2A NEW ADDITION						
409	090003	Ceramic tile base	**2,500**	lf	12.00	30,000		
410	090006	VCT to floors	**52,570**	sf	3.60	189,252		
411	090006	Seamless sheet vinyl	**8,467**	sf	7.00	59,269		
412	090006	Vinyl cove base	**9,558**	lf	2.80	26,762		
413	090009	Painted concrete floor	**12,341**	sf	1.50	18,512		
414	090006	Rubber flooring	**13,162**	sf	10.00	131,620		
415	090006	Static control resilient flooring	**753**	sf	9.00	6,777		
416		SUBTOTAL					2,867,850	
417								
418		**C3030 CEILING FINISHES**						
419	090002	GWB ceilings; allowance	**5,000**	sf	10.00	50,000		
420	090002	GWB soffits; allowance	**1**	ls	100,000.00	100,000		
421	090002	Wood ceilings	**2,000**	sf	35.00	70,000		
422	090009	Paint to ceilings	**5,000**	sf	1.00	5,000		
423	090009	Paint exposed structure - gym, auditorium	**25,881**	sf	2.50	64,703		
424	090009	Paint exposed structure	**9,269**	sf	1.50	13,904		
425	095100	ACT 1 ceiling 2 x 4	**38,375**	sf	3.75	143,906		
426	095100	ACT 2 ceiling 2 x 2	**110,404**	sf	4.50	496,818		
427	095100	ACT 3 ceiling 2 x 4 to kitchen, locker rooms, toilets etc.	**13,572**	sf	4.25	57,681		
428		SUBTOTAL					1,002,012	
429								
430		***TOTAL - INTERIOR FINISHES***						**$5,403,659**
431								
432								
433		***D10 CONVEYING SYSTEMS***						
434								
435		**D1010 ELEVATOR**						
436	142424	Passenger elevator, 4 stop, 1 opening; 3500 lbs; 120 fpm	**1**	ea	160,000.00	160,000		
437	142424	Passenger elevator, 4 stop, 1 opening; 2000 lbs; 120 fpm	**1**	ea	140,000.00	140,000		
438	055000	6 x 4 x 3/8 angle to elevator pit	**30**	lf	25.00	750		
439	055000	Pit ladders	**2**	ea	650.00	1,300		
440	055000	Sill angles	**30**	lf	25.00	750		
441		SUBTOTAL					302,800	
442								
443		***TOTAL - CONVEYING SYSTEMS***						**$302,800**
444								
445								
446		***D20 PLUMBING***						
447								
448		**D20 PLUMBING, GENERALLY**						
449	220000	Complete plumbing systems	**215,264**	gsf	12.50	2,690,800		
450		SUBTOTAL					2,690,800	
451								
452		***TOTAL - PLUMBING***						**$2,690,800**
453								
454		***D30 HVAC***						
455								
456		**D30 HVAC, GENERALLY**						
457	230000	HVAC Allowance	**215,264**	gsf	36.00	7,749,504		

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		OPTION 2A NEW ADDITION						
458		SUBTOTAL					7,749,504	
459								
460		***TOTAL - HVAC***						**$7,749,504**
461								
462								
463		***D40 FIRE PROTECTION***						
464								
465		**D40 FIRE PROTECTION, GENERALLY**						
466	210000	Allowance for wet sprinkler system	**215,264**	sf	3.50	753,424		
467	210000	Allowance for standpipe system	**215,264**	sf	0.75	161,448		
468		SUBTOTAL					914,872	
469								
470		***TOTAL - FIRE PROTECTION***						**$914,872**
471								
472								
473		***D50 ELECTRICAL***						
474								
475		**D5010 SERVICE & DISTRIBUTION**						
476		**Gear & Distribution**						
477		Normal Power						
478	260000	Allowance for switchgear, feeders, panels, etc.	**215,264**	sf	4.55	979,451		
479		Emergency power						
480	260000	750kW diesel fueled WP enclosed generator	**1**	ea	270,000.00	270,000		
481	260000	Allowance for switchgear, feeders, panels, etc.	**215,264**	sf	1.00	215,264		
482		UPS System						
483	260000	Allowance for UPS system	**1**	ea	30,000.00	30,000		
484		Equipment Wiring						
485	260000	Allowance for mechanical equipment feeds & connections	**215,264**	sf	1.50	322,896		
486	260000	Allowance for empty conduits for PV system	**1**	ls	10,000.00	10,000		
487		SUBTOTAL					1,827,611	
488								
489		**D5020 LIGHTING & POWER**						
490		Lighting & Branch Power						
491	260000	Allowance for light fixtures incl. wiring	**215,264**	sf	9.00	1,937,376		
492		Lighting Control						
493	260000	Allowance for lighting control incl. wiring	**215,264**	sf	1.25	269,080		
494		Branch devices				-		
495	260000	Allowance for branch power receptacles incl. wiring	**215,264**	sf	1.75	376,712		
496		SUBTOTAL					2,583,168	
497								
498		**D5030 COMMUNICATION & SECURITY SYSTEMS**						
499		Voice & Data						
500	260000	Allowance for voice & data system c/w wiring, devices, racks, patch panels, etc.	**215,264**	sf	2.55	548,923		
501	260000	Switching	**1**	ls	300,000.00	300,000		
502	260000	Wireless devices	**1**	ls	150,000.00	150,000		
503	260000	Phone system	**1**	ls	150,000.00	150,000		
504		Fire Alarm						
505	260000	Allowance for addressable fire alarm system incl. bi-directional amplifier system	**215,264**	sf	2.50	538,160		

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		OPTION 2A NEW ADDITION						
506		Master Clock System						
507	260000	Allowance for wireless clock system and PA	**215,264**	sf	0.80	172,211		
508		Security System						
509	260000	Allowance for security system	**215,264**	sf	2.15	462,818		
510		Audio Visual Systems						
511	260000	Allowance for assisted listening systems	**215,264**	sf	0.10	21,526		
512	260000	Allowance for Lecture Hall AV system	**1**	ls	75,000.00	75,000		
513	260000	Allowance for Gym AV system	**1**	ls	40,000.00	40,000		
514	260000	Allowance for PE Alternatives sound system	**1**	ls	25,000.00	25,000		
515	260000	Allowance for Cafe sound system	**1**	ls	25,000.00	25,000		
516	260000	Allowance for IPTV system	**1**	ls	300,000.00	300,000		
517	260000	Allowance for TV Studio rough-in	**1**	ls	7,500.00	7,500		
518	260000	Allowance for TV Studio AV systems				**See Equipment**		
519		Gymnasium Equipment						
520	260000	Scoreboard with controls and shot clock & wireless controller, allow	**2**	ea	5,000.00	10,000		
521	260000	Shot Clock with remote control station, allow	**2**	ea	3,500.00	7,000		
522		SUBTOTAL					2,833,138	
523								
524		**D5040 OTHER ELECTRICAL SYSTEMS**						
525		Miscellaneous						
526	260000	Grounding & bonding	**215,264**	sf	0.15	32,290		
527	260000	Lightning protection system, allow	**215,264**	sf	0.30	64,579		
528	260000	Temp power and lights	**215,264**	sf	0.60	129,158		
529	260000	Electrical general conditions / requirements	**1**	ls	181,097.93	181,098		
530		SUBTOTAL					407,125	
531								
532		***TOTAL - ELECTRICAL***						**$7,651,042**
533								
534								
535		***E10 EQUIPMENT***						
536								
537		**E10 EQUIPMENT, GENERALLY**						
538	260000	TV Studio track, curtain, & grid	**1**	ls	53,000.00	53,000		
539	119000	Lecture hall equipment - dimming, control, & performance fixtures - Allow	**1**	ls	30,000.00	30,000		
540	102123	Cubicle curtain & track	**6**	loc	500.00	3,000		
541	115213	Projection screen; gymnasium	**1**	ea	9,000.00	9,000		
542	115213	Projection screen; cafeteria	**1**	ea	2,200.00	2,200		
543	115213	Projection screen; lecture hall	**1**	ea	2,200.00	2,200		
544	115213	TV Display- free standing	**5**	ea	5,000.00	FFE		
545	114000	Food service equipment	**1**	ls	500,000.00	500,000		
546	116653	Gym dividing curtain	**4,887**	sf	16.00	78,192		
547	116623	Wall pads to gym	**1,020**	sf	9.63	9,823		
548	116623	Fold up basketball stops, electric	**12**	ea	7,800.00	93,600		
549	126613	Telescoping bleachers; fixed	**1,000**	seat	120.00	120,000		
550	116623	Mat hoist gym	**4**	ea	8,000.00	32,000		
551	116623	Folding mats	**1**	ls	5,000.00	5,000		
552	116623	Volley ball standards	**1**	ls	1,500.00	1,500		
553	115313	Equipment for tv editing and production	**1**	ls	25,000.00	25,000		
554								
555	115313	Kiln	**2**	ea	3,000.00	6,000		
556	115313	Science classrooms equipment; fume hoods	**2**	ea	8,200.00	16,400		
557	115300	Science classrooms equipment; other equipment	**1**	ls	100,000.00	100,000		
558	115300	Equipment at central chemical storage	**1**	loc	20,000.00	20,000		
559	113100	Residential appliances	**1**	ls	35,000.00	35,000		
560		SUBTOTAL					1,141,915	
561								

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		OPTION 2A NEW ADDITION						
562		***TOTAL - EQUIPMENT***						**$1,141,915**
563								
564								
565		***E20 FURNISHINGS***						
566								
567		**E2010 FIXED FURNISHINGS**						
568	124813	Recessed entry mats	**400**	sf	45.00	18,000		
569	124813	Walk off mats	**400**	sf	15.00	6,000		
570	122400	Roller blinds to windows	**32,824**	sf	6.00	196,944		
571	126100	Small seminar seating	**112**	seat	200.00	22,400		
572	064000	Display case at art	**20**	lf	400.00	8,000		
573	064000	Display case with bench at radius	**132**	lf	500.00	66,000		
574	064000	Display case at cafeteria	**2**	loc	15,000.00	30,000		
575	062000	Window sill	**1,869**	lf	30.00	56,070		
576	090009	Stain, paint to wood trim and panels	**1**	ls	15,000.00	15,000		
577	062000	Wood chair rail at porcelain hall wainscoting	**2,812**	lf	15.00	42,180		
578	064000	Custom wood notice boards (15 locations)	**225**	sf	60.00	13,500		
579	123000	Classroom Casework and specialties	**215,264**	gsf	6.50	1,399,216		
580		SUBTOTAL					1,873,310	
581								
582		**E2020 MOVABLE FURNISHINGS**						
583		All movable furnishings to be provided and installed by owner						
584		SUBTOTAL					NIC	
585								
586		***TOTAL - FURNISHINGS***						**$1,873,310**
587								
588								
589		***F10 SPECIAL CONSTRUCTION***						
590								
591		**F10 SPECIAL CONSTRUCTION**						
592		No items in this section						
593		SUBTOTAL						
594								
595		***TOTAL - SPECIAL CONSTRUCTION***						
596								
597								
598		***F20 SELECTIVE BUILDING DEMOLITION***						
599								
600		**F2010 BUILDING ELEMENTS DEMOLITION**						
601		See main summary for demolition of existing buildings						
602		SUBTOTAL						
603								
604		**F2020 HAZARDOUS COMPONENTS ABATEMENT**						
605	013280	Removal of Asbestos Containing Materials in existing building - Included in Summary						
606		SUBTOTAL						
607								
608		***TOTAL - SELECTIVE BUILDING DEMOLITION***						

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
		SITEWORK OPTION 2B						
1								
2		***G SITEWORK***						
3								
4		**G10 SITE PREPARATION & DEMOLITION**						
5		Site Demolitions and Relocations						
6	024100	Site construction fence	**4,000**	lf	11.00	44,000		
7	024100	Pavement/curbing removal - grind up asphalt to reuse	**150,000**	sf	1.00	150,000		
8	024100	Remove and dispose concrete sidewalk	**30,000**	sf	1.25	37,500		
9	024100	Demolish existing buildings				Summary		
10	024100	Remove and dispose of fencing	**1**	ls	5,000.00	5,000		
11	024100	Tree removal	**60**	ea	750.00	45,000		
12	024100	Misc Tree Protection	**1**	ls	2,500.00	2,500		
13	024100	Cap existing waterline	**1**	ls	1,000.00	1,000		
14	024100	Cut and cap existing utilities	**12**	loc	1,000.00	12,000		
15	024100	Remove and dispose of existing drainage structures and utilities	**1**	ls	20,000.00	20,000		
16	024100	Miscellaneous demolition	**1**	ls	50,000.00	50,000		
17		SUBTOTAL					367,000	
18								
19		Site Earthwork						
20	310000	Construction entrances/wheel washes (allowance)	**2**	loc	12,000.00	24,000		
21	311000	Strip topsoil, store on site for reuse	**14,815**	cy	8.00	118,520		
22	310000	Cut/fill	**1**	ls	500,000.00	500,000		
23	310000	Fine grading	**61,072**	sy	0.50	30,536		
24	312500	Silt fence/erosion control (allowance)	**4,000**	lf	12.00	48,000		
25	312500	Erosion Control monitoring & maintenance	**1**	ls	20,000.00	20,000		
26		Hazardous Waste Remediation						
27	024100	No work in this section						
28		SUBTOTAL					741,056	
29								
30		**G20 SITE IMPROVEMENTS**						
31		Roadways and Parking Lots						
32		Bituminous concrete paving	*228,641*			-		
33	320000	gravel base; 12" thick	**8,468**	cy	30.00	254,040		
34	320000	bituminous concrete; 4" thick	**25,405**	sy	26.00	660,530		
35	320000	6"x18" granite curb	**9,245**	lf	32.00	295,840		
36	320000	Single solid lines, 4" thick	**344**	space	25.00	8,600		
37	320000	Wheelchair Parking	**10**	space	75.00	750		
38	320000	Crosswalk Hatching	**3**	loc	900.00	2,700		
39	320000	Other road markings	**1**	ls	7,500.00	7,500		
40	320000	HC curb cuts	**10**	loc	350.00	3,500		
41	042000	Entrance sign	**1**	ls	15,000.00	15,000		
42	321724	New traffic signs	**1**	ls	10,000.00	10,000		
43								
44		Raised Crosswalk						
45		*Concrete pavers*						
46	033000	Precast concrete pavers	**2,727**	sf	16.00	43,632		
47	320000	gravel base; 8" thick	**68**	cy	25.00	1,700		
48	033000	concrete base; 8" thick	**2,727**	sf	9.00	24,543		
49	320000	6"x18" granite curb	**330**	lf	32.00	10,560		
50		Precast Concrete pavers						
51		*Concrete pavers*						
52	033000	Precast concrete pavers	**2,000**	sf	16.00	32,000		
53	320000	gravel base; 8" thick	**50**	cy	25.00	1,250		
54	033000	concrete base; 6" thick	**2,000**	sf	6.00	12,000		
55	033000	granite banding	**260**	lf	35.00	9,100		
56		Pedestrian paving						
57		Bituminous concrete paving	*15,434*			-		

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		SITEWORK OPTION 2B						
58	320000	gravel base; 12" thick	**572**	cy	30.00	17,160		
59	320000	bituminous concrete; 4" thick	**1,715**	sy	24.00	41,160		
60		*Exposed aggregate concrete*						
61	320000	gravel base; 8" thick	**430**	cy	25.00	10,750		
62	033000	concrete paving; 4" thick	**15,477**	sf	9.00	139,293		
63								
64		Site Improvements						
65	129300	Bicycle racks	**24**	ea	600.00	14,400		
66	129300	Flag pole	**1**	loc	7,500.00	7,500		
67	129300	Ornamental trash/recycling receptacles	**20**	ea	800.00	16,000		
68	129300	Ornamental bollards	**10**	ea	800.00	8,000		
69	129300	6' steel benches	**10**	ea	2,500.00	25,000		
70	129300	Seatwall	**150**	lf	350.00	52,500		
71	129300	Ramps	**1**	ls	15,000.00	15,000		
72	129300	Concrete retaining walls	**1**	ls	100,000.00	100,000		
73	129300	Fencing	**500**	lf	35.00	17,500		
74								
75	116800	Miscellaneous site improvements	**1**	ls	350,000.00	350,000		
76								
77		*Athletic Fields*						
78	310000	Gravel base - assumed 12" thick	**511**	cy	28.00	14,308		
79	310000	Soil mix; reuse amended soil from on-site spoils (taken in base estimate)	**487**	cy	18.00	8,766		
80	329900	Seeding	**13,150**	sf	0.25	3,288		
81	323114	Vinyl CL Fencing; 6'	**700**	lf	35.00	24,500		
82	323114	Gate, single	**4**	ea	1,200.00	4,800		
83	116800	Scoreboard	**1**	ea	8,000.00	8,000		
84	116800	Soccer goals (movable)	**2**	pr	2,500.00	5,000		
85								
86		Landscaping & Plantings:						
87	329900	Spread existing amended topsoil @ seeded areas	**10,569**	cy	18.00	190,242		
88	329900	Re-seed existing wetland area	**50,000**	sf	0.50	25,000		
89	329900	New seeded areas - L&S	**235,370**	sf	0.15	35,306		
90		*Trees*						
91	329900	Shade trees	**94**	ea	1,100.00	103,400		
92	329900	Evergreen tree	**57**	ea	1,000.00	57,000		
93	329900	Shrubs	**75**	ea	170.00	12,750		
94	329900	Other plantings	**1**	ls	50,000.00	50,000		
95	329900	Allowance for irrigation at fields	**13,150**	sf	2.00	26,300		
96		SUBTOTAL					2,776,168	
97								
98	**G30**	**CIVIL MECHANICAL UTILITIES**						
99		Water supply						
100	331000	Allowance for water service	**1**	ls	250,000.00	250,000		
101		Sanitary sewer						
102	333000	Allowance for sanitary service	**1**	ls	100,000.00	100,000		
103	330000	Storm Sewer						
104	330513	Allowance for storm service	**1**	ls	1,200,000.00	1,200,000		
105		Gas and Electrical service						
106		E&B trench for new lines, pipe and install by utilities						
107	310000	New gas service - Allowance	**1,000**	lf	25.00	25,000		
108		SUBTOTAL					1,575,000	
109								

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SITEWORK OPTION 2B							
G40	**SITE ELECTRICAL**						
	Site Electrical & Communications						
	Allowance for site electrical & communications	**1**	ls	500,000.00	500,000		
	SUBTOTAL					500,000	
	SUBTOTAL SITE DEVELOPMENT						**$5,959,224**

Final Evaluation of Alternatives

Summary of Preliminary Design Pricing

Table 1 - Summary of Preliminary Design Pricing

Option (Description)	Total Gross Square Feet	Square Feet of Renovated Space (cost*/sf)	Square Feet of New Construction (cost*/sf)	Site, Building Takedown, Haz Mat. Cost*	Estimated Total Construction** (cost*/sf)	Estimated Total Project Costs
Option 1 - New Construction - 5-8 Middle School (Cabot St. Site) * **	**233,264sf**	**NA**	**233,264sf $411/sf**	**$2,456,000**	**$98,190,248 $421/sf**	**$121,819,300**
Option 1a- New Constrution - Delete new auditorium as requested by MSBA	224,714sf	NA	224,714f $407/sf	$2,456,000	$93,937,760 $418/sf	$116,760,966
Option 2a - Reno/Add (Cabot St. Site) Keep/Renovate existing building, demolish existing gym/lockers	165,339sf	88,000sf $252/sf	165,339sf $387/sf	$1,840,000	$100,820,319 $398/sf	$125,521,987
Option 2b - Reno/Add 5-8 School (Cabot St. Site) Demolish existing building - Keep/renovate existing auditorium	215,264sf	20,000sf $374/sf	215,264sf $408/sf	$2,316,000	$98,664,120 $419/sf	$123,064,789

* Marked Up Construction Costs

** Does not include Construction Contingency

*** District's Preferred Solution

Preferred Solution
Educational Program

As part of their review of the Preferred Schematic Solution, the Building Committee went back to review the desired design concepts that were inherent in the bubble diagrams generated during the educational visioning and educational programming sessions. Specifically, the Building Committee confirmed that the preferred Option 1A was capable of meeting all of the identified educational goals and also fulfilled the fundamental guiding principles and learning environments as identified in the educational program and below:

LEARNING NEIGHBORHOODS

Beverly Middle School, as currently configured, embraces a traditional middle school model that emphasizes teaming students. The team consists of four general education teachers (Mathematics, Science, English Language Arts, and Social Studies) as well as Special Education Liaison(s) associated with Special Education programs connected to that particular team. While a team approach is utilized, the physical layout of the building inhibits the teachers' ability to provide interdisciplinary opportunities on a regular basis. In order for teachers to be able to facilitate the blending of multiple disciplines of academic instruction, teams must be organized into "Teaching Neighborhoods". These teaching neighborhoods will contain four general education classrooms, a dedicated science classroom, and a "Neighborhood Commons" space to facilitate inquiry, presentation, community, project-based learning, teaming, and STEAM. Each neighborhood will include opportunities for small group work and study areas which allow students to move in and out of the classroom area without interruption. Special Education spaces for reading, resource, and inclusion will be an inherent part of each neighborhood. There will be adequate space for student belongings without the need for "industrial looking" steel lockers lining the walls of hallways and corridors. A shared teacher work and planning in each neighborhood is an integral piece of the design and will allow collaboration on assignments, student progress, and the planning of rigorous cross-disciplinary opportunities. Although organized for efficient interaction within the team, these neighborhoods must share a common connection with other neighborhoods and be able to facilitate integration with the remaining school environment.

NO MORE "CELLS AND BELLS"

The industrial model approach to educational design is often jokingly referred to as "Cells and Bells" because it organized classrooms along a corridor, much like holding cells. Corridors are lined with industrial style lockers for each student. Each classroom space exists in a state of isolation, with no visual connection to the corridor other than a door. Students move from "cell-to-cell" under the direction of bells...hence the name "Cells and Bells". This organizational structure has many disadvantages and includes an outdated approach to many 21st Century educational practices including:

- The evolution of technology has almost eliminated the need for student lockers. Lockers were created to hold books and personal belongings, all of which are minimized for the modern middle school student. The use of this valuable space for numerous underutilized lockers is a waste, and one goal of the new middle school will be to reduce or possibly eliminate corridor lockers; utilizing technology to reduce the need for books and other storage solutions to address personal belongings.

- The middle school staff has seen increasing success with students who are able to work

in small groups outside of the boundaries of the classroom. These students currently only have the corridor space available to them, which unfortunately limits the circumstances under which they can be allowed to complete small group study outside the classroom. However, the results associated with allowing students to assemble in small workgroups outside of the classroom have been very positive despite the spatial limitations. There should really be no "corridors" in a modern facility, as one could argue this this space is the most underutilized space in the entire building. These "corridors" should become part of the "Neighborhood Commons" area with transparency to the classroom, such that they can be utilized during the entire school day as an area for small group study, independent research, and numerous other academic pursuits. One of the goals of the new middle school is to eliminate these "corridors" and convert them to viable, usable, learning-supportive spaces in each neighborhood.

SMALL LEARNING COMMUNITIES

One of the critical strategies identified in the visioning sessions was the need to break the school into smaller learning communities. There was significant discussion regarding the characteristics of these learning communities and it is clear that their organizational attributes go well beyond this simple designation of various neighborhoods to a specific community. These learning communities must be created in a manner which promotes safety, identity, personalization, pride, belonging, support, and confidence. They must recognize that these feelings can be fostered by a well-organized community which responds to student needs from morning arrival until end-of-day departure. The student must feel a personal connection to the staff and students of their community, and such connection begins at arrival. In designing the new facility we must consider providing entry points for each community, and weigh the advantages of this approach versus an approach which forces a large number of students through a single entry point.

FLEXIBLE PROJECT AND INSTRUCTIONAL SPACE; THE FLEXIBLE CLASSROOM

Spaces utilized for 21st Century instructional practices should not segregate instruction from application. The modern comprehensive middle school environment must be a flexible space that accommodates both instruction and application. The maker/builder spaces that are dedicated to project based learning should be highly integrated to the remaining academic classrooms and/or environment. It should allow for students to be creative and grow as learners throughout the course of their day. Additionally, teachers can collaborate with colleagues more easily through flexible spaces.

The flexible classroom is meant to describe an "area" rather than a specific room defined by four or more enclosing walls. Staff and students agree that learning within a group of spaces that allow for varying approaches and environments, facilitated by a teacher or combination of co-teachers, provides the best opportunity for varying learning styles and progress. In some instances, having as many as three contiguous spaces with the necessary supervision can allow the facilitators to customize the learning program for each student. Transparency between these spaces will be a key factor in the successful use of these collective spaces as a "flexible classroom". There was much discussion about the need for small group spaces integrated within the classrooms and neighborhoods. These spaces require a high level of transparency for supervision and connectivity to remaining neighborhood spaces. There are also numerous physical characteristics required within these classrooms including ubiquitous technology and large-scale instructional walls which allow "every wall to be a teaching and collaboration wall".

PERSONALIZATION OF INSTRUCTION AND EXPERIENCE

The teaching neighborhoods and flexible project and instructional space known as the "neighborhood commons" are key elements in the personalization of instruction for all students. These spaces will allow educators to meet the needs of all students in an engaging, creative, and collaborative way. Combining these neighborhoods into a grade-level community of three neighborhoods will allow for the creation of manageable grade-level learning communities which offer personalization of each student's experience. This strategy of breaking down the larger school population into smaller learning communities is critical to the successful personalization of the student experience.

COMMUNITY CONNECTIONS

The new Beverly Middle School must be a welcoming environment for not only students and staff but also for community members. The proposed facility should be designed in a way that allows community members to experience student activity and work; and to provide support for such in meaningful ways. Being able to connect with the community through both ease of facility use and the presentation and display of student work is of vital importance. Because community members will not necessarily be privy to the day-to-day learning experiences of students, providing opportunities to view student work that is rigorous and engaging will build a sense of community between the school and Beverly residents. Lockers should be removed from the hallways and corridors and transparency should be abundant such that these spaces are available to put student work and student activities on display.

STEAM PARTNERSHIPS

The City of Beverly has a unique opportunity to partner with many engineering and science businesses that are located within the community. This partnership coupled with a focus on STEAM initiatives will allow teachers and students to participate in real world application both inside and outside of traditional classroom spaces. The modern 21st Century middle school environment allows for the integration of the key subjects of Science, Technology, Engineering, Arts, and Math into real world business and scientific applications in an effort to help students understand the importance of these topics individually, but to also understand the way they support each other.

EDUCATIONAL TECHNOLOGY CAMPUS WIDE

Campus-wide wireless access is key to creating a flexible environment where students can complete assignments without the confines or boundaries of a fixed computer lab. The seamless integration of technology through both a high capacity wireless network coupled with durable small devices (i.e., iPads, Chromebooks, Laptops) for each student will allow students to access information more readily in order to assist in the production of rigorous performance-based tasks that foster creativity and the development of 21st Century skills. The technology goals described previously herein will apply to the entire campus...indoors and outdoors. Additionally, media broadcasting, video editing, and video production are all academic endeavors which will be supported within the academic neighborhoods and through the provisions of the video production lab. This will also allow students to create and engage in a variety of community events through the use of a variety of media.

MEDIA CENTER AND THE DISTRIBUTION OF MEDIA

The library media center should be a media distribution and retrieval resource which students can utilize throughout the school environment. The functions of the library media center should be carefully considered throughout the planning process, as the focus on creating academic neighborhoods may warrant the need to satellite some media resources to the individual neighborhoods or grade-level communities. Media research will occur in many places throughout the school environment, and distributing some library/media resources may prove beneficial in creating a more dynamic environment. Media broadcasting, video editing, and video production are all academic endeavors which will occur within the academic neighborhoods in some capacity, but will also require more sophisticated facilities that may be better placed central to a media resource center.

SOCIALIZATION AND STUDENT DINING

The development of social skills is an integral part of a student's middle school experience. The ability to communicate with both adults and peers is consistently developed through formal and informal interactions throughout the school day. Lunch time offers students the opportunity to socialize and decompress with their classmates. The traditional cafeteria where students are herded into a space and directed to function in a very rigid way is not conducive in today's society. Schools where social dining is distributed throughout the school environment with less restrictions and/or boundaries have proven to promote student collaboration while simultaneously reducing discipline problems. The student dining area can also play a significant role in parent and community interactions with the school, by providing flexible space, which supports presentations, programs, and events. It can serve as one of the primary social hubs of not only the school but also the entire Beverly community. Multiple options should be considered when developing the dining areas for middle school students, as these areas may be distributed throughout the various school communities in a way which breaks down the scale of dining to the individual communities, and dining may become part of each small learning community. This distribution of dining might provide a more heavily utilized and efficient space; as it becomes a place for projects, presentations, study and work when not utilized for dining. Consideration should be given to a design layout which spreads satellite dining areas into each grade-level learning community in a way that allows sharing by all neighborhoods within that learning community.

SAFETY AND SECURITY

The new middle school will provide students and staff with a safe and secure environment by including measures that support and foster safety and confidence. Students and staff must feel safe and confident in their environment, without the inclusion of over-restrictive physical barriers that compromise the educational environment. Providing clear and controlled entry will be important, but within the academic neighborhoods safety should prevail without restricting the desired open and transparent connections between the learning areas. A clear approach for students and visitors which promotes supervision and observation at the point on entry will be key to allowing all to access the necessary support services. Safety also includes providing adequate and appropriately located space for support services staff and outside providers who provide necessary mental health support for our students. Students face and are presented with a wide array of mental health issues at early ages; it is therefore vital that space is provided for these services to commence in a suitable space.

INDOOR / OUTDOOR CONNECTIONS

The connection of indoor and outdoor spaces is important to creating a vibrant and energized educational environment. Students can become more engaged in utilizing outdoor space if an effort is made to insure the appropriate visual and physical connection. Outdoor space can be used beyond recreational use and can provide project space, social space, classrooms, study areas, and other support areas for the educational environment. This would also provide an even better connection to the Nature's Classroom and Change Is Simple programs, which emphasize outdoor learning and creating a green environment and are a cornerstone of the middle school experience.

LEARNING BEYOND THE SCHOOL DAY

As students become involved in more activities, the time they spend on the academic campus has expanded. These activities include music, performance, athletics, research, science, academics, and more. Many students study after school as they await upcoming practices, performances, or activities that involve them or their friends. Additionally, there is a strong relationship with the local YMCA which provides a wide array of programming for students after school at their location. Having appropriate space for the YMCA to provide programming in the building would allow for a stronger collaboration between the school and community. Providing appropriate spaces for such activities is a key component of the 21st Century academic environment.

Beverly Public Schools
502 Cabot Street
Beverly, Massachusetts 01915
Telephone (978) 921-6100
Fax (978) 922-6597
www.beverlyschools.org

Steven A. Hiersche, Ed.D.
Superintendent of Schools

MODULE 3: PRELIMINARY DESIGN PROGRAM

1.2 EDUCATION PROGRAM

MISSION: To enable all students to reach their potential through an academically challenging and diverse education. To maximize academic achievement and personal growth to enable all students to compete within the global economy.

1.

Over the past 20 years, the City of Beverly has completed an enormous amount of planning and execution in order to proactively invest in the future of Beverly's public education facilities. Planning and feasibility work in the mid-1990s called for the middle school grades to be consolidated at a new facility proposed for the current Memorial School building site, but when the high school faced imminent loss of accreditation because of structural failures and other problems, the City's primary focus shifted to the high school. Today, the high school project is complete, upgraded through an $81 million renovation/addition project that restored necessary educational space and provided a long-term solution to significant facility needs. All of the Beverly elementary schools have also been upgraded, with comprehensive renovation/addition projects having been completed at each of the facilities between 1996 and 2003. The City of Beverly has now turned its focus back to the largest remaining piece of the education facilities puzzle, the middle school. Beverly consolidated both of its middle schools in 2005 due to severe financial pressures. Although the Beverly Middle School building did not have the capacity to appropriately accommodate the entire grades 6-8 middle school population, it was the largest available facility and thus became the only available choice for consolidation of all middle school students into a single facility. The Memorial School building, vacant after the 2005 consolidation of the grades 6-8 middle school population, was then used to provide much needed space for city and school offices, as well as a state-approved remedial Recovery High School for young people with substance abuse issues. Although Beverly did provide the largest available building (144,349sf) for middle school consolidation, it is a very old 1923 building located on a very small parcel of only 6 acres. The current middle school population of approximately 1,000 students results in severe overcrowding of both the building and site. These characteristics place severe constraints on the ability of the school district to introduce innovative educational programming, to allow space for athletic activity, to provide adequate and safe parking, or to accommodate a safe arrival and departure from the site. At the time students were transferred to the Beverly Middle School as part of a consolidation, it was evident that Beverly would need to pursue a much more appropriate solution in the very near future. After several years of extensive investigation and planning, the Superintendent of Schools and the School Committee determined that a plan for appropriate middle school facilities

should be implemented immediately and that such should include a grade 5-8 configuration. According to a May 2011 report by the Beverly Public School's Strategic Planning Committee Facilities Usage Ad Hoc Subgroup, this configuration would be markedly advantageous for students. In part, the findings of the study concluded that increasing the number of students in this setting and the number of grades would result in increased parental involvement and enhanced curriculum consistency, while affording students more opportunities to interact with students in different grades in a co-curriculum milieu, which is beneficial. The resulting space made available at the existing elementary schools through the removal of the 5th grade population would be used to resolve overcrowding in the elementary schools and provide full-day kindergarten opportunities and continue limited half-day kindergarten classes. It would also allow for the expansion of successful in-house Special Education programs facilitating the return to Beverly schools of currently out-placed special needs students with resulting cost savings. Overcrowding at the elementary schools is primarily due to increased growth in the overall population driven in part by a growing pre-school population of children on the autism spectrum. This has resulted in the district renting space for 4 preschool classrooms in the current year; in the coming school year, an additional 4 classrooms will be relocated out of the elementary schools due to increased enrollment.

Current and Proposed Education Program:

2. GRADE AND SCHOOL CONFIGURATION

Current:

The Beverly Public Schools is a pre-kindergarten to grade 12 District with a present enrollment of 4,545 students. The District includes five (5) elementary schools, one (1) middle school, and one (1) high school as follows:

- Ayres Ryal Side Elementary School serving kindergarten through grade five (5). Kindergarten includes four (4) sections of full-day tuition based and one (1) section of half-day.
    - Kindergarten: 102 students
    - Grades 1 through 5: 404 students
- Centerville Elementary School serving kindergarten through grade five (5). Kindergarten includes two (2) sections of full-day tuition based.
    - Kindergarten: 43 students
    - Grades 1 through 5: 296 students
- Cove Elementary School serving kindergarten through grade five (5). Kindergarten includes three (3) sections of full-day tuition based and two (2) sections of half-day.
    - Kindergarten: 106 students
    - Grades 1 through 5: 370 students
- Hannah Elementary School serving kindergarten through grade five (5). Kindergarten includes three (3) sections of full-day tuition based.
    - Kindergarten: 64 students
    - Grades 1 through 5: 326 students

- North Beverly Elementary serving kindergarten through grade five (5). Kindergarten includes three (3) sections of full-day tuition based.
    - Kindergarten: 60 students
    - Grades 1 through 5: 369 students
- Beverly Middle School serving grades 6 through 8: 929 students
- Beverly High School serving grades 9 through 12: 1,337 students
- KOG/Memorial Pre-school: 85 students

The current school assignment and grade configuration are based on the District's efforts to consolidate operations and to work within the restrictions imposed by the physical layout and limited size of the educational facilities available throughout the City. The existing buildings and grade configurations do not conform to the desired configurations, but instead represent the best solution under the present conditions. It also does not provide the optimum educational program. As an example, students presently do not necessarily attend the same school for kindergarten that they will attend for the remainder of their elementary experience. Elementary classroom space for special classroom instruction such as science or the arts are being used as regular classroom space due to increased enrollments and the resultant overcrowding. Creating a free full-day kindergarten program is a challenge in the present space available. The Beverly Middle School was constructed in 1923, a time when traffic, vehicle access, parking, universal accessibility, school meal programs, and modern middle school teaching principles were not considered. It was in fact built as a high school. The school building is 90 years old and has received some maintenance improvements during its lifetime. It has been well maintained, but classrooms are grossly undersized, room layouts and adjacencies are not conducive to a flexible middle school program emphasizing 21st Century and Global instructional strategies. Facilities, infrastructure, services and access do not fit the needs of today's educational practices and are well beyond their intended life expectancy.

Proposed:

Significant time, effort, and resources have been expended by the City, the School Department, the School Committee, and the greater community in arriving at a preference and support for a facility which accommodates grades 5-8 in a co-located school environment (a 5/6 school and a 7/8 school sharing key core facilities). However, as part of the Preliminary Design Program phase, the impact of continuing with the current 6-8 middle school organization was also evaluated as one of the possible future options. Under these two basic scenarios (a 5-8 co-located school and a 6-8 school), the enrollments considered and approved were a proposed 1,395 student population in grades 5-8 and a proposed 1,040 student population in grades 6-8. Two possible site locations were considered - the existing Beverly Middle School site and the Memorial Building site, which also served as a former middle school location. In order to make an equivalent comparison of the two grade configuration scenarios, options that included a 6-8 middle school facility also included the necessary scope of work required at three (3) of the K-5 elementary schools in order to address the needs of these schools and also alleviate overcrowding. The documentation identified in the Preliminary Design program submittal identifies many reasons why the 5-8 co-located school is the preferred approach, including but not limited to the following:

- The 5-8 middle school would provide a longer grade span reducing the frequency of transitions for students in an age bracket that needs fewer transitions.

- It also eliminates the need to renovate three (3) elementary schools to meet the projected student enrollments and provides space for full-day kindergarten and specialty classrooms that have been lost to classroom space in recent years.
- This configuration would extend to the grade five students support services such as language, technical education, art, music, and other specialties that the middle school students in Beverly already have. This would also provide collaboration space for teachers and student instruction enhancing the ability of teachers to work on vertical teams to increase student achievement.
- This configuration would improve student transitions, increase parental investment, enhance collegiality, and improve communication/collaboration between staff and families. Each of these improvements will benefit from a four year configuration versus a three year configuration.

For this reason, the proposed educational program is aligned with the 5-8 scenario, although much of the information contained herein would apply to any scenario, including 6-8.

3. CLASS SIZE

The Beverly Public Schools recognize that class size is an important factor in quality education, and the District does, subject to space availability, staffing, and other educational considerations, strive to maintain class sizes conducive to an effective learning environment. Class sizes of Special Education programming are compliant with the DESE regulations; however the number of programs that can be developed are constrained due to overcrowding. This results in some students being placed in out-of-District placements that could be supported in district if there was adequate space.

4. SCHOOL SCHEDULING

Current:

The school schedule is established annually based upon the lunch schedule, student needs, Special Education programming, staffing levels, and union-defined preparation and meeting blocks.

Beverly Middle School:

The student day is from 8:45 a.m. to 3:00 p.m. and consists of six (6) fifty-seven-minute (57) blocks, with a thirty (30) minute lunch period and a five (5) minute homeroom period to start the day. MMS is utilized to schedule students. When scheduling, priority is given to students in Special Education programs, along with Band and Chorus students. All classes are heterogeneous except Grade 7 Pre-Algebra, Grade 8 Algebra, and accelerated Foreign Language classes that begin in Grade 6. Students are placed in these classes based upon Grades/Effort/MCAS/Internal Assessments/Teacher Recommendation.

Proposed:

The proposed school scheduling method includes considerations for:

Meeting the goal that will provide a schedule that challenges all students in the expanded 5 – 8 co-located school model that is being proposed. It will include consideration for block scheduling and other strategies which may allow for extended interdisciplinary instruction which combines the support of two teachers who are teaming and need the extended instructional

and application period. It will align 5/6 schedules and 7/8 schedules to take advantage of any potential advanced learning opportunities that may be available for 5/6 students who are able to participate in aspects of the 7/8 program. It will also consider the need to create mentoring opportunities for the 7/8 students who might thrive as mentors to 5/6 students. It will be based upon research-based best practice strategies that promote teaching and learning for all students. A goal is to provide students in grade 5 with access to a full complement of Expressive Arts opportunities by synchronizing the schedule as required to make these spaces available at the appropriate times. The desire is to provide an expository Foreign Language program at this level, and the Foreign Language programming will be expanded in Grade 6 and placement tests implemented as criteria for placement in Foreign Language and Math classes in Grades 6, 7, and 8. The schedule must also contain the ability to provide staff with common planning time within the school day, as currently offered.

5. CURRENT SPATIAL AND FACILITY DEFICIENCIES WHICH IMPACT PROGRAM

The current Beverly Middle School building, located at 7 Sohier Road, was constructed in 1923 as Beverly's High School in what is now a densely populated area. It is approximately 144,349sf and is located on a very restrictive six acre site hosting grades 6-8 with a total enrollment of 933. The building has an historic masonry exterior which requires constant maintenance due to deterioration in the exterior wall system. Failing precast lintels above the window have been replaced or repaired where failing, and many more lintels and sills are in need of repair or replacement. The building is not insulated. The boilers are 57 years old and inadequate. The roof is rubber and in poor condition. The auditorium is also in poor condition with several sections of the ceiling having fallen due to roof leaks. There are many missing and broken seats. No safety railings exist along the balcony and access to the stage is not compliant with current accessibility requirements. The elevator is antiquated and requires custom hand-crafted parts for repair. The electrical system has never been upgraded and does not meet current code requirements. The mechanical ventilation system is inoperable and many of the windows do not open. There is asbestos in the building but it is contained.

Many non-traditional spaces, including storage spaces and basement areas are utilized for instructional purposes. Art and computer classrooms are located in basement utility space that was never designed or intended to be instructional academic space. Adequate meeting space for faculty and staff is virtually non-existent, as the staff struggles to efficiently utilize planning and collaboration time due to a lack of available space. All existing classrooms are significantly undersized and are not organized to support the kind of team teaching and interdisciplinary instruction identified within other sections herein. Special education program space is not appropriately integrated with the remaining educational space, and appropriately sized and located resource and inclusion rooms are non-existent. The cafeteria is awkwardly shaped in a broad U-configuration and serves as the only available before-school gathering area. The long narrow shape of the cafeteria allows for only 3 serving lines, delaying the time it takes for students to access their food. Tables designed to accommodate 12 students often have 16 students seated at each. This student dining area does not promote the necessary social and dining interaction space and becomes more of an awkwardly organized "corral" for holding students in the morning before school, and serves as a crowded space where student quickly sit down for a few minutes to consume lunch. It fails as an appropriate space for either of these key functions and also cannot support group assembly due to its awkward configuration. The gym is a divided space located in the basement. One-half of the poorly lit and poorly ventilated gym is a fitness area with stationary exercise equipment and the other half is dedicated to team sports instruction and competition. Many physical education opportunities detailed herein as part of the educational program should be available indoors but are only available outdoors due to the lack of available space. These offerings

are cancelled during inclement weather, and Special Education programs suffer the most as the lack of available space prohibits the integration of these programs into a mainstream physical education environment. The boys' locker room lacks modern amenities with vintage gang-style showers and a toilet area with no doors and only half-height walls. The girls' locker room is antiquated with exposed water valve controls and inadequate temperature mix controls. Student lockers are randomly located. There are no athletic fields or appropriate playfields located on the current restrictive Beverly Middle School site. A small field area has been developed through volunteer services but it lacks an appropriately smooth surface for organized play. Parking is extremely limited on-site and cannot accommodate faculty, staff, visitors, and buses. On-street parking is also very limited due to the school's location at a busy intersection and densely populated neighborhood.

6. TEACHING METHODOLOGY AND STRUCTURE

Current:

Staff at Beverly Middle School implement District-approved and teacher-developed curriculum that are aligned with the Massachusetts State Curriculum Frameworks and the Common Core State Standards. Professional Development has been provided to all staff to support this work, along with training in Standards Based Grading and blended learning for some staff members. The current layout of the school and physical constraints of the classrooms limit the ability of the staff to consistently implement small group learning and interdisciplinary instruction.

Currently, the staff and students at Beverly Middle School work in grade level teams in Grades 6 through 8. The teams consist of one (1) ELA Teacher, one (1) Science Teacher, one (1) Math Teacher, and one (1) History Teacher. There are approximately one hundred and five (105) students on a team. Students are offered the opportunity to take Reading or Foreign Language (Spanish, French, German), along with a six (6) thirty (30) day rotations in Expressive Arts (Physical Education, Health, Art, Computers, Music, Industrial Technology, and American Sign Language). All staff are assigned four (4) fifty-seven (57) minutes instructional periods each day, along with one (1) duty period, and one (1) preparation period, each of which is also fifty-seven (57) minutes in length. The schedule is a six (6) day schedule that rotates every other day with two (2) blocks moving to the bottom of the rotation.

Proposed:

The proposed building project would include students in Grade Five (5) through Grade Eight (8), with all students being placed on teams at these levels while affording opportunities for students and staff to work in a horizontal and vertical interdisciplinary manner that fully integrates Special Education and project based learning. The so-called "Teams" will be teaching neighborhoods, with each neighborhood consisting of (1) ELA Teacher; one (1) Science Teacher; one (1) Math Teacher; one (1) History Teacher; and one (1) Reading, Foreign Language, or Humanities Teacher. Each neighborhood would consist of approximately 120-130 students. The neighborhoods would be organized and designed to support co-teaching sub-teams within the neighborhood, particularly across the Math/Science disciplines and the English/Humanities disciplines. This may include provisions for combining two (2) of these classrooms as a single contiguous space if such flexibility is deemed beneficial during the detailed planning process. Each neighborhood should include the full integration of Special Education through the incorporation of resource, small group, and inclusion rooms into each neighborhood. These spaces can serve multiple functions, as they will allow the Special Education teachers to become part of a co-teaching solution and to work collaboratively with the other teachers and teams in the neighborhood. These Special Education spaces should

include a high level of transparency with the adjacent flexible classroom team spaces within the neighborhood, as the goal is to make them an integrated part of the regular classrooms and not to isolate them. In some instances, provisions for privacy will be necessary, but such provisions should avoid permanent isolation.

Each neighborhood should include a "Neighborhood Commons" which serves multiple purposes. This "Commons" shall be a clearly defined neighborhood space that is directly integrated into the classrooms and support areas. It will be a Maker/Builder space that serves as the social and academic center of each neighborhood. The space should include provisions for project-based activity including building, multi-media, presentation, and arts integration. It will allow teams the ability to develop large physical projects in an environment where it is critical to have appropriate space to spread out without the need to break down and store projects each period. It will allow small groups to create multi-media projects that are part of the academic instruction being developed in the classrooms, with a group of students capturing and preparing a video component of their project while their peers work in the classroom or small resource rooms on other aspects of the same project. This Maker/Builder space also becomes a key component of STEAM (Arts) delivery, as it allows students within the neighborhood to work actively on projects that include an integrated art/media/visualization component without the restriction of having to leave their neighborhood in order to have access to the necessary tools. It should have "Vocational Technology Production Lab" components, as students should be able to build and assemble some components of their integrated academic projects without the restriction of having to leave their neighborhood in order to access hands-on Maker/Builder tools and components. The Neighborhood Commons will be defined in the space summary as both an academic team space and a Vocational Production Lab.

The vision for teaching and learning utilizes a systemic and diverse repertoire of instructional practices in all classrooms that are research-based, collaborative, and evidence-based (focused on and informed by student learning). Instruction must respond to students when they need additional support, by acknowledging a shared responsibility for under performance, collaboratively diagnosing underlying issues, and prescribing and implementing appropriate intervention strategies as a core component of the regular education program. Additionally, teaching and learning practices will develop and nurture a culture for all members of the community (students and professional staff), and promote and expect continuous learning opportunities that embrace and respect discourse as a pathway to growth. Finally, building a community that believes that learners of all ages can continue to grow. In order to continue to support these goals, the proposed project will consist of Small Learning Communities that are housed in the above-described Neighborhoods. This structure will continue to foster implementation of the Common Core while simultaneously aligning with 21st Century Skills through project-based real world applications that involve hands-on learning. There will be an increased focus on a Global Education Language and Culture, and differentiated instruction as a result of building structure and available resources. 21st Century Skills and STEAM Instruction will be embedded into the curriculum and will include such skills as: (1) analytical, creative thinking and problem-solving; (2) integrity and ethical decision-making; (3) effective multi-modal communication; (4) collaboration, leadership, teamwork, and innovation; and (5) student as producer (i.e., initiative, risk-taking).

THE FOLLOWING INFORMATION WAS PROVIDED AS PART OF A RESPONSE TO MSBA COMMENTS ON THE PDP:

Academic Team Rooms - Maker/Builder Space - Neighborhood Commons

There are three spaces identified within the educational space summary that combine to create the "Maker/Builder Space", which is also referred to as the "Neighborhood Commons" in the educational program. These three spaces include:

Academic Team Room	*465sf*
Integrated Academic Production Lab	*500sf*
STEAM Academic Support	*50sf*

The Maker/Builder Space serves many purposes within the educational program. It supports the academic neighborhood or team, it promotes STEAM integration, it integrates vocational technology into the academic neighborhood, and it provides for the expansion of the traditional classroom for purposes of providing hands-on, real-world opportunities to integrate student projects into the curriculum. It is not a specific space intended to accommodate students outside the academic neighborhood, but instead represents an expansion of the neighborhood classrooms, where opportunities to apply learned knowledge are restrained by the size, configuration, function, and amenities of the traditional classroom. The boundaries between the traditionally programmed classrooms and the Maker/Builder space are intended to be blurred in a way that makes it a functional extension of the classroom space.

The combination of the three spaces in the program (to create one collective space) is intended to be somewhat reflective of the ongoing functions within this space, while simultaneously trying to force it to fit into what is a rather traditional space template that cannot fully acknowledge the multiple functions of the Maker/Builder space. It supports the academic team, provides opportunities for a piece of vocational education, and also helps to integrate STEAM and the arts into the academic neighborhood.

The objective of the Maker/Builder space is to create a flexible learning environment within the heart of each academic neighborhood or team. The space will provide hands-on, creative ways to encourage students to design, experiment, build, and invent as they deeply engage in science, engineering, art, and tinkering. The Maker/Builder space is not solely a science lab, workshop, computer lab, or art room, but it will contain elements found in all of these familiar spaces. It will be designed to accommodate a wide range of activities, tools, and materials. Diversity and cross-pollination of activities are critical to the design, making and exploration process, and they are critical in setting Maker/Builder spaces and STEAM labs apart from single-use spaces. The goal is to provide learning experiences within each individual academic neighborhood through direct experience with materials. These Maker/Builder spaces are not traditional "vocational shops" with wood and metal equipment and tools; as these large, loud, and specialized amenities are no longer necessary to provide the students with the desired experiences. New digital fabrication devices such as 3D printers and physical computing expand the opportunities with new ways to make things. For the first time ever, student inventions may be printed, fabricated, recorded, and programmed with interactivity. The proposed range of activities in the space will include:

- *3D and 2D printing*
- *Cardboard construction*

- *Prototyping*
- *Project planning and design*
- *Model making*
- *Physics practical applications*
- *Painting and graphic arts*
- *Small scale manual woodworking*
- *Digital Media*
- *Robotics*
- *Digital fabrication*
- *Building mechanical and kinetic machines and devices*
- *Textiles and sewing*
- *Media production and filming*

The space will be utilized for multiple teaching strategies, including, but not limited to:

1. ***Exploratory:*** *Exploratory projects will occur early in a typical school year and be co-taught along with the assistance of an art teacher, vocational teacher, or media specialist. These classes will focus on skill building, allowing students to acquire basic skills within a given domain that they will later apply to cross-discipline or multi-disciplinary projects. In these instances, the Maker/Builder space will allow students to acquire basic exploratory skills within the confines of their academic neighborhood.*
2. ***Applied:*** *More involved and complex cross-discipline projects which may involve a single or multiple basic exploratory skills in the creation of a project which applies to one or more academic disciplines. These classes will be co-taught in an environment which will likely include some students working in the lab (Maker/Builder) space and some students working in the classroom, with the ability to move seamlessly between the two areas.*
3. ***Portfolio:*** *Long-term, more ambitious projects based more specifically on decisions and selections made by the student builder, but themed through academic subjects. Students would have multiple opportunities over the course of a quarter or semester to work in periodic increments at completing their portfolio project.*

Under a co-teaching model and supported by an aide, three spaces will be utilized simultaneously to allow students with varying learning styles and pace to develop skills in a more customized and fluid environment. A group of students with a single block, or a combination of co-taught periods, would be able to utilize two classrooms and the Maker/Builder space for a long enough period of time to allow for completion of both academic and hand-on instruction.

The Maker/Builder space will also serve as the neighborhood commons, although this is not its primary purpose and would not justify its existence. As the neighborhood commons, it will provide a common place of ownership by the entire academic neighborhood. The educational visioning and educational programming documents identify a strong need for students to have ownership of this small-scale neighborhood area. This ownership includes personalization, display of work, and a gathering space

for the academic neighborhood. Students will be allowed to come into this supervised area prior to first class commencement in an effort to allow them to work and socialize in small groups, or independently, without being herded into a large, impersonal holding area like the gymnasium. The Beverly Middle School includes a number of early-arrival students and the experience created for these students prior to the actual start of the school day is critical to the success of the educational environment.

The Maker/Builder space will also serve as a break-out space for independent and group study. The educational visioning and educational programming identified successful examples of students being allowed to work outside the confines of the classroom. Teachers currently allow students to work in corridors outside the classroom with visual observation. Many students thrive on the ability to be allowed outside the confines of the classroom, and having the adjacent Maker/Builder space available for this use will prove a valuable asset.

The space will remain as flexible as possible, with furniture that can be moved and re-configured with relative ease. Some built-in elements will be required in order to provide critical components such as storage, water, and voice/video/data. However, the goal is to avoid over-designing specific elements into the space, as the most successful spaces are those that contain fewer built-in limitations. Areas for display, work, and both group and independent study will be available but be flexible.

The 50sf STEAM academic support space identified in the program is specifically included to allow the art instructor to maintain storage of materials and access to water/sinks within each Maker/Builder space. This will allow the instructor to co-teach seamlessly within the neighborhood without transporting product or losing access to wet areas.

Small Inclusion Rooms

Small inclusion rooms allow students who would traditionally have to be pulled out of their academic neighborhoods to receive supplemental educational services without having to leave their respective neighborhoods. In many instances, these rooms will allow for full integration and inclusion, where a student who requires assistance is provided with such in an inclusion room directly adjacent to, and visible from, the classroom. The educational program identifies the efficiency associated with bringing these services to the student (in lieu of requiring the student to leave his or her neighborhood) and the benefits of allowing the student to feel included as part of his or her academic team. These rooms also allow students with relatively minor needs to be involved in a traditional co-teaching environment without the aid of a special education instructor, where one of the co-teachers within the team is providing periodic support services at a varied pace. In addition to serving students who need additional assistance, these rooms will provide space for students who are demonstrating advanced progress to be awarded an opportunity for advanced, and sometimes independent, study in a smaller, visually supervised environment.

7. TEACHER PLANNING AND ROOM ASSIGNMENTS

Current:

Teacher planning and room assignments are made in compliance with the Beverly Teachers' Association Collective Bargaining Agreement along with District policy. The vast majority of the classrooms are undersized, lack multiple electrical outlets and windows that can easily open, and there is an erratic and inconsistent heating system throughout the building. Special Education classroom space is inequitable among the various programs that are housed in the building. There is an extremely small dining area for staff that is inadequate for the staff and also serves as a teacher work area, housing a copier, phone, and small work space. Other teacher work areas are scattered throughout the building, with three such spaces located in the hallways. The building contains one small room that is utilized as a meeting area, but it is grossly inadequate in terms of both size and location and does not serve the needs of the faculty, staff, and administration. Teachers do not have any collaborative work area, and they generally seek out an available storage area or classroom in order to have a meeting, collaborative discussion, or to complete necessary work.

All grade-level team teachers are located on the same floor: Grade 6 is located on the second floor and Grades 7 and 8 are located on the third floor. Specialist teachers are spread throughout the building. Foreign Language staff are located on both the first and second floors, Reading staff are located on the first floor, and Special Education staff and Expressive Arts staff are spread out on each floor of the building, including the basement. For the majority of staff, classrooms are subject specific, but there are approximately ten (10) staff that do share space. The grade-level content area teams have common planning time built into their daily schedule, but this is not possible for all other staff. Each staff member receives one (1) duty-free preparation period per day, along with a thirty (30) minute duty-free lunch, per contractual agreement. Classroom space throughout the building is inadequate and inequitable to support the teaching and learning needs of teachers and students. The teachers' dining area is significantly undersized and must also serve as a teacher work/planning area, along with three other teacher work areas that are located in the hallways throughout the school. The building currently has one (1) extremely small meeting area for the entire school, which is inadequate. Administrative office spaces are distributed with one (1) on each floor of the building, and the Guidance Office space is shared amongst three (3) counselors on the second floor.

Proposed:

To further support teacher educational preparations, promote educational, collaboration and integration of student services, and strengthen professional development; the proposed building should provide teacher collaboration and work spaces in each grade level neighborhood for teachers to be able to plan, collaborate, and complete their work. This space is critical to the successful implementation of a co-teaching and teaming model. This space should be integrated into the neighborhoods such that teachers working within this space can provide an additional layer of oversight and observation of students who may be working within the neighborhood commons or even the individual resource rooms. Teacher dining areas should be organized to encourage collaboration and work while simultaneously providing the necessary dining opportunities. Collaboration across grade level neighborhoods is also important and the organization and layout of these spaces should support such.

Grade level teams, including Special Education staff, and Foreign Language teachers will be located in teaching neighborhoods (described above) around meeting areas, planning rooms, and teacher offices. These neighborhood areas will provide a visible and flexible learning

environment for grade level teams, Special Education staff, and Foreign Language staff, as well as provide a space for building a greater community and engaging in ongoing collaborative projects. These neighborhoods are intended to provide students with a better sense of self and to promote confidence and security, as they are one of several strategies employed to break down the overall scale of the school and give the students a more in-depth relationship with the teachers and their fellow students. The neighborhood commons will serve the purposes defined above and will also allow teams to have entire neighborhood meetings, and will provide space for the display of student work and projects. Ideally, they would also serve as a gathering area for students in the morning such that students would not need to be herded into a large, less personal space such as the cafeteria or gymnasium.

All neighborhood classrooms should be equipped with adequate windows to allow for proper natural lighting and should also provide as much transparency (glass) as possible into surrounding spaces to increase the opportunities for supervision of students in these spaces. Neighborhoods and the related classroom and support spaces should include ample storage space, movable furniture, some movable walls for co-teaching, team teaching, and flexible grouping as defined above. They should include functional amenities such as ample electrical outlets and all available walls should include floor-to-ceiling whiteboard space, as students and teachers are encouraged to write, collaborate, and explore beyond the boundaries of a 4'x8' single whiteboard. Common planning time will be built into the schedule for all teams, included related arts and science. Neighborhood space will allow for the creation and delivery of student presentations, along with visual and physical access to neighborhood classrooms.

The Grades 5 and 6 neighborhoods should have some separation from the 7/8 neighborhoods, but a careful balance of separation and adjacency is necessary, as they should still be convenient to all grade levels for access to advanced placement and mentoring opportunities. There may also be some desired separation between the 5 and 6 neighborhoods, a topic which should be explored as the building design develops. Distinct neighborhoods within a grade level (there will be 3 neighborhoods per grade level) should be conjoined to the remaining grade-level neighborhoods in a manner that promotes the sharing of teaching staff and specialists throughout all of the neighborhoods. Within the neighborhoods of the grade level teams, Math and Science classrooms may be adjoined as mentioned above, along with possible adjoining of English and History classrooms. Access to Maker/Builder spaces is pivotal to promote the desired STEAM initiatives, and the necessary support amenities should be provided within the neighborhood commons as discussed above.

Science Labs (one [1] per team) will be located in each team neighborhood. This area will be equipped with appropriate furniture (rolling demonstration tables, workstations, ability to have students work both independently and in cooperative groups) and science materials. It will also be able to promote interdisciplinary work, including STEAM initiatives. The Science Labs should be flexible and should avoid built-in amenities that limit the flexibility of the space. Middle school science applications, labs, and experiments are more limited than those in high school, and the space should reflect such. Access to sinks, slightly larger overall size, and other minor programmatic needs should be the only characteristics which make this space any different from a typical flexible and interchangeable classroom.

A Support Staff Suite of offices will include space for the Guidance Counselors, Adjustment Counselors, Math Coach, Speech Therapist, and Occupational Therapist in each grouping of academic neighborhoods. Additionally, administration offices will also be distributed throughout the grade-level neighborhood clusters in order to provide an administrator at each grade level. This will include office space for an Assistant Principal and Secretary, along with meeting areas.

The Main Administrative Office will be located at the building entrance as a primary receiving, control, and security point, but will only include the administrative offices necessary to support this function. Ideally, the goal would be to distribute as much administration space as possible throughout the building and avoid consolidating such to any one single area. The existing Beverly Middle School operates under a distributed administration model, and this has been highly successful in reducing discipline problems and increasing administrative involvement in academic delivery.

Space for key specialized staff such as the Special Education Team Chairperson and the School Nurse will have careful placement which is dependent on the final organization of the building and their ability to support staff and students.

THE FOLLOWING INFORMATION WAS PROVIDED AS PART OF A RESPONSE TO MSBA COMMENTS ON THE PDP:

Teacher Collaboration Rooms
Teacher collaboration rooms will be occupied by teachers during their planning periods, and will also provide meeting spaces for teachers to collaborate on lesson plans and cross-discipline activities. They will provide an opportunity for teachers to work professionally outside of the classroom in a location that gives them visibility to students who are working and socializing outside the classroom. They are intended to have the passive benefit of providing additional teacher oversight of student-occupied areas. They provide the traditional benefits of work/planning space, but also are specifically intended to put this work and planning on display to students (visually) who are circulating or working within the immediate area.

8. PRE-KINDERGARTEN PROGRAMMING

The proposed 5-8 middle school allows the City to remove 5th grade from the currently overcrowded elementary schools and to execute a previously developed plan for the expansion of pre-kindergarten and kindergarten opportunities. A summary of the pre-kindergarten and kindergarten programs and impact is included herein to demonstrate the collective programming improvement across multiple grade levels under a 5-8 middle school scenario.

Current:

The Beverly Public School Department's Preschool Program provides for a range of programming and supports based on the individual needs of each child with an Individual Education Plan (IEP). The Intensive classroom is considered a substantially separate placement for students with ASD, developmental delays, and/or substantial communication delays. The Intensive/Integrate and Integrated classrooms are for a range of student needs and including peers. The preschool utilizes the OWL's curriculum, supporting a language-based model. The Massachusetts Curriculum Frameworks and Common Core Standards are utilized to provide academic experiences as well as ongoing interactions with adults and other children, allowing for the development of important social, language, and thinking skills. Curriculum areas that are specifically addressed include:

- Social and emotional development
- Cognitive development
- Language development
- Fine and gross motor development

Children attending the Integrated Preschool Program with Individual Education Program plans meet specific goals through program participation, behavioral support services provided by contracted therapists and/or consultants providing an applied behavioral analysis approach, speech and language therapy, occupational therapy, and physical therapy as determined by the child's Special Educational Team. Children in the Integrated Preschool Program learn beside typical peers.

Children attending the Intensive Program are provided the same opportunities for related therapies, as determined by the Special Education Team. The Intensive Program relies on an applied behavior analysis approach within a discrete trials model. The Intensive Program is a substantially separate program without peer models. Exposure to peers is provided through reverse integration, integration into the Intensive/Integrated classrooms, as tolerable, and through scheduled activities outside of the classroom. The Intensive/Integrated Preschool Program allows for an applied behavior analysis approach and discrete trial methodology while also providing opportunities for integration of peers for part of the day.

The Integrated and Intensive/Integrated Preschool classrooms follows the Department of Early Education and Care's approved model of eight (8) regular education students to seven (7) students with special educational needs in each classroom session, while the Intensive classroom follows the approved model for a substantially separate program. Sessions for the Integrated classrooms are a half-day in duration. Children in the Intensive and Intensive/ Integrated classrooms attend full-day sessions.

Integrated preschool classrooms are currently located on two sites. The Integrated Preschool classrooms are located within the Memorial Building, while the Intensive and Intensive/ Integrated classrooms are utilizing space at the Kevin O'Grady School (North Shore Education Consortium) through a rental agreement.

Proposed:

It has been determined that the Pre-Kindergarten Programs will move to the McKeown School for the 2015-2016 school year. The McKeown School is currently being utilized, through a rental agreement, by the North Shore Education Consortium. Moving the Pre-Kindergarten Programs to one building will allow for a more cohesive program with improved alignment of services to better meet the needs of the children. Moving the PreK programs will also allow for growth in the programs and improved physical space. Further, having the Beverly Pre-Kindergarten Programs on one site will allow for improved oversight of the programs. Currently, due to the location of the programs, technology integration has been minimal. Moving the Pre-Kindergarten Programs to one site would allow for a cohesive technology plan with improved integration of technology into the daily practices and routines of the teachers and students. State of the art technology tools for teaching and learning, connectivity and the required electrical service capacities will be more available at the McKeown School. Greatly improved indoor and outdoor physical activity and play spaces are also available at the McKeown School to meet the needs of the early childhood population.

9. KINDERGARTEN

Current:

Fifteen (15) full-day programs with tuition of $4,000 per student
Five (5) half-day programs/sessions

The Beverly Public Schools has five elementary schools (Ayers Ryal Side, Centerville, Cove, Hannah, North Beverly) with full-day kindergarten programming. The kindergarten program is a District program, rather than school-based, which has allowed for placement of students out of the home-school district due to spacing issues. Currently, the half-day programs are located in two of the five elementary schools (Ayers and Cove).

Proposed:

The Beverly Public Schools plans to offer universal, full-day kindergarten to families and has not done so in the past due to space constraints. The proposed change would allow for students to attend kindergarten in their home school, eliminating additional transitions for some in the early childhood years. Further, research confirms that a full-day kindergarten program provides increased opportunities for learning in a variety of contexts that include independent, small group, and teacher-directed activities. Full-day kindergarten provides children more time to explore topics in depth and provides for greater continuity of day-to-day activities. Full-day reduces transition times and provides more time to closely monitor individual progress and provide the necessary interventions at an earlier age. Children also experience more opportunities to enhance their social learning skills in a nurturing environment.

10. LUNCH PROGRAM

The Beverly Public Schools Child Nutrition Programing is part of a larger coordinated effort of all school departments and services contributing to the overall goal of promoting students' physical, emotional, and social being.

Since under-nutrition adversely affects the behavior of children, performance in school, and cognitive development, the cafeteria environment will focus meal production, consumption, and marketing efforts on USDA reimbursable school meals: breakfast, lunch, after-school snack, and evening meals.

School meals incorporate "whole food" commodities, fresh vegetables/fruits, whole grains, and milk, all components with a preference for locally grown items, as stated in the federally mandated nutrition guidelines of the Healthy Hunger Free Kids Act of 2010.

Per the School Wellness Policy noted above, meals will be provided in a clean, safe, and pleasant setting with sufficient time and space for students to eat thereby promoting health-enhancing nutrition practices and the consumption of minimally processed and healthfully prepared foods. It is anticipated that 200+ breakfasts and 450+ lunches will be served daily along with school program-dependent afterschool snacks and evening meals.

Current:

All preparation and cooking of food for the middle school occurs at its current location. There are two sides of the cafeteria, with one being larger than the other, with the food service area separating both sides. Students sit at long tables that can hold up to sixteen (16) students. There is a Kitchen Manager and a kitchen staff of five (5) workers. The school has three (3) thirty (30) minute lunches, where students choose from the hot lunch selection, alternate selection, salad bar, or pre-made sandwiches, along with a-la-carte items. In addition, breakfast is served every morning for those students who wish to purchase it. On early release days, breakfast is served, but lunch is not.

The current student participation is 350 students for lunch and 75 students for breakfast. The

Free and Reduced Lunch population accounts for 27% of the students.

Proposed:

A new kitchen at the middle school should contain all the modern amenities available to support the needs of the kitchen staff when preparing food for a projected student body of 1,395 students.

The proposed student dining areas should be designed to promote a higher utilization rate by creating them as flexible dining and multi-use spaces which are more integrated into the academic neighborhoods. Ideally, these areas would be subdivided into a 5/8 dining space and a 7/8 dining space that allows for two grade levels to eat concurrently, thus allowing more flexibility with student scheduling. Consideration should also be given to subdividing these spaces in a way that creates a grade-level dining space which integrates into the academic neighborhoods. A direct connection to the neighborhood commons area could allow the dining space to provide overflow project space during certain parts of the day. This could provide socialization, presentation, and additional project work areas during periods when it is not being utilized as a dining space. Additionally, it would provide an ideal space for grade level neighborhoods to assemble before school in a context and environment that is less intimidating than a large gym or cafeteria. The design and layout shall foster communications between students by ensuring that the space design supports furnishings which enable the students to work and communicate in small groups. The desire to provide multiple dining areas within the neighborhoods should be balanced by the practicality of food distribution from a central kitchen and the required satellite kitchens. Service should be designed to avoid bottlenecking students, and ensure that they are able to purchase their meals and be seated within a four (4) to five (5) minute timeframe.

The newly proposed food distribution would include a station concept, with a centralized kitchen providing support of the offerings. Each area would have its own POS. This would result in faster service for all students.

Student nutritional status would be further strengthened by the presence of a garden with direct physical and visual links to the kitchen and dining areas, as well as a greenhouse providing year round fresh food production, intended to foster a comprehensive experience about healthy eating and an active lifestyle. Student grown foods, supported by both the educational program, as well as the community, will be integrated into lesson plans and the school meal programs. The gardens would serve as a defining characteristic of the landscape design. This immediate source of food production would serve to strengthen the link between healthy fresh food production and consumption in support of the School Wellness Policy.

THE FOLLOWING INFORMATION WAS PROVIDED AS PART OF A RESPONSE TO MSBA COMMENTS ON THE PDP:

> *Conceptually, the goal is to provide two dining areas, one for the grades 5/6 academy and one for the grades 7/8 academy. This will allow the District to break a very large student population of 1,400 middle school pupils into two groups of approximately 700 pupils. The two dining areas will allow for fewer total lunch periods and make it easier to schedule the building, and also allow for the incorporation of more academic offerings as a result of less interference from multiple dining periods. A first floor dining space would include an attached full*

service kitchen that would allow preparation of food for both dining areas. Each of the dining areas will included heated and chilled serving areas to allow for salad bars, sandwich stations, etc. One of the dining areas will be located on an upper floor, but will have an adjacent elevator utilized for the transportation of food. It will also include a small satellite warming kitchen that will include the heated and chilled serving components described herein as well as the necessary support services. All meal selections will be available in both dining areas.

The division and separation of the dining area into two distinct areas achieves several important educational goals that go well beyond the need to break down the large student population and to reduce the overall number of dining periods. The educational programming process resulted in a strong belief that the space dedicated to student dining can be much more "useable" throughout the day if it is more closely linked to the academic neighborhoods. It is not being viewed as a "noisy" space that will be used only during the middle of the day for lunch and should therefore be separated from the remainder of the academic program areas, but instead is being viewed as an "active" multi-purpose area which can be used for dining, presentations, student projects, large group breakout, and various other educational uses that require direct proximity to the academic neighborhoods. Each of the dining areas would include the appropriate acoustics to insure that they provide appropriate space for students to work on group projects and to conduct student and guest presentations. There was also a strong desire to insure that the location of these dining areas provides indoor/outdoor integration to a secured outdoor area (courtyard), such that activities related to the space could easily spill outdoors when appropriate, and the dining spaces would be filled with natural lighting from outdoors. This connectivity will provide access for students before and after school as well as during lunch. It also allows more direct access for students within the academic neighborhoods to be able to conduct their projects utilizing outdoor resources, such as a garden, both as a learning space and a space to create a portion of the fresh vegetables for the lunch program.

During the school year, Beverly food service assists other school programs such as the collaborative. In the summer, there is a robust summer meals program for the children of Beverly. Both of these programs require dining areas that can serve satellite programs.

11. TECHNOLOGY AND SECURITY

Current:

The Beverly Public Schools is well aware of the need to promote technology for students and staff in its global society, as evidenced by the 1:1 Laptop initiative that is currently in place at Beverly High School. All middle school staff are provided a laptop to utilize, along with a projector in their classroom. However, due to the dated infrastructure and limited resources, the inclusion of technology embedded in the instruction is limited and unreliable.

Currently, all Math and Science classrooms have a SMART Board. These were installed five (5)

years ago though a private donation. There are some SMART Boards in some ELA and History classes that staff received though grants. There is one (1) computer lab in the building that has thirty (30) PCs, and this area services the entire school. This lab is located on the second floor and is approximately seven (7) years old; it was also funded through a private donation. Students in Grades 6 through 8 receive direct technology instruction in another computer lab that is housed in the basement. Students work on laptops, which is the platform that they will be utilizing at Beverly High School. Within the library, there are approximately sixteen (16) PCs to support research that occurs in the library. These computers are also outdated and in need of updates. The Reading Department and the Foreign Language Department each have a laptop cart with twenty (20) laptops respectively to support instruction within their content areas. Staff must share these resources. The wireless infrastructure is limited and a constant challenge due to the lack of reliability with the system.

The network at Beverly Middle School was built in bits and pieces beginning with administrative staff access for student information data. Classrooms were then added over time when possible. The backbone is unmanaged switches with some daisy chained more than 5 deep from the cable router.

The current Beverly Middle School includes a single video entry point at the exterior entry door, but this entry door is a significant distance from the main office. The building does not include card access, CCTV, or any of the modern technology amenities associated with building security. The building is not organized to promote controlled access, as there is direct access to many areas and floor of the building without the need to enter through a secure administrative checkpoint.

Proposed:

The new 21st Century learners must master more than the core curriculum to succeed in secondary and postsecondary institutions, as well as in the workplace. The Partnership for 21st Century Skills, a national organization advocating for 21st Century readiness for every student, explains the outcomes of this transformation as fusing the traditional three R's with four C's: critical thinking, creativity, communication, and collaboration.

As students develop the four C's, it has been discovered that effective application of these vital skills in a technology-infused life and workplace requires acquiring them in a technology-infused learning environment. This environment calls for two elements - increasingly putting technology into the hands of students, and trusting them with more progressive technology use.

It is no longer sufficient for students to have less access to technological tools than the teacher, nor is it enough for any one suite of software to serve as the single source for technology mastery. For student performance to approximate student potential, students need access to a constantly evolving array of technological tools and activities that demand problem-solving, decision-making, teamwork, and innovation. The four C's are at the heart of the International Society for Technology in Education's National Educational Technology Standards (NETS) for Students, providing a substantial framework for defining the focus of technology objectives for K-12 students. The District has already found that even the youngest 21st Century learners are capable of independently creating digital storybooks, artwork, presentations, and movies.

In the now outdated mindset of teaching with technology, the teacher was the focal point of the classroom, creating time-consuming interactive and multimedia presentations to add support to his or her lessons and to capture the attention of the 21st Century child.

We now understand that a new mindset of teaching through technology is required. In this configuration, the teacher will act as a learning catalyst, orchestrating and facilitating activities that spark defining moments for students, facilitating discovery and creation. The students will become the focal point of the classroom, acting as explorer (e.g., mathematician, scientist, sociologist) and designer (e.g., author, artist, composer). This shift will allow teachers to spend less time creating presentations and more time orchestrating powerful learning activities, and material will be covered with more depth and retention the first time around. Moreover, students acting as explorers and designers will result in more confidence, engagement, and an ability to validate each student's contribution to the class.

Technology-infused discovery activities, Internet research, virtual manipulatives, and multimedia resources will allow students to explore unanswered questions. Instead of beginning a lesson by listening to a lecture or looking at examples on the board, student will utilize technology resources to answer probing questions, learning to understand, analyze, and evaluate their research and answer the posed question. Discovery activities will give students real-world, problem-solving experience and ownership over their learning, as well as allow them to bring their observations into the subsequent lesson, discussion, or creation activity as prior knowledge.

Creation and design activities can also benefit from technology infusion and are critical components to the implementation of an integrated Arts program (STEAM) and an understanding of how vocational technology applications apply to the real world. Creation activities provide students the ability to develop creativity and problem-solving skills by displaying their mastery in profound, meaningful, and tangible ways. One of the most significant benefits of technology infusion and integration is the ability of students to create their work and express themselves before a broader audience. Students have traditionally composed their work for an audience of one - the teacher. Utilizing technological resources to establish authentic and broader peer based audiences for student work results in students knowing that their work is worth seeing, worth reading, and worth doing for a much broader audience. This student work can come in many forms - class presentations, school news shows, school websites, film festivals, literary publications, online publishing, contests and competitions, and video/audio communication and feedback with/from other classes around the world.

Every student will have direct access to technology on a daily basis. The computer lab will no longer be an inadequate resource for providing a one-to-one initiative in the classroom, as is the case with the current lack of technology. Netbooks, handheld devices, and laptops will be utilized to embrace 1:1 access for all students in Grades 5 through 8.

This technology infusion will be present in each classroom, and will be particularly intense within the neighborhood commons which will be the key Creation and Design space within each neighborhood. These maker/builder spaces will include amenities to support presentation, media and video production, robotics, interdisciplinary projects, project-based learning, and the expression of the arts. Each adult in the building will have a dedicated mobile device, and teacher offices will have the necessary technology resources. The entire building will have wireless access, as learning spreads from each classroom, resource room, inclusion room, planning room, collaboration space, and neighborhood into the socialization and dining areas.

The proposed building will utilize technology to enhance student and staff security without compromising the learning environment. CCTV, access control, and video entrance systems will aid in the implementation of security policies and procedures. The building will be organized to create a secure control point for visitor entry and all exterior doors will be monitored

electronically to ensure a secure building perimeter.

12. MUSIC

The Beverly grades 5-8 general music curriculum closely adheres to the Massachusetts Arts Curriculum Frameworks. The five discipline specific standards are:

1. Singing. Students will sing, alone and with others, a varied repertoire of music.
2. Reading and Notation. Students will read music written in standard notation.
3. Playing Instruments. Students will play instruments, alone and with others, to perform a varied repertoire of music.
4. Improvisation and Composition. Students will improvise, compose, and arrange music.
5. Critical Response. Students will describe and analyze their own music and the music of others using appropriate music vocabulary. When appropriate, students will connect their analysis to interpretation and evaluation.

The Beverly Public Schools has developed a highly enrolled and robust program for grades 5-8 with scope and sequence that identifies the sequential building of skills and concepts in these five disciplines and establishes benchmarks of growth. The scope and sequence and the Frameworks documents focus on students growing as expressive communicators, positive collaborators, creators and performers of music, and critical thinkers. The curriculum is designed to provide students with the tools to actively make music independently and to think critically about their own performances and the performances of others. Lessons involve singing, playing instruments, movement, dance, problem solving, improvisation, composition and discussion. Music programs offered for credit in 2014-2015 include 6th Grade Chorus, 7th Grade Chorus, 8th Grade Chorus, 7th Grade Drama, 6th Grade Band, 7th Grade Band, 8th Grade Band, and 7th Grade Survey of Music. Other non-credit music offerings in 2014-2015 include Vocal Ensemble, Briscoe Bellas, All-City Flute Ensemble, All-City Jazz Band, Honor Band, String Ensemble as part of the Beverly Symphony Orchestra, Spring Musical, and Group/Private lessons after school for all musicians provided by Beverly High School music students.

Current:

Numerous spaces within the existing Beverly Middle School are heavily utilized for the delivery of required and optional coursework. There are three dedicated spaces for the music program for students in Grades 6 through 8. These include a band room, chorus room, and a small MIDI lab. There is also a separate room for instrument storage. The current music program would be impossible to deliver without the support of the existing Beverly Middle School auditorium. This is a large performance space that seats 1,200 students. The music program utilizes this space before, during, and after school for instruction, rehearsals, and performances. This space is also utilized for numerous musical and non-musical community events throughout the year. There are two full-time music teachers, one band and one chorus. There is also one full-time strings teacher that teaches District-wide, including string instruction at the middle school. Although it is very beneficial to have space available for music instruction, the current spaces are not conducive for music teaching and instruction. The chorus room is a proper size, but does not have the much needed tiered seating required for chorus instruction. The band room is particularly inadequate, as it is very small and feels overcrowded with all of the percussion instruments and storage spaces. The band room does not have adequate board space, nor does it have a white board that is conducive for music (i.e., does not have permanent music staff lines embedded into the board). The band room and the choral room lack appropriate acoustical separation, allowing the sound to echo through the entire building. This can be very distractive to students in other classrooms, and sometimes limits the use of these spaces.

For example, the music department cannot adequately teach during mandated testing time due to the sound issues. Both rooms lack any recording equipment or proper audio/visual equipment for effective 21st Century education. The storage room is not connected to the band room and is very difficult to monitor. It is also located next to a French classroom and the only conference room in the school. The auditorium is a wonderful space acoustically and meets most of the needs of the school community, however it is lacking in some key areas. The stage is too small for the size of ensembles which limits what can be done as a school. The audio/video/lighting and wireless capabilities are limited and were updated by an outside organization that rents the auditorium on Sundays. The band and chorus rooms are not located next to the auditorium which makes it very difficult to set up for rehearsals or performances because all of the percussion equipment, chairs, and music stands have to be dragged by classrooms. This is very disruptive to those classrooms. Lastly, the lack of practice space does not provide students with an avenue to improve on their skills. Many children have home environments that do not allow adequate practice to occur.

Proposed:

A well designed music space provides students with the opportunity to explore and master each of the discipline specific standards. The music space has dedicated instrument areas, visuals, music technology space, secure storage, teacher work area and movement space. The greatest benefit is that students enter the room and immediately begin to learn. Students can also move between standards and compose, play instruments, move and critique within a lesson to deepen understanding. Students of differing abilities and understandings can learn using multiple scaffolds and supports. Students excelling in a particular area can expand and extend their learning through composition, conducting or critique. A music classroom in addition to a choral stage with risers (auditorium stage) gives the teacher many more tools to reach students. In addition, placement of the music room near the performance space allows for smooth transitions from independent growth to ensembles skills development. When students can play or sing together, they learn social and emotional skills that transfer out of the music classroom. When a classroom is designed thoughtfully, all students benefit from greater understanding and skills development. There are many key elements that will enhance and bring the music department up to 21st Century teaching standards to accommodate all the students in the new Grades 5 through 8 building. An auditorium, with excellent acoustics, that will hold between 700-800 people and that has a large enough wood floor stage to fit 80 musicians and percussion equipment or 250 choral music participants along with state of the art curtain, lighting, sound, recording, and video equipment would provide the support for many of the current programs. Ideally this space will be able to support full multimedia presentations with a screen that can come down from the ceiling, have space that can be rearranged easily to promote other learning in this area, and possibly a soundproof dividing wall that can be brought across to create smaller seminar/learning spaces that teachers can use while an ensemble is practicing on the stage. The band room should be attached to the auditorium in a way that provides a strong connection to the auditorium and stage. The chorus program will utilize the stage as a primary practice and performance venue, but could also share the set design and fabrication lab (vocations and technology) as an efficient way to find dedicated instructional area when necessary. This space should be attached to either side of the stage to allow easy access with props and equipment. All of the rooms and auditorium should be sound proofed and if possible, placed in a dedicated arts wing so that other classrooms are not disturbed and can continue teaching during standardized testing. The chorus space should include movable risers such that they can be utilized on the stage or in other locations. The band room will have ample room for up to 75 students and percussion equipment and should be adjacent to the auditorium. The band room also should either have instrument lockers in the room or in an adjacent room. The band and chorus rooms will have office space

for both teachers. Also in close proximity to the band room and choral area will be three to four small practice room spaces and a larger space for the elementary band program to use for the 5th grade band program. This room needs to be large enough to fit up to 12 students with instruments, chairs, and music stands. This room will need to be soundproof so that it does not bleed into the main band room. There will be a separate space as a MIDI computer/ keyboard lab to promote music composition and other practice opportunities. Both the band and chorus rooms will have advanced audio recording equipment and interactive boards to enhance teaching capabilities. The auditorium will have a lockable baby grand piano and the chorus room will have a baby grand or upright piano.

THE FOLLOWING INFORMATION WAS PROVIDED AS PART OF A RESPONSE TO MSBA COMMENTS ON THE PDP:

Auditorium/Drama:
The inclusion of the auditorium within the proposed educational program is a variation which caused the MSBA guidelines to be exceeded. However, the City, Committees, Boards, School Department, and the greater community all feel that the auditorium is a vital educational and community resource which cannot be eliminated from the proposed middle school program. The City had two middle schools that served the District for decades; and both of these middle schools included a full-size auditorium. Even the existing Memorial Building, which as one of the smaller middle schools in the City (it is 103,000gsf), included a full-size auditorium with approximately 700 seats. The Briscoe Middle School includes an auditorium with over 1,200 seats. The integral use of the auditorium within the educational program is grounded in decades of actual educational practice which results in a very high utilization rate of the auditorium by the Beverly Public Schools and the City of Beverly.

The Beverly Public Schools understands that the MSBA has developed a guideline which suggests that a "cafetorium" can provide the necessary educational space within a middle school environment; and although it is not our intent to debate the merits of a cafetorium within all educational environments, there are very specific reasons why this approach does not satisfy the goals of the Beverly educational program.

1. *One of the fundamental principles of the educational program includes a belief that the dining space must be closely integrated into the academic neighborhoods such that it provides many multi-use opportunities to support education well beyond simply a "cafeteria". The traditional dining space within most schools is one of the most underutilized areas, while opportunities for students to spread out and develop large-scale projects in close proximity to their academic classrooms are not available. The educational programming process resulted in a strong belief that the space dedicated to student dining can be much more "useable" throughout the day if it is more closely linked to the academic neighborhoods. It is not being viewed as a "noisy" space that will be used only during the middle of the day for lunch and should therefore be separated from the remainder of the academic program areas, but instead is being viewed as an "active" multi-purpose area which can be used for dining, presentations, student projects, large group breakout, and various other educational uses that require direct proximity to the academic neighborhoods. Each of the dining areas would include the appropriate acoustics to insure that they provide appropriate space for students to work on group projects and to conduct student and guest presentations. There was also a strong desire to insure that the location of these dining areas provides indoor/outdoor integration to a secured outdoor area (courtyard), such that activities related to the space could easily spill outdoors when appropriate, and the dining spaces would be filled with natural*

lighting from outdoors. This connectivity will provide access for students before and after school as well as during lunch. It also allows more direct access for students within the academic neighborhoods to be able to conduct their projects utilizing outdoor resources such as a garden and use it as a learning space and a space to create a portion of the fresh vegetables for the lunch program.

This proposed use and function of the dining space would be compromised if it were to be created as a "cafetorium" where the design function becomes driven by seating arrangement, sightlines, and the introduction of a stage as the primary focal point.

2. *Another primary goal of the educational program was to break down the scale of the dining areas (split into at least two dining areas) to avoid the negative consequences of attempting to address the needs of a 1,400 pupil population within a single contiguous dining area. Under this approach, one of the two dining areas would not receive a stage, would require a duplicate stage, would not have a full size stage, or would involve organizational compromise in order to share a stage with the other dining area.*

3. *The Beverly Public Schools has a tremendous opportunity to continue to take advantage of free educational resources (both staff and equipment) that are offered to the District from outside of the School Department as a result of strong community, business, and cable access relationships. The elimination of a "true" auditorium as a performance and presentation space within the middle school educational environment would compromise these relationships and the opportunities provided to students and staff. These school/community/business relationships have developed over decades based on an enormous amount of work by educators, and their loss would greatly impact many current and future educational opportunities.*

4. *Although we understand that the MSBA cannot participate in community opportunities, an auditorium within the Beverly Middle School has become a highly utilized community resource over many decades and members of the community cannot comprehend losing such a resource as a result of a new school project.*

The proposed auditorium space will be moved to the "Other" category. The District understands that the MSBA space standards do not include auditoriums for middle schools and that this space, whether newly constructed or part of a renovation, would be non-reimbursable. However, the District has outlined several reasons why this space is critical to the success of the uniquely large student population at the Beverly Middle School. Its incorporation into the project satisfies many important educational and community goals, and the District requests that it be included in the project despite its non-reimbursable status. Additionally, the District requests that the MSBA consider two important and related factors in its evaluation of this space: (1) The MSBA guidelines and space standards do acknowledge the need for and acceptance of an appropriate performance stage. The guidelines attach this stage to the cafeteria; however, the District is assuming that the attachment of the stage to the non-reimbursable auditorium does not make such stage non-reimbursable. The District is assuming that the stage space allowed within the MSBA guidelines can be located as per the District's educational program and goals, and be fully reimbursable; and (2) The District requests that only that space directly attributable to the square footage of the auditorium be designated as non-reimbursable, as the net and gross square footage of the auditorium would be very similar and the space summary grossing factor of 1.5 would not be applicable to the auditorium space.

13. ART

Current:

The Art program at Beverly Middle School currently services 6th grade and 7th grade students only. Eighth grade students do not have the opportunity to access the art curriculum. The facility includes one (1) art room and a connecting storage room. The art room is approximately 806 square feet and has three (3) large windows. Students sit at one (1) of six (6) tables which can accommodate four (4) students. If the class is larger than 24 students, tables get crowded with five (5) or more students at each table. When the space gets cramped, it can be difficult for students to move about the room without being a distraction, and it can also be difficult to complete larger projects. A teacher desk is located in the front corner of the room along with a filing cabinet and a storage cart. The back wall of the room is lined with another storage cart, a long table for supplies, and the only sink in the room. Additionally there is a bookcase, a drying rack, and two (2) short cabinets for storage of large flat papers. There is only one (1) student computer in the room without a printer or a scanner located in the same room. There are three (3) electrical outlets in the room, and an extension cord has to be run across the room in order to use a projector. The room also functions as a health room for part of the school day, and a health cart is stored in the front of the room. This duel usage of the room can prove difficult when trying to prepare supplies for the next art class. The art storage room is connected to the art room through a door.

The storage room is approximately 504 square feet. It contains four (4) tables with storage for large flat paper underneath. One (1) of the tables has a large paper cutter on it that is also utilized by other teachers in the building. A small bookcase sits on another table. The other two (2) tables are used primarily for storage of 3D projects. One (1) wall is lined with a counter and storage cabinets underneath. There are five (5) tall storage cabinets filled with supplies and boxes on top of those containing various supplies and props. Two (2) kilns with a ventilation system and the storage of two (2) pottery wheels take up another wall. There are additionally two (2) storage carts, one (1) small light table, and a small closet used for paper storage. Centrally located are two (2) large back to back sinks. Only one (1) side is functioning. Having an additional sink is a great asset, but its location in the storage room is not functional for class usage. There is an adequate amount of storage for supplies, but storing projects can be difficult. Only one (1) grade at a time can complete 3D projects.

Proposed:

Arts education plays an essential and critical role in affirming and developing creative abilities among students of all skill levels, and should not be limited to those who aspire to be professional artists or writers. It is just as likely that a biologist who developed creative thinking in middle or high school arts classes could think of a new way of looking at cancer research as it is that an artist can develop new forms and media for artistic expression. There are endless examples of how art and design education teaches the flexible thinking, risk-taking and creative problem solving needed to solve today's most complex and pressing challenges – from healthcare to urban revitalization to global warming. The goal is to foster the true innovation that comes with combining the mind of a scientist or technologist with that of an artist or designer. The global economy depends and thrives on innovation and new ways of thinking about and seeing the world. Art education nurtures this educational need by allowing students, through creative practice, to develop the skill to imagine the world differently. Art education plays a powerful role in increasing student engagement, closing the achievement gap, and nurturing the skills that will ultimately change our world.

Students have an inherent need to create and design, and the arts must be integral to each student's education, not a separate educational endeavor. In order to create change, students must first learn to create. Just like adults and perhaps even more so because they are still developing their own identities, young people turn to and respond to the arts to help them communicate and understand ideas, viewpoints, and emotions. In this way, the arts cultivate creative thinking which leads to other supplemental skills such as problem-solving which ultimately can benefit students across disciplines.

The Beverly Middle School art program has a project based curriculum that supports the learning of 21st Century skills. The new Beverly Middle School will service students in grades 5-8. With this newly proposed school, all of the grades in the new middle school could have access to the art curriculum and it could be fully integrated into the remaining academic disciplines. There will be two (2) art teachers in the middle school, and these art educators will be collaborating with their expressive arts colleagues and the interdisciplinary teams throughout the building. With integration of technology into the art program and connectivity to the academic neighborhoods, there will be a focus on creating interdisciplinary STEAM based lessons. Each teaching neighborhood should include an art storage and support space, which serves to support each neighborhood commons as a satellite studio for art expression and integration. In order to service these satellite studios and support more advanced art instruction, the program will also need two (2) dedicated art rooms, an art media/video/ production lab, and a large storage/kiln room.

Art Rooms

Close proximity to the other Expressive Arts classrooms and integration into the academic neighborhoods; possibly integrating one classroom into the 5/6 area and one (1) classroom into the 7/8 area
Art room on the ground floor with access to an outdoor space; if practical
Art room equipped with good natural and artificial lighting (including track lighting for spotting still lifes), cleanable surfaces, plenty of table space, and flexible furniture configuration
Easy to clean flooring
Increased built in storage for 2D, 3D projects, and resource materials
At least three (3) large stainless steel industrial sinks with back splashes, sediment traps, and faucets that swivel
Multiple tack display boards throughout the room and around the school for displaying resource materials and student work
State of the art technology including but not limited to electrical outlets in the walls, a mounted projector, surround sound, high capacity color printer, scanner, at least two (2) computer stations for students

Art media/video/production lab

A computer lab space with a mounted projector and surround sound
Thirty (30) Macbook laptops
Thirty (30) digital cameras
Enough electrical outlets for charging devices
At least two (2) high capacity color printers
At least four (4) scanners
At least one (1) large format printer
3D printer
Photo/video editing and 3D design software

Storage Room

Large storage room separate from the classroom that includes an assortment of utility cabinets, flat files, racks, and tables as well as built in storage
Space for two (2) kilns and a ventilation system
At least two (2) large stainless steel industrial sinks with back splashes, sediment traps, and faucets that swivel
Space for storage of larger art furniture (i.e., multiple pottery wheels, light table, etc.)

14. PHYSICAL EDUCATION AND HEALTH

A comprehensive and available physical education program has the potential to significantly impact the cognitive, affective, and psychomotor development of students in many ways that cannot be achieved in the academic classroom. This development is equally important to academic pursuits, and in many instances has a genuine correlation with academic success. Physical education not only teaches physical skills, but also provides other skills that carry over into every aspect of a student's life including goal setting, building self-esteem, increased alertness after physical activity, cooperation, tolerance for people with differences, and socialization. Researchers have shown that students who participate in regular physical education will enjoy enhanced memory and learning, better concentration, and increased problem-solving abilities. Regular physical education encourages a positive attitude towards self and others, which is an important factor in creating a healthy learning environment. Additionally, physical education makes a necessary and unique contribution to the education of the student, as it is the only subject area in the school devoted to the study of human movement, the acquisition of physical skill, and the promotion of fitness – promoting the development of the whole student. The development of the whole student is one of the goals of the Beverly Public Schools.

The Beverly Public Schools wishes to foster the development of physically knowledgeable individuals who have the knowledge, skills, and confidence to enjoy a lifetime of physical activity. A physically educated individual has acquired the skills necessary to participate in a variety of physical activities; understands the implications and benefits of involvement in various types of physical activities; participates regularly in physical activity; is physically fit; and values physical activity and its contributions to a healthy lifelong lifestyle. Statistics related to chronic disease, disability and death, health care costs, and quality of life issues clearly illustrate that there are severe problems associated with attending to the intellectual but not the physical being.

When considering the goals of the physical education program it is important to understand:

- In an age of focus on computers and technology, the emphasis is on sedentary pursuits rather than active ones. While traditional physical education programs have focused on learning specific sports, present day physical education emphasizes helping students to discover which physical activities they can enjoy and use in a lifelong personal fitness program; encouraging them to become lifelong movers.
- Today's physical education program is significantly more individualized, concept centered, and technology based than the traditional physical education program. The infrastructure, use of space, and equipment/supply demands are very different.
- The ultimate purpose of any physical education program is to guide children into being physically active for a lifetime.
- Children should engage in physical activity appropriately designed for their developmental levels.

- Recess and physical education are important but different parts of the school day.
- Physical activity and physical education are not the same. (Physical activity is the subject matter of physical education while physical education is an instructional program that teaches skills by teachers certified in physical education.)

It is easy to underestimate the skills, exposure, and analysis expected from each student and the required space necessary to offer these opportunities. For this reason the detail goals and activities are provided below for both the 5/6 student population and the 7/8 population. These two student populations will be handled separately as part of the co-located school population, with each population having its own facilities in order to avoid co-mingling and to meet the necessary total program space requirements for the designated periods of instructional delivery.

Grades 5-6 Physical Education

- demonstrate all space awareness movement concepts for location (e.g., self-space and general space) with mature form of non-locomotor, locomotor, and selected manipulative skills (i.e., roll, underhand throw, overhand throw) in controlled settings.
- demonstrate all space awareness movement concepts for directions (i.e., up/down, forward/backward, right/left, and clockwise/counterclockwise) with mature form of fundamental motor skills in controlled settings.
- demonstrate mature form and function of all space awareness movement concepts for levels (i.e., low, medium, and high) with mature form of fundamental motor skills in controlled settings.
- demonstrate mature form and function of all space awareness movement concepts for pathways (i.e., straight, curved, and zigzag) with mature forms of selected fundamental motor skills in controlled settings.
- demonstrate all space awareness movement concepts for extensions (i.e., large/small and far/near) with mature form of fundamental motor skills in controlled settings.
- demonstrate all effort movement concepts for time (i.e., fast/slow and sudden/sustained) with mature form of fundamental motor skills in controlled settings.
- demonstrate all effort movement concepts for force (i.e., strong and light) with mature form of selected fundamental motor skills in controlled settings.
- demonstrate all effort movement concepts for flow (i.e., bound and free) with mature form of selected fundamental motor skills in controlled settings.
- demonstrate all relationship movement concepts of body parts (i.e., round, narrow, wide, twisted, symmetrical, and nonsymmetrical) with mature form of selected fundamental motor skills in controlled settings.
- demonstrate all relationship movement concepts of objects and/or people (i.e., over/under, on/off, near/far, in front/behind, along/through, meeting/parting, surrounding, around, and alongside) with mature form of fundamental motor skills in controlled settings.
- demonstrate all relationship movement concepts with people (i.e., leading/following, mirroring/matching, unison/contrast, solo, alone in mass, partners, groups, and between groups) with mature form of fundamental motor skills in controlled settings.
- demonstrate all elements of the mature form of non-locomotor skills of balancing, bending, stretching, rocking, rolling, curling, twisting, turning, pushing, pulling, swinging, swaying, transferring weight, jumping, and landing in controlled settings.
- demonstrate mature form of locomotor skills of walk, run, leap, slide, gallop, hop, skip, flee, and dodge using movement concepts in controlled settings.
- demonstrate mature form of the manipulative skills of roll, underhand throw, and overhand throw using selected movement concepts in controlled settings.

- demonstrate mature form of the manipulative skills of catch, kick, foot dribble, and strike with hand and short and long handled implements in isolated settings.
- demonstrate selected elements of the mature form of the manipulative skills of chest pass, bounce pass, hand dribble, volley (e.g., forearm pass, overhead set), and punt in isolated settings.
- perform a three-element movement sequence (e.g., simple rhythmic, aerobic, or tumbling activities) with flow in controlled settings.
- demonstrate selected use of strategies for tactical problems (e.g., accuracy in distance and direction) during modified, unopposed target games.
- demonstrate selected use of both on-the-ball and off-the-ball tactical movements for maintaining possession (e.g., passing, receiving), penetration/attack (e.g., shooting, moving with the object), and starting/restarting play (e.g., kick-off, throw-ins) during modified invasion games (e.g., small-sided games, such as 3 vs. 3).
- demonstrate selected solutions to tactical problems, such as maintaining a rally, setting up an attack, (e.g., opening up to teammates), and defending space (e.g., returning to base) during modified, cooperative net/wall games.

Evaluation, Application, and Written Activities Related to Physical Education

- predict results for the criterion-referenced cardiorespiratory health-related fitness standards for age and gender (e.g., PACER, Step Test, One-Mile Run, Walk Test, Handcycle Test).
- predict results for the criterion-referenced muscular strength and endurance health-related fitness standards for age and gender (e.g., Curl-up, Push-up, Pull-up, Modified Pull-up, Flexed Arm Hang).
- predict results for the criterion-referenced flexibility health-related fitness standards for age and gender (e.g., Backsaver Sit and Reach, Shoulder Stretch).
- predict results for the criterion-referenced body composition health-related fitness standards for age and gender (e.g., Skinfold Measurement, Body Mass Index, Hydrostatic Weighing).
- describe effects that physical activity and nutrition have on the body (e.g., food as fuel; helps build and maintain bones, muscles, and joints; reduces feelings of depression and anxiety; reduces risk of some chronic diseases; provides nutrients vital for health and maintenance of body; reduces the risk of low bone mass).
- measure the physiological indicators associated with moderate to vigorous physical activity (e.g., sweating, increased heart rate, increased respiration, palpating pulse) and adjust participation/effort in controlled settings.
- evaluate how supporting body weight, while participating in activities, improves physical fitness.
- evaluate how non-manipulative activities promote healthy joint flexibility.
- distinguish between key behaviors which exemplify each of the personal/social character traits of responsibility, best effort, cooperation, and compassion in controlled settings.
- distinguish between key behaviors which exemplify each of the personal/social character traits of constructive competition, initiative, and leadership in controlled settings.
- identify differences between idealized body images and elite performances portrayed by the media and personal characteristics and skills.

Grades 7-8 Physical Education

Students will demonstrate all space awareness movement concepts with mature form of non-

locomotor, locomotor, and selected manipulative skills (e.g., roll, underhand throw, overhead throw) in dynamic settings.

- apply mature form of the manipulative skills of catch, kick, foot dribble, and strike with hand and implements in controlled settings.
- demonstrate mature form of the manipulative skills of chest pass, bounce pass, hand dribble, volley, and punt in controlled settings.
- perform a five-element movement sequence (e.g., rhythmic, aerobic, or tumbling activities) with flow in controlled settings.
- demonstrate use of strategies for tactical problems, such as accuracy in distance and direction (e.g., reducing number of shots/strokes, implement selection, set up routine/starting position) during 1 vs. 1 target games.
- demonstrate use of selected strategies for tactical problems of accuracy in trajectory (e.g., shot execution/placement modifying flight pattern, spin) during 1 vs. 1 target games.
- demonstrate off-the-ball tactical movements (e.g., maintaining possession, attacking goal, creating space, using space in attack), preventing scoring (e.g., defending space, defending goal), and starting/restarting play during modified invasion games (e.g., small-sided games, such as 4 vs. 4).
- demonstrate on-the-ball tactical movements of scoring (e.g., passing, receiving, shooting, attacking the goal, creating and using space), preventing scoring (e.g., defending space, defending goal, winning the object), and starting/restarting game play (e.g., to initiate play or from sideline) during modified invasion games (e.g., small-sided games, such as 4 vs. 4).
- demonstrate selected elements of tactical problems, including off-the-object problems of scoring (e.g., maintaining a rally, setting up to attack, winning the point, attacking as a pair/team) and preventing scoring (e.g., defending space, defending against attack, defending as a pair/team) during modified net/wall games (e.g., small-sided games, such as 2 vs. 2 to 3 vs. 3).
- demonstrate tactical problems, including on-the-object movements of scoring (e.g., maintaining a rally, setting up to attack, winning the point, attacking as a pair/team) and preventing scoring (e.g., defending space, defending against attack, defending as a pair/team) during modified net/wall games (e.g., small-sided games, such as 2 vs. 2 to 6 vs. 6).
- describe results for the criterion-referenced cardiorespiratory health-related fitness standards for age and gender (e.g., PACER, Step Test, One-Mile Run, Walk Test, Handcycle Test).
- describe results for the criterion-referenced muscular strength and endurance health-related fitness standards for age and gender (e.g., Curl-up, Push-up, Pull-up, Modified Pull-up, Flexed Arm Hang).
- describe results for the criterion-referenced flexibility health-related fitness standards for age and gender (e.g., Backsaver Sit and Reach, Shoulder Stretch).
- describe results for the criterion-referenced body composition health-related fitness standards for age and gender (e.g., Skinfold Measurement, Body Mass Index, Hydrostatic Weighing).
- develop and implement a plan for improving or maintaining health-related fitness status with assistance from the teacher.
- understand how to self-assess health-related fitness status for muscular strength and endurance, flexibility, and body composition.
- understand how to recognize the principles of training (frequency, intensity, type, time, overload, specificity).

Nutritional, Behavioral, Social and Health Activities

- evaluate the effects of physical activity and nutrition on the body.
- evaluate the physiological indicators associated with moderate to vigorous physical activity to monitor and/or adjust participation/effort (e.g., palpating pulse, using pedometers, and/or heart rate monitors to train in target heart rate zones).
- analyze behaviors which exemplify each of the personal/social character traits of responsibility, best effort, cooperation, and compassion in dynamic settings.
- analyze behaviors which exemplify each of the personal/social character traits of constructive competition, initiative, and leadership in dynamic settings.
- use physical activity as a positive opportunity for social interaction in dynamic settings.
- choose to participate with community members of varying skill and fitness levels in dynamic settings.
- analyze differences between idealized body images and elite performances portrayed by the media and personal characteristics and skills.
- choose to participate in activities that allow for self-expression in dynamic settings.
- analyze indicators of enjoyment for the aesthetic and creative aspects of skilled performance.

Adapted Physical Education Programs:

The Individuals with Disabilities Education Act (IDEA) is a law that was originally enacted in 1975 as the Education of All Handicapped Children Act of 1975. This legislation identified physical education as a curriculum area that was to be provided for all children with disabilities if it is provided to nondisabled. It now falls under the U.S. Department of Education, Office of Special Education Programs' (OSEP's) guidance and includes very specific provisions for providing equal opportunities for all students.

The implications for physical education are that all children are required by law to have an appropriate physical education program. In addition, these services should be provided in such a manner that promotes maximum interaction between children with disabilities and their non-disabled peers.

Adapted Physical Education is physical education which has been adapted or modified, so that it is as appropriate for the person with a disability as it is for a person without a disability.

Federal law mandates that physical education be provided to students with disabilities and defines Physical Education as the development of:

- physical and motor skills
- fundamental motor skills and patterns (throwing, catching, walking, running, etc.)
- skills in aquatics, dance, and individual and group games and sports (including intramural and lifetime sports)

The Individuals with Disabilities Education Act (1990) uses the term disability as a diagnostic category that qualifies students for special services. These categories include:

- Autism
- Deaf – Blindness
- Deafness
- Hearing impairment
- Mental retardation

- Multiple disabilities
- Orthopedic impairment
- Other health impairment
- Serious emotional disturbance
- Specific learning disability
- Speech or language impairment
- Traumatic brain injury
- Visual impairment including blindness

The services provided by an Adaptive Physical Education teacher include:

- Planning services
- Assessment of Individuals /Ecosystems
- Prescription/Placement: The IEP
- Teaching/Counseling/Coaching
- Evaluation of Services
- Coordination of Resources and Consulting
- Advocacy

These codes, along with federal legislation, ensure the rights of children to have an appropriate physical education program with peers.

Modifications and adaptations for students with disabilities in the instructional program are often necessary. In order to meet the needs of many children with disabilities, we must provide appropriate indoor facilities that allow smaller groups which include students with disabilities to participate in the same activities that non-disabled students are provided. These students should have appropriate access to a full gymnasium in appropriately sized groups; with activities being as similar as possible to all other student physical education activities.

The current Autism Spectrum Disorder (ASD) program is growing, with no way to accommodate required programs for these students within the existing facility. It is anticipated that this program will continue to grow considering feeder programs in the lower grades. Physical Education is also a requirement for these students and currently the students are not able to participate in a modified class due to physical education space restrictions. Additional physical education teaching space would allow an integrated model with specific time for physical education for the adaptive PE teachers. Currently the existing facility inhibits this type of model.

Occupational and Physical Therapy

Occupational and Physical Therapy services are related educational services that are provided for students requiring intervention in order to access the curriculum and the life of the school due to a disability. Occupational Therapists work with children to improve fine motor and sensory functioning, while Physical Therapists focus on gross motor needs of students. Occupational and Physical Therapists often work collaboratively in a co-treatment model. Although these students often required specialized space which is independent of the primary physical education space, it is the goal of the program to utilize the mainstream educational space such as gymnasium and fitness room for all activities deemed applicable. This requires that these spaces not be so heavily scheduled that they are unavailable for appropriate occupational and physical therapy activities.

Proposal for Specialized Occupational and Physical Therapy Space

Where possible, this program should be delivered within the same space utilized by all students. In instances where a specialized space is required for Occupational and Physical Therapy, this motor skills room should be adequate in size and would be similar to a full-size classroom; accommodating both gross and fine motor activities taught simultaneously. The IEP needs for students often recommend specialized motor equipment. The motor room should also allow space for gross motor activities, individual and/or small group therapy sessions. There would also need to be equipment for the children, including a large floor mat, balance beam, a swing, and a ball pit, as well as ample room for gross motor movement. Sensory motor activities and/or fine motor work would require a space for up to two tables and up to eight student chairs. If possible, one of the walls should be mirrored to allow students to model and demonstrate their skills.

Current:

The current Beverly Middle School is woefully inadequate to support the necessary physical education programs. The building includes only a single gymnasium with a small basketball court. The space is located in the basement with no windows, and is subdivided with a folding partition in an effort to provide as many spaces as possible. One of the spaces serves as a half-court, severely limiting the activities which can occur within an approximately 2,500sf area; while the remaining space provides a fitness area for a variety of programs including fitness, adaptive physical education, and occupational and physical therapy. Due to an overall lack of physical education space, the grade six classes are currently configured to hold 60 students. These students must be confined to a single 2,500sf space when the adaptive PE classes require a physical education station. At other times multiple grade six classes of 60 students utilize the two available stations simultaneously. In order to deliver the desired educational program, physical education activities spill out into any available room or space throughout the school; but all of these ad-hoc spaces are inadequate for the desired function and purpose. Many of the required program elements defined above are achieved utilizing outdoor space, although these activities are more appropriately conducted indoors. Activities often have to be cancelled due to inclimate weather and a lack of available space.

The lack of available physical education space requires that grade seven and eight classes (up to 30+ students) use one side of the gymnasium independently from the opposite side, which will contain another full class completing fitness activities. This prohibits any activity requiring more than 2,500sf and sometimes requires the elimination of necessary adaptive physical education programs in order to meet minimum physical education requirements for the non-adaptive students.

Grade six has two 15/30 day rotations per year. Grades seven and eight have one 15/30 day rotation. These limitations are driven by a lack of physical education space, and many proposed educational programs are currently undeliverable due to the lack of space.

There are locker rooms on both sides, girls have changing stalls, boys have an open area. This area is circa 1920s, and does not represent current standards and practices.

Currently, there is one health classroom on the third floor for two health teachers. One health teacher must travel for two of their four health classes because the two health teachers teach 8th grade at the same time. All health materials are shared between the two teachers so the traveling teacher must transport the classroom materials to other locations. When the gymnasium is needed for health activities, they have to go from the third floor down to the

basement. Having the location of the two spaces so far apart also makes communication and collaboration for the Wellness Department difficult. The gymnasium space is not always available to be used.

Currently, there are no available space for the delivery of adaptive physical education and the incorporation of required occupational therapy and physical therapy spaces. Existing gymnasium space is too crowded and over-scheduled to incorporate adaptive PE and there is insufficient space to integrate some OT/PT activities into mainstream physical education courses.

Proposed:

Below are the proposed program offerings and their respective required spaces and sections:

Grade 5/6

	Sections	**Avg Class Size**
Physical education 1 (requires 5,000sf full court for the applicable manipulative)	18	25
Physical education 2 (can be conducted in a teaching station of approximately 2,500sf)	10	24
ASD (Autism Spectrum Disorder) Adaptive PE (requires 5,000sf full court for the applicable manipulative)	3	8
ASD (Autism Spectrum Disorder) Adaptive PE (can be conducted in a teaching station of approximately 2,500sf)	2	4
Health Education / Fitness (non-classroom activity)	12	23
OT/PT (gymnasium or fitness room activity)	10	4

Grade 7/8

	Sections	**Avg Class Size**
Physical education 1 (requires 5,000sf full court for the applicable manipulative)	20	21
Physical education 2 (can be conducted in a teaching station of approximately 2,500sf)	10	23
ASD (Autism Spectrum Disorder) Adaptive PE (requires 5,000sf full court for the applicable manipulative)	3	8
ASD (Autism Spectrum Disorder) Adaptive PE (can be conducted in a teaching station of approximately 2,500sf)	2	4

Health Education / Fitness (non-classroom activity)	15	23
OT/PT (gymnasium or fitness room activity)	10	5

The proposed 5-8 middle school will include an additional grade within the Beverly Middle School population, and it would be impossible to incorporate this additional grade and address the current lack of sufficient space without significantly expanding the available physical education space. Additionally, the newly proposed 5-8 school would essentially operate as two independent co-located schools…a 5/8 school of approximately 700 pupils and a 7/8 school of approximately 700 pupils. Each of these schools could easily justify a single gymnasium space sub-divided into multiple teaching stations in order to satisfy the physical education program requirements. There is also a clearly articulated need and interest in separating the 5th grade population form the 8th grade population; particularly during physical education. In this instance, the proposed Beverly Middle School is more of a co-located 5/6 and 7/8 school than a 5-8 school. The proposed program offerings for adaptive PE and OT/PT require that in addition to the two gymnasiums a dedicated fitness room is also required to accommodate proposed programs. Indoor walking space should be provided on the perimeter of the gymnasium to accommodate adaptive programs that run simultaneously to non-adaptive programs.

Some specific program areas and amenities include:

Adjacent and visible fitness room with access from the gymnasium.
Mirrored wall in fitness room for yoga, dance, etc.
Two health classrooms and a shared PE/health technology lab.
Men's and women's PE office and storage space.
Health storage space between rooms.
Changing stalls in both locker rooms.
Outdoor walk/jog and fitness trail.
Outdoor playfields.

THE FOLLOWING INFORMATION WAS PROVIDED AS PART OF A RESPONSE TO MSBA COMMENTS ON THE PDP:

Health and Physical Education

Below are the proposed program offerings and their respective required spaces and sections. Note that the proposed program includes four (4) teaching stations for grades 5 through 8. In some instances, program offerings require only one-half (½) of a teaching station, and in some instances, a program offering requires two (2) teaching stations. The summary below incorporates this to establish the equivalent number of teaching stations and their weekly utilization rate.

GRADES 5 AND 6

	Avg Class Size	*Sections*	*Stations*	*Stations per Week*
Physical Education 1	*23*	*10*	*2*	*20*

Offerings within the Physical Education 1 coursework require a 5,000sf full court for the

applicable manipulative. This equates to two (2) teaching stations.

Physical Education 1b *12 15 1 15*
Offerings within the Physical Education 1b coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

Physical Education 2 *12 5 1 5*
Offerings within the Physical Education 2 coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

	Avg Class Size	Sections	Stations	Stations per Week
ASD Adaptive PE (Movement) *(Autism Spectrum Disorder)*	4	8	1	8

Offerings within the ASD Movement coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

ASD Adaptive PE (Floor) *2 8 ½ 4*
(Autism Spectrum Disorder)
Offerings within the ASD Floor coursework require 1,250sf for the applicable manipulative. This equates to one-half (1/2) of a teaching station.

Health / Fitness Applications *12 24 ¼ 6*
Offerings within the Health / Fitness Applications are part of the non-classroom component of health education and are conducted only one (1) semester per year. They require 1,250sf for the applicable manipulative. This equates to one-half (½) of a teaching station for one-half (½) year and is therefore entered as one-quarter (¼) of a teaching station.

5th and 6th Grade Summary
The above offerings result in the use of 58 teaching stations per week, with the 6 period schedule allowing for the use of 60 available teaching stations per week (2 teaching stations x 30 periods per week). This equates to over 95% utilization of the 5th and 6th grade H&PE stations. The District's ASD population various yearly, and in the event that the ASD population is lower in any given year and any of the above required 12 stations are available, it would be the desire of the District to utilize these stations for OT/PT. Most OT/PT services will be delivered in dedicated teaching spaces outside of the programmed 2 H&PE teaching stations. However, as per the educational program, it is the goal of the District to take advantage of any available gymnasium teaching stations to deliver varied OT/PT services periodically within the mainstream (gymnasium) environment. This strategy will result in almost 100% utilization of the available H&PE space. The educational program identified the desire for at least 4 sections of availability per week within the gymnasium space. This may be possible in some years, dependent on student population.

GRADES 7 AND 8

	Avg Class Size	Sections	Stations	Stations per Week
Physical Education 3	23	15	2	30

Offerings within the Physical Education 3 coursework require a 5,000sf full court for the applicable manipulative. This equates to two (2) teaching stations.

	Avg Class Size	Sections	Stations	Stations per Week
Physical Education 3b	12	10	1	10

Offerings within the Physical Education 3b coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

Physical Education 4	12	5	1	5

Offerings within the Physical Education 4 coursework require 2,500sf for the applicable manipulative. This equates to one (1) teaching station.

ASD Adaptive PE	4	12	½	6

(Autism Spectrum Disorder)
Offerings within the ASD Adaptive PE coursework require 1,250sf for the applicable manipulative. This equates to one (1) teaching station.

Health / Fitness Applications	12	15	¼	4

Offerings within the Health / Fitness Applications are part of the non-classroom component of health education and are conducted only one (1) semester per year. They require 1,250sf for the applicable manipulative. This equates to one-half (½) of a teaching station for one-half (½) year and is therefore entered as one-quarter (¼) of a teaching station.

7th and 8th Grade Summary
The above offerings result in the use of 55 teaching stations per week, with the 6 period schedule allowing for the use of 60 available teaching stations per week (2 teaching stations x 30 periods per week). This equates to over 90% utilization of the 7th and 8th grade H&PE stations. As per the educational program, it would be the desire of the District to utilize the five remaining sections for OT/PT. Many OT/PT services will be delivered in dedicated teaching spaces outside of the programmed 2 H&PE teaching stations. However, as per the educational program, it is the goal of the District to take advantage of any available gymnasium teaching stations to deliver varied OT/PT services periodically within the mainstream (gymnasium) environment. This strategy will result in 100% utilization of the available H&PE space.

15. SPECIAL EDUCATION

Current:

Beverly Public Schools provides for specialized programming to meet the varying needs of students throughout the District. Each elementary school provides a site for a specialized program. Programming includes services for children identified with Autism Spectrum Disorder (ASD), Specific Learning Disabilities, including Language-based Learning disabilities, Social/Emotional/Behavioral challenges, and students with global delays. These programs range from full inclusion to substantially separate programs depending on the need. Services are also provided in push-in and pull-out models as determined by the individual needs of students.

Interventions in classrooms are provided by special needs teachers, speech/language pathologists, reading teachers, occupational and physical therapists, behavior specialists, school adjustment counselors, social workers, educational interpreters, teachers of the deaf, and paraprofessionals.

In accordance with Massachusetts General Laws, Federal law, and IDEA, Beverly Middle School's Education Program provides services for qualifying students who are unable to make effective progress within the general education program. Beyond the inclusive specialized education support continuum for students within the general education classroom, services include academic support, inclusion and self-contained classes. The four (4) sub-separate programs provide a continuum of services for students with cognitive, communication, ASD, language-based, and emotional disabilities. Specialized services are provided daily at each school as required by Individual Education Plans (IEP), Section 504 Plans or as part of Response to Intervention (RTI) initiatives. The Common Core is implemented utilizing teaching methods that include but are not limited to co-teaching, small group instruction within the classroom and outside of the classroom, and monitoring of students during large group sessions. Special education staff works closely with students, parents, and general education teachers to monitor student progress and to modify and support academic programs to meet individual student needs.

Currently, Beverly Middle School supports programming for students qualifying for supports through an IEP with the following service models:

- **Consultation:** Special Education, Related Service staff and contracted service providers consult with general education staff to support access to curriculum within the general education classrooms and programs.
- **Inclusion Supports:** Students who contend with disabilities are supported within the general education classroom by paraprofessional staff members who work under the direction of general education teachers and consultation from special education teachers. Special education teachers, related services staff and contracted service providers further provide inclusionary supports, as needed.
- **Replacement:** In rare cases, when general education offerings are not adequate to meet students' intensive needs, content area instruction and specially designed instruction may occur in a setting outside of the general education classroom and will be taught by a special education teacher and/or related therapies provider.

Beverly Middle School currently has three (3) Learning Center teachers working in one (1) classroom, two (2) small classroom spaces are used for out Therapeutic Learning Centers (TLC), one (1) Student Support Program (therapeutic) utilizing three (3) small spaces, four (4)

SBI teachers utilizing four (4) classrooms, three (3) small rooms utilized by the Opportunities Program, one (1) small special education office, and one (1) self-contained life skills (ATTAIN) program consisting of one (1) classroom. There is one (1) designated space available for special education meetings. Small offices within the library have been used as testing rooms and service provider room (Speech and Language Pathologists). These offices spaces are not conducive to small group instruction. Occupational Therapy is provided within a small room also used as a teacher workroom. Physical Therapists, Behavior Specialists, Vision and Hearing Specialists do not have designated space and use what is available when needed.

Learning Center (LC): Provides small group academic support to students on Individual Education Plans within an in-class and/or pull-out model. In-class services may be provided by either the special education teacher and/or paraprofessional.

Therapeutic Learning Center (TLC): Provides small group academic and social/emotional support to students on Individual Education Plans, typically in a pull-out model with paraprofessional support within the classroom as determined by the special education team.

Opportunity Program: Provides pull-out and in-class academic, organizational, and social/emotional support to students on Individual Education Plans.

ATTAIN Program: Provides for substantially separate programming for students with ASD who require a more restrictive learning environment in order to gain academic, social, and vocational skills. Students are integrated into expressive arts and additional content areas, with support, as they are able.

Language-based Program (LB): Provides for substantially separate and partial programming for students with language-based learning disabilities. Specialized reading and written language instruction is provided and based on the students' Individual Education Plans. Students are typically integrated for the content areas, with support from a special education teacher or paraprofessional. Small group content area instruction can be provided as determined by the special education team.

Strategies-based Instructional Program (SBI): Provides for substantially separate programming for students with global learning disabilities that impact all curricula areas. Individualized and small group instruction is provided. For students who are able to integrate into content area classes, paraprofessional support is provided.

Student Support Program (SSP): Provides for varying levels of support, depending on the individual needs of the students within the program, for those with an emotional disability and/or those who display behaviors which impact their ability to access the general education curriculum. This program is supported by a contracted therapist through Lahey Behavioral Services.

Review of special education space indicates that the existing facilities are antiquated and outdated in many ways. Many of the programs are being provided in spaces not originally identified or intended as special education instructional space. The physical layout of the building is not conducive to a comprehensive teaching and learning model, which may include co-teaching or collaboration among professional staff. The size and number of spaces are woefully inadequate for providing a fully integrated program with the appropriate connections to the academic teams. Individual classrooms have limited electrical outlets and open wall space. This can be a barrier when assistive devices are needed for support of students' access to the curriculum. The overall technological infrastructure also limits the ability to

consistently provide and meet the Assistive Technology needs of some students. Instructional space is lacking in quantity and some special education teachers and service providers have no dedicated office or testing space. There is limited meeting space for Team meetings, department meetings, and lack of conference space to confer with students, teachers, and parents. There is little to no storage space for assessment and instructional materials or supplies and there is no defined de-escalation space.

MIDDLE SCHOOL:

Proposed:

The proposed building project will afford the special education program to be an integral part of the school community and fully integrated into the academic neighborhoods. Ample classroom space, resource rooms, small group rooms, inclusion rooms, office space, testing space, meeting space, de-escalation space, and adaptive PE/occupational therapy space will be provided in order to best meet the educational needs of all students. This design will afford more opportunities for students and staff to work horizontally and vertically, and to incorporate interdisciplinary ways to fully integrate special needs programming, while having the capacity to expand current program and develop new programming as population change and increase.

The Beverly Middle School will continue to support a full continuum of services for students through eighth grade. The implementation of a comprehensive interdisciplinary model will allow students to access the general curriculum in classes taught by both a general education content area teacher and a special education teacher. Self-contained programs will be strategically located in areas of the building to best support student access. All special education programs need to be located close enough to content and elective general education programming so that inclusive opportunities can be realized when possible. The ATTAIN program (students with ASD and severe cognitive and communication disabilities) will have a newly designed vocational area to include kitchen and laundry within a semi-private space with a designated de-escalation area to support a more protected and dignified learning space.

Professional office and testing spaces will be designated for related service providers in the areas of: Speech and Language Pathologists, Occupational Therapists, Physical Therapists, Behavior Specialists, Vision and Hearing Specialists, Reading Specialists, Adaptive Physical Education, School Adjustment Counselors, School Psychologist, etc., as well as for the Team Chairperson.

The new Middle School will include many smaller meeting rooms for individual and small group tutorials, outside therapists, and specialists. These rooms may be used for regular teacher/tutor meetings and for small group testing environments and will be fully immersed within the academic neighborhoods. Along with special education teachers, paraeducators and tutors will have shared space in an office with computer access for storing materials, etc.

Lastly, critical to the success of special education programs and related service providers, is the ability to observe students in their school environment. Consideration to the structure of learning spaces will provide opportunities for parents, teachers, and consultants who work closely and carefully with the special education population to observe and learn from one another.

Vocational Education for Special Education

Current:

A regular classroom is used for our substantially separate program, which includes a vocational/ daily living skills component.

Proposed:

A fully equipped vocational classroom complete with a kitchen and laundry area.

16. VOCATIONS AND TECHNOLOGY

The role of vocations and technology education in the middle school environment continues to be insuring that students are offered exploratory courses in business applications, technology applications, life skills, technology systems, and career decisions. However, this role is expanded in a project-based learning environment where students are learning, working, and building within their academic neighborhood. Vocations and technology has a required satellite component within each academic neighborhood, but also requires a more advanced and specialized space for the delivery of certain applications that are beyond the capabilities offered within the academic maker/builder space.

Vocational education will continue to offer young adolescents with self-understanding of who they are, a social understanding of an individual's life work, and the commencement of goal development in terms of identifying what they might want to become. The vocational education program at the middle school level will provide students with a correlation between the academic subjects they are studying, the projects and hands-on experiences they are developing, and the professional careers that are evolving in a global world. The specific program space dedicated to vocations and technology should be highly flexible and should be integrated into the neighborhood teams and their maker spaces as much as possible. They include:

Integrated Academic Production Labs:
Vocational technology should have an active an integrated role in the delivery of STEAM within the academic neighborhoods. These labs, combined with the allotted team space in each neighborhood, will provide the collective space necessary to create the neighborhood commons areas and support the necessary inquiry and exploration.

Multimedia and Video production Lab:
As media and video becomes more heavily integrated into many career and technology applications, the need to offer specific instruction in this area remains relevant. This space will have a strong connection to the media center and be located such that it can be supported by instruction and equipment provided by the City's cable broadcasting entity, BevCam.

Technology Applications and Production Lab:
This will be a flexible lab environment, as it is anticipated that the specific program offering will continue to change and evolve with technology and the global economy. It will include focused hands-on career opportunities to participate in developing both kinesthetic learning through tactile experiences but also applying cognitive learning in technology career applications. The instructor will work collaboratively with the academic leadership to integrate lesson plans which allow students to support their project-based inquiry and learning assignments within their integrated academic production labs and to have opportunities to expand that exposure within the technology applications and production lab.

Set Design and Construction Applications Lab:
This lab will allow students to expand projects that may incubate within the maker/builder labs but require a larger, more complex building environment that includes tools and applications that are beyond those available in the academic neighborhoods. It will also act to provide students exposure to basic daily skills and tools which are part of lifelong self-sufficiency.

17. FUNCTIONAL AND SPATIAL RELATIONSHIPS AND ADJACENCIES

Current:

The building consists of four (4) floors, which includes the basement in a pentagonal formation.

Basement:
The gymnasium and corresponding male and female locker rooms and coaches' offices are located in the basement. The gym has been split in half to accommodate both a fitness room with weight lifting and cardiovascular equipment and a smaller open gymnasium space. There is also an old wood shop that has been converted into the "Technical Education" lab. Additionally, an old print shop was converted into a computer lab that can accommodate 30 students. Finally, there is an additional metal shop that was converted into a science lab.

First Floor:
The cafeteria, band and chorus rooms as well as band storage, reading classrooms, two foreign language classrooms, some special education, the special education team chairperson office, nurses office, dental clinic, and main office are located on the first floor. There is one faculty lounge also on the first floor, which is used mainly by substitute teachers for lunch.

Second Floor:
All sixth grade core content classrooms, some special education classrooms, three foreign language classrooms, the math coach's office, guidance offices, two school adjustment counselor offices, one assistant principal's office, library and computer lab are located on the second floor.

Third Floor:
All seventh and eighth grade core content classrooms, the art classroom, health classroom, one small group special education classroom, one sub-separate special education classroom that has access to a stove for vocational education, and one assistant principal's office are located on the third floor.

Proposed:

The Educational Visioning sessions held in September, October, and November of 2014 provided an opportunity for faculty, staff, administrators, and building committee members to discuss many aspects of the proposed educational environment and its ability to support the desired educational program. These discussions helped to shape many aspects of the above defined educational plan and are inherent in the specific goals and objectives identified above. Some of the key components, characteristics, functionality, and spatial relationships are summarized below. They address strategies that are believed to be critical to achieving the guiding principles identified in the visioning sessions.

Learning Neighborhoods
Beverly Middle School, as currently configured, embraces a traditional middle school model that emphasizes teaming students. The team consists of four general education teachers

(Mathematics, Science, English Language Arts, and Social Studies) as well as Special Education Liaison(s) associated with Special Education programs connected to that particular team. While a team approach is utilized, the physical layout of the building inhibits the teachers' ability to provide interdisciplinary opportunities on a regular basis. In order for teachers to be able to facilitate the blending of multiple disciplines of academic instruction, teams must be organized into "Teaching Neighborhoods". These teaching neighborhoods will contain four general education classrooms, a dedicated science classroom, and a "Neighborhood Commons" space to facilitate inquiry, presentation, community, project-based learning, teaming, and STEAM. Each neighborhood will include opportunities for small group work and study areas which allow students to move in and out of the classroom area without interruption. Special Education spaces for reading, resource, and inclusion will be an inherent part of each neighborhood. There will be adequate space for student belongings without the need for "Industrial looking" steel lockers lining the walls of hallways and corridors. A shared teacher work and planning in each neighborhood is an integral piece of the design and will allow collaboration on assignments, student progress, and the planning of rigorous cross-disciplinary opportunities. Although organized for efficient interaction within the team, these neighborhoods must share a common connection with other neighborhoods and be able to facilitate integration with the remaining school environment.

No More "Cells and Bells"

The industrial model approach to educational design is often jokingly referred to as "Cells and Bells" because it organized classrooms along a corridor, much like holding cells. Corridors are lined with industrial style lockers for each student. Each classroom space exists in a state of isolation, with no visual connection to the corridor other than a door. Students move from "cell-to-cell" under the direction of bells…hence the name "Cells and Bells". This organizational structure has many disadvantageous and includes an outdated approach to many 21st Century educational practices including:

- The evolution of technology has almost eliminated the need for student lockers. Lockers were created to hold books and personal belongings, all of which are minimized for the modern middle school student. The use of this valuable space for numerous underutilized lockers is a waste, and one goal of the new middle school will be to reduce or possibly eliminate corridor lockers; utilizing technology to reduce the need for books and other storage solutions to address personal belongings.
- The middle school staff has seen increasing success with students who are able to work in small groups outside of the boundaries of the classroom. These students currently only have the corridor space available to them, which unfortunately limits the circumstances under which they can be allowed to complete small group study outside the classroom. However, the results associated with allowing students to assemble in small workgroups outside of the classroom have been very positive despite the spatial limitations. There should really be no "corridors" in a modern facility, as one could argue this this space is the most underutilized space in the entire building. These "Corridors" should become part of the "Neighborhood Commons" area with transparency to the classroom, such that they can be utilized during the entire school day as an area for small group study, independent research, and numerous other academic pursuits. One of the goals of the new middle school is to eliminate these "Corridors" and convert them to viable, usable, learning-supportive spaces in each neighborhood.

Small Learning Communities

One of the critical strategies identified in the visioning sessions was the need to break the school into smaller learning communities. There was significant discussion regarding the characteristics of these learning communities and it is clear that their organizational attributes

go well beyond this simple designation of various neighborhoods to a specific community. These learning communities must be created in a manner which promotes safety, identity, personalization, pride, belonging, support, and confidence. They must recognize that these feelings can be fostered by a well-organized community which responds to student needs from morning arrival until end-of-day departure. The student must feel a personal connection to the staff and students of their community, and such connection begins at arrival. In designing the new facility we must consider providing entry points for each community, and weigh the advantages of this approach versus an approach which forces a large number of students through a single entry point.

Flexible Project and Instructional Space; the Flexible Classroom

Spaces utilized for 21st Century instructional practices should not segregate instruction from application. The modern comprehensive middle school environment must be a flexible space that accommodates both instruction and application. The maker/builder spaces that are dedicated to project based learning should be highly integrated to the remaining academic classrooms and/or environment. It should allow for students to be creative and grow as learners throughout the course of their day. Additionally, teachers can collaborate with colleagues more easily through flexible spaces.

The flexible classroom is meant to describe an "area" rather than a specific room defined by four or more enclosing walls. Staff and students agree that learning within a group of spaces that allow for varying approaches and environments, facilitated by a teacher or combination of co-teachers provides the best opportunity for varying learning styles and progress. In some instances, having as many as three contiguous spaces with the necessary supervision can allow the facilitators to customize the learning program for each student. Transparency between these spaces will be a key factor in the successful use of these collective spaces as a "flexible classroom". There was much discussion about the need for small group spaces integrated within the classrooms and neighborhoods. These spaces require a high level of transparency for supervision and connectivity to remaining neighborhood spaces. There are also numerous physical characteristics required within these classrooms including ubiquitous technology and large-scale instructional walls which allow "every wall to be a teaching and collaboration wall".

Personalization of Instruction and Experience

The teaching neighborhoods and flexible project and instructional space known as the "neighborhood commons" are key elements in the personalization of instruction for all students. These spaces will allow educators to meet the needs of all students in an engaging, creative, and collaborative way. Combining these neighborhoods into a grade-level community of three neighborhoods will allow for the creation of manageable grade-level learning communities which offer personalization of each student's experience. This strategy of breaking down the larger school population into smaller learning communities is critical to the successful personalization of the student experience.

Community Connections

The new Beverly Middle School must be a welcoming environment for not only students and staff but also for community members. The proposed facility should be designed in a way that allows community members to experience student activity and work; and to provide support for such in meaningful ways. Being able to connect with the community through both ease of facilities use and the presentation and display of student work is of vital importance. Because community members will not necessarily be privy to the day-to-day learning experiences of students, providing opportunities to view student work that is rigorous and engaging will build a sense of community between the school and Beverly residents. Lockers should be removed from the hallways and corridors and transparency should be abundant such that

these spaces are available to put student work and student activities on display.

STEAM Partnerships
The City of Beverly has a unique opportunity to partner with many engineering and science businesses that are located within the community. This partnership coupled with a focus on STEAM initiatives will allow teachers and students to participate in real world application both inside and outside of traditional classroom spaces. The modern 21st Century middle school environment allows for the integration of the key subjects of Science, Mathematics, Technology, Engineering, Arts, and Math into real word business and scientific applications in an effort to help students understand the importance of these topics individually, but to also understand the way they support each other.

Educational Technology Campus Wide
Campus-wide wireless access is key to creating a flexible environment where students can complete assignments without the confines or boundaries of a fixed computer lab. The seamless integration of technology through both a high capacity wireless network coupled with durable small devices (i.e., I-Pad, Chromebooks, Laptops) for each student will allow students to access information more readily to assist in the production of rigorous performance based tasks that foster creativity and the development of 21st Century skills. The technology goals described previously herein will apply to the entire campus…indoors and outdoors. Additionally, media broadcasting, video editing, and video production are all academic endeavors which will be supported within the academic neighborhoods and through the provisions of the video production lab. This will also allow students to create and engage in a variety of community events through the use of a variety of media.

Media Center and the Distribution of Media
The library media center should be a media distribution and retrieval resource which students can utilize throughout the school environment. The functions of the library media center should be carefully considered throughout the planning process, as the focus on creating academic neighborhoods may warrant the need to satellite some media resources to the individual neighborhoods or grade-level communities. Media research will occur in many places throughout the school environment, and distributing some library/media resources may prove beneficial in creating a more dynamic environment. Media broadcasting, video editing, and video production are all academic endeavors which will occur within the academic neighborhoods in some capacity, but will also require more sophisticated facilities that may be better placed central to a media resource center.

Socialization and Student Dining
The development of social skills is an integral part of a student's middle school experience. The ability to communicate with both adults and peers is consistently developed through formal and informal interactions throughout the school day. Lunch time offers students the opportunity to socialize and decompress with their classmates. The traditional cafeteria where students are herded into a space and directed to function in a very rigid way is not conducive in today's society. Schools where social dining is distributed throughout the school environment with less restrictions and/or boundaries have proven to promote student collaboration while simultaneously reducing discipline problems. The student dining area can also play a significant role in parent and community interactions with the school, by providing flexible space, which supports presentations, programs, and events. It can serve as one of the primary social hubs of not only the school but also the entire Beverly community. Multiple options should be considered when developing the dining areas for middle school students,

as these areas may be distributed throughout the various school communities in a way which breaks down the scale of dining to the individual communities, and dining may become part of each small learning community. This distribution of dining might provide a more heavily utilized and efficient space; as it becomes a place for projects, presentations, study and work when not utilized for dining. Consideration should be given to a design layout which spreads satellite dining areas into each grade-level learning community in a way that allows sharing by all neighborhoods within that learning community.

Safety and Security

The new middle school will provide students and staff with a safe and secure environment by including measures that support and foster safety and confidence. Students and staff must feel safe and confident in their environment, without the inclusion of over-restrictive physical barriers that compromise the educational environment. Providing clear and controlled entry will be important, but within the academic neighborhoods safety should prevail without restricting the desired open and transparent connections between the learning areas. A clear approach for students and visitors which promotes supervision and observation at the point on entry will be key to allowing all to access the necessary support services. Safety also includes providing adequate and appropriately located space for support services staff and outside providers who provide needed mental health support for our students. Students face and present with a wide array of mental health issues at early ages, it is vital that space is provided for these services to commence in a suitable space.

As part of the discussions on safety and security, several building systems were discussed as being critical to security the school environment. They include:

1. Access Control System. All exterior doors will be lockable, and some will be electrified to be locked and unlocked by the access control system. Doors that do not have electrified door hardware will be locked and unlocked by keys. Main entry doors will be electrified. The outermost doors are planned to be push pull and unlocked during school hours. They will have a card reader if having these doors locked at all times is desired. The inner set of doors in the main entry vestibule will be locked at all times, except for drop-off and pick-up times, where it is planned to be scheduled locked and unlocked during specific times by the access control system. This set of doors has a card reader as well. There will be a video entry station at these inner doors, to allow administrative staff to buzz people past them to enter the administrative area. There may be a third set of doors beyond the administrative area which would be locked in a similar fashion as the inner set. Panic buttons, which can trigger a lockdown event in access control (examples of what a lockdown event can trigger are the presentation of a PA announcement, dialing 911, locking all unlocked electrified doors, disabling card readers below a certain access level, sending email alerts, etc.), will likely be located in the following areas: administration; Principal's office; certain secretarial staff; custodian's office; assistant principal's office. Stairwell doors can be pulled off mag holders and programmed locked by access control, securing upper floors from remaining areas. Activation of the fire alarm system will de-energize these stairwell doors for fire safety and they will become unlocked. Exterior doors DO NOT become unlocked upon fire alarm activation. Depending on the IPTV system for the school, it is planned that a lockdown condition in access control shall trigger the IPTV system to turn on all projectors and televisions in the school and present a video file for lockdown purposes.

2. Intrusion Detection System. The intrusion detection system is the burglar alarm system that is armed when the building is unoccupied. This system will likely include motion

detectors in every room on the first floor with windows, door contacts on every exterior door, and door contacts on every interior door shown on the drawings (stairwells, and any room with a card reader). The intrusion system will be programmed to dial the central office when an alarm condition is detected, either by a motion detector or door being forced open. Panic buttons in the administrative area can be programmed to have the intrusion system dial 911 in an emergency during occupied times for lockdown purposes if desired.

3. CCTV System. Cameras will be placed around the exterior of the building, the parking lots, hallways, stairwells, the administrative area, student dining, auditorium, courtyard, physical education areas, media center, and any identified road entrances to the property. A camera will be placed on all entry doors into the building. A forced door alarm will call up the video of a camera assigned to cover the door at the security station PC.

4. A bi-directional amplifier and antenna system will be installed for police and fire radios to function within the building without interruption.

Indoor/Outdoor Connections

The connection of indoor and outdoor spaces is important to creating a vibrant and energized educational environment. Students can become more engaged in utilizing outdoor space if an effort is made to insure the appropriate visual and physical connection. Outdoor space can be used beyond recreational use and can provide project space, social space, classrooms, study areas and other support areas for the educational environment. This would also provide an even better connection to the Nature's Classroom and Change Is Simple programs that emphasize outdoor learning and creating a green environment and are a cornerstone of the middle school experience.

Learning Beyond The School Day

As students become involved in more activities, the time they spend on the academic campus has expanded. These activities include music, performance, athletics, research, science, academics, and more. Many students study after school as they await upcoming practices, performance or activities that involve them or their friends. Additionally, there is a strong relationship with the local YMCA which provides a wide array of programming for students afterschool at their location. Having appropriate space for the YMCA to provide programming in the building would allow for a stronger collaboration between the school and community. Providing appropriate spaces for such activities is a key component of the 21st Century academic environment.

Proposed Space Summary - Beverly Middle School

Grades 5-8

1.7.15

5-8 BEVERLY MIDDLE SCHOOL	Existing Conditions			PROPOSED: Existing to Remain/Renovated			PROPOSED: New			PROPOSED: Total			MSBA Guidelines (refer to MSBA Educational Program & Space Standard Guidelines)			
ROOM TYPE	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	ROOM NFA[1]	# OF RMS	area totals	Comments
CORE ACADEMIC SPACES			**31,524**			**0**			**68,390**			**0**			**65,310**	
(List classrooms of different sizes separately)																
Classroom - General		*34*					850	50	42,500				950	51	48,450	850 SF min - 950 SF max
English	600	2	1,200													
	640	3	1,920													
	675	1	675													
	755	1	755													
	763	1	763													
	725	1	725													
Math	585	2	1,170													
	640	2	1,280													
	675	1	675													
	725	3	2,175													
	788	1	788													
Foreign Language	700	2	1,400													
	820	1	820													
	588	1	588													
	680	1	680													
Reading	680	1	680													
	900	1	900													
Social Studies	600	2	1,200													
	640	3	1,920													
	655	1	655													
	679	1	679													
	688	1	688													
	741	1	741													
Small Group Seminar (20-30 seats) / Resource			0				175	12	2,100				500	3	1,500	
		10	0													
Science Classroom / Lab	648	2	1,296				1,200	12	14,400				1,200	12	14,400	1 period / day / student
	656	1	656													
	668	2	1,336													
	730	4	2,920													
	1,200	1	1,200													
Prep Room	75	3	225				80	12	960				80	12	960	
Academic Team Room							465	12	5,580							
Teacher Collaboration Room							500	4	2,000							
Health Classroom	814	1	814				850	1	850							
SPECIAL EDUCATION			**8,895**			**0**			**15,850**			**0**			**15,100**	
(List classrooms of different sizes separately)																
Self-Contained SPED	800	1	800				850	7	5,950				950	10	9,500	assumed 8% of pop. in self-contained SPED
	711	1	711													
	675	1	675													
	665	2	1,330													
	610	1	610													
	586	1	586													
Self-Contained SPED Toilet			0				60	7	420				60	10	600	
ESL - English as a Second Language	238	1	238													
ASL - American Sign Language	660	1	660													
Speech / Testing	75	4	300													
OT Office	175	1	175													
Resource Room	400	3	1,200				425	12	5,100				500	7	3,500	1/2 size Gen'l. Clrm.
	347	1	347													
	390	1	390													
Small Group Room / Reading	665	1	665				215	12	2,580				500	3	1,500	1/2 size Gen'l. Clrm.
Small Inclusion Room							75	24	1,800							1/2 size Gen'l. Clrm.
Special Education Chair Office	208	1	208													
ART & MUSIC			**3,896**			**0**			**6,550**			**0**			**6,550**	
Art Classroom	802	1	802				1,250	2	2,500				1,200	3	3,600	assumed use - 50% population 2 times / week
Art Workroom w/ Storage & kiln	550	1	550				175	2	350				150	3	450	
Band / Chorus - 100 seats	917	2	1,834				2,300	1	2,300				1,500	1	1,500	assumed use - 50% population 2 times / week
Music Practice / Ensemble	710	1	710				75	4	300				200	5	1,000	
MIDI Lab							500	1	500							
STEAM Academic Support							50	12	600							
VOCATIONS & TECHNOLOGY			**4,649**			**0**			**9,600**			**0**			**9,600**	
Tech Clrm. - (E.G. Drafting, Business)	2,382	1	2,382										1,200	3	3,600	Assumed use - 25% Population - 5 times/week
Tech Shop - (E.G. Consumer, Wood)			0										2,000	3	6,000	Assumed use - 25% Population - 5 times/week
ComputerTechnology #1	1,584	1	1,584													
Computer Technology #2	683	1	683													
Integrated Academic Production Lab							500	12	6,000							
Multimedia & Video Applications Lab							1,000	1	1,000							
Technology Applications & Production Lab							1,600	1	1,600							
Set Design & Construction Applications Lab							1,000	1	1,000							
HEALTH & PHYSICAL EDUCATION			**8,677**			**0**			**15,400**			**0**			**8,400**	
Gymnasium	4,607	1	4,607				6,000	2	12,000				6,000	1	6,000	
Gym Storeroom			0				150	2	300				150	1	150	
Health Instructor's Office w/ Shower & Toilet	125	2	250				250	2	500				250	1	250	
Locker Rooms - Boys / Girls w/ Toilets	3,820	1	3,820				1,300	2	2,600				1,000	2	2,000	
MEDIA CENTER			**2,177**			**0**			**8,401**			**0**			**8,401**	
Media Center / Reading Room	2,177	1	2,177				8,401	1	8,401				8,401	1	8,401	
DINING & FOOD SERVICE			**8,389**			**0**			**15,872**			**0**			**15,872**	
Cafeteria / Dining	5,130	1	5,130				10,463	1	10,463				10,463	1	10,463	2 seatings - 15SF per seat
Stage	885	1	885				1,600	1	1,600				1,600	1	1,600	
Chair / Table / Equipment Storage			0				665	1	665				665	1	665	
Kitchen	2,374	1	2,374				2,695	1	2,695				2,695	1	2,695	1600 SF for first 300 + 1 SF/student Add'l
Staff Lunch Room			0				449	1	449				449	1	449	20 SF/Occupant
MEDICAL			**362**			**0**			**910**			**0**			**910**	
Medical Suite Toilet							60	1	60				60	1	60	
Nurses' Office / Waiting Room							250	1	250				250	1	250	
Examination Room / Resting	362	1	362				100	6	600				100	6	600	
ADMINISTRATION & GUIDANCE			**2,660**			**0**			**4,796**			**0**			**4,795**	
General Office / Waiting Room / Toilet	740	1	740				798	1	798				798	1	798	
Teachers' Mail and Time Room			0				100	1	100				100	1	100	
Duplicating Room			0				200	1	200				200	1	200	
Records Room			0				200	1	200				200	1	200	
Principal's Office w/ Conference Area	230	1	230				375	1	375				375	1	375	
Principal's Secretary / Waiting			0				125	1	125				125	1	125	
Assistant Principal's Office - AP1	175	1	175				150	1	150				150	1	150	
Assistant Principal's Office - AP2	200	1	200				150	2	300				150	2	300	
Supervisory / Spare Office			0				150	1	150				150	1	150	
Conference Room	247	1	247				350	1	350				350	1	350	
Guidance Office	120	4	480				150	7	1,050				150	7	1,050	
Guidance Waiting Room	238	1	238				100	1	100				100	1	100	
Guidance Storeroom			0				50	1	50				50	1	50	
Teachers' Work Room	350	1	350				848	1	848				848	1	848	
CUSTODIAL & MAINTENANCE			**328**			**0**			**2,870**			**0**			**2,870**	
Custodian's Office							150	1	150				150	1	150	
Custodian's Workshop							250	1	250				250	1	250	
Custodian's Storage							375	1	375				375	1	375	
Recycling Room / Trash							400	1	400				400	1	400	
Receiving and General Supply							565	1	565				565	1	565	
Storeroom							930	1	930				930	1	930	
Network / Telecom Room	328	1	328				200	1	200				200	1	200	
OTHER			**10,066**			**0**			**6,870**			**0**			**0**	
Other *(specify)*																
Dental Clinic																
Reception	210	1	210				500	1	500							
Exam	112	1	112				150	2	300							
Exam	90	1	90													
X-ray	132	1	132				150	1	150							
Clean Room	83	1	83				120	1	120							
Office							100	1	100							
Auditorium (Existing: 1,200 seats)	9,439	1	9,439				5,700	1	5,700							
Total Building Net Floor Area (NFA)			**81,623**			**0**			**155,509**			**0**			**137,808**	
Proposed Student Capacity / Enrollment									1,395						**1,395**	
Total Building Gross Floor Area (GFA)[2]			144,349						233,264						**223,200**	
Grossing factor (GFA/NFA)			**1.77**						1.50			**#DIV/0!**			**1.62**	

[1] **Individual Room Net Floor Area (NFA)** Includes the net square footage measured from the inside face of the perimeter walls and includes all specific spaces assigned to a particular program area including such spaces as non-communal toilets and storage rooms.

[2] **Total Building Gross Floor Area (GFA)** Includes the entire building gross square footage measured from the outside face of exterior walls

Architect Certification

I hereby certify that all of the information provided in this "Proposed Space Summary" is true, complete and accurate and, except as agreed to in writing by the Massachusetts School Building Authority, in accordance with the guidelines, rules, regulations and policies of the Massachusetts School Building Authority to the best of my knowledge and belief. A true statement, made under the penalties of perjury.

Name of Architect Firm: _____

Name of Principal Architect: _____

Signature of Principal Architect: _____

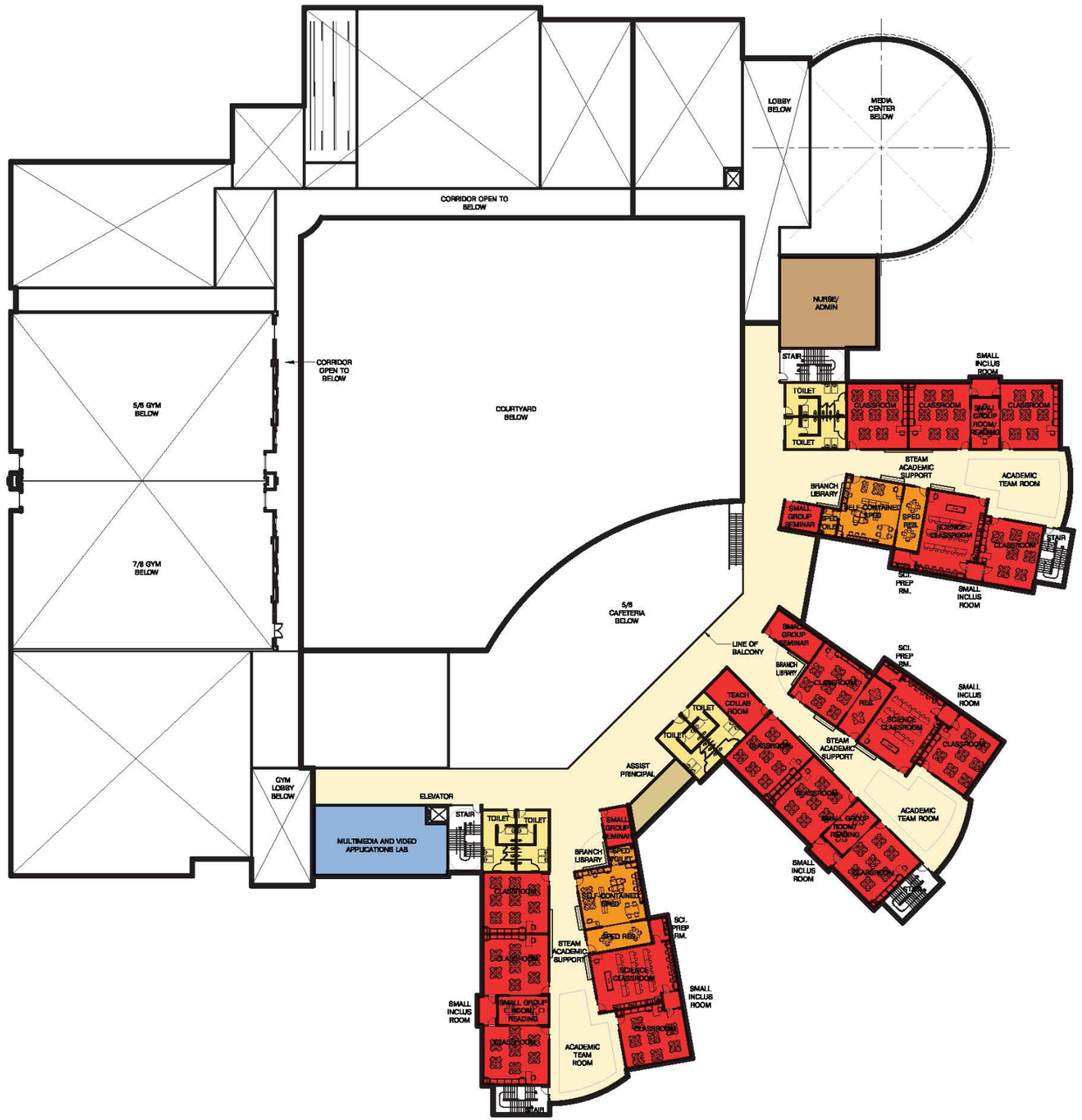
Date: _____

Preferred Solution
Conceptual Site Plan

Preferred Solution

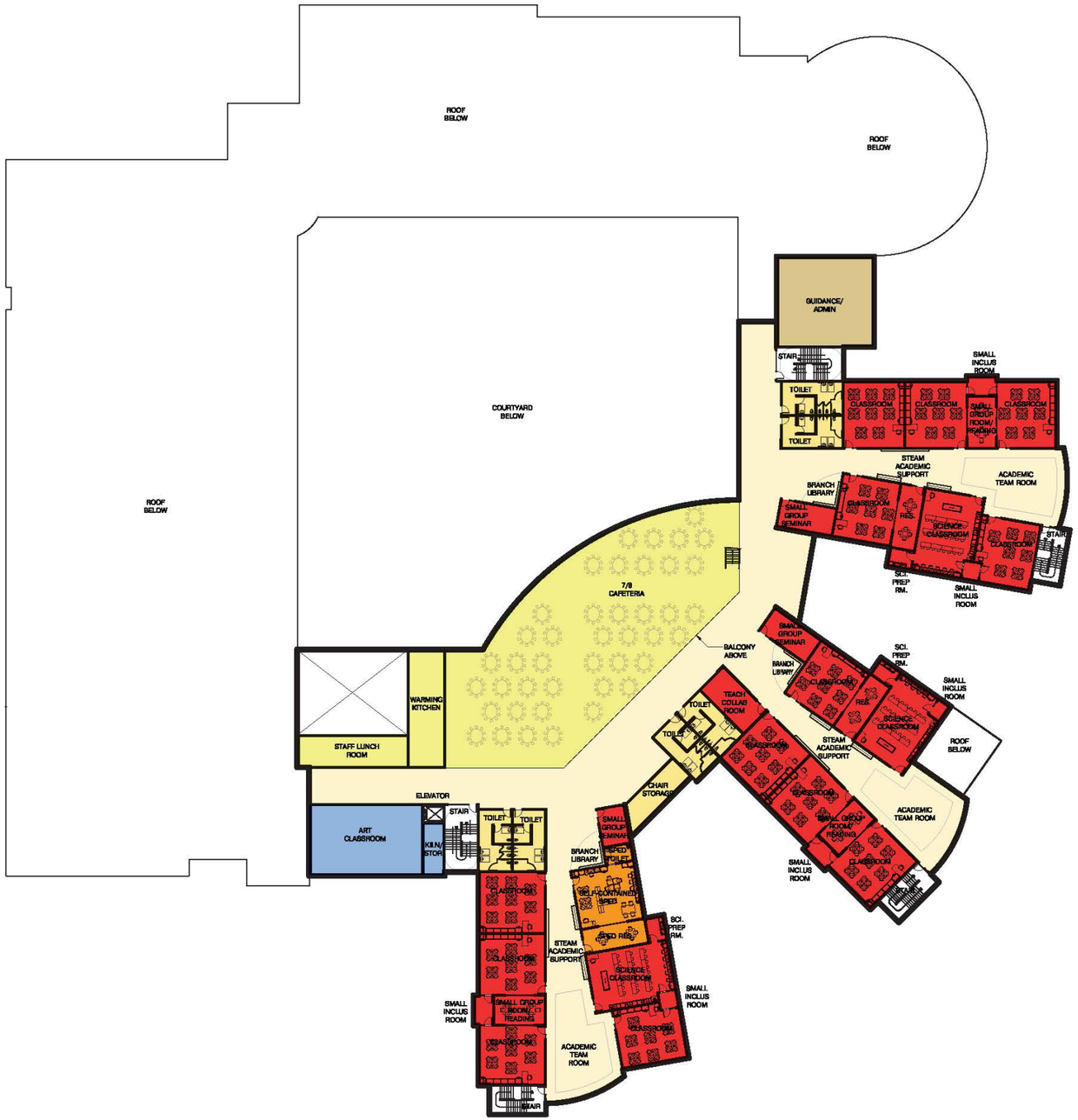
Conceptual Building Plans: Floor 1

Preferred Solution
Conceptual Building Plans: Floor 2



Preferred Solution

Conceptual Building Plans: Floor 3



Preferred Solution
Conceptual Building Plans: Floor 4

Preferred Solution
Sustainability Documents

This is an acknowledgement that the City of Beverly school district has identified a goal of 2% additional reimbursement points from the MSBA High Efficiency Green School Program. As their Designer, we have submitted a completed "LEEDv4 BD+C: Schools" scorecard showing 57 attempted points, LEED Silver Certification, which will meet that goal.

The scope of work for this project will include the construction elements and performance tasks to achieve that goal; and all subsequent documents, including but not limited to specifications, drawings and cost estimates, will match the scope of work indicated in the submitted scorecard.

Please see the attached preliminary scorecard on the following page.

LEED v4 for BD+C: Schools
Project Checklist

Project Name: Beverly Middle School
Date: 12.5.2014

Y	?	N			
	1		Credit	Integrative Process	1

7	7	0	**Location and Transportation**		15
		X	Credit	LEED for Neighborhood Development Location	15
		X	Credit	Sensitive Land Protection	1
	2		Credit	High Priority Site	2
4	1		Credit	Surrounding Density and Diverse Uses	5
2	2		Credit	Access to Quality Transit	4
	1		Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
	1		Credit	Green Vehicles	1

6	4	1	**Sustainable Sites**		12
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	Environmental Site Assessment	Required
1			Credit	Site Assessment	1
1		1	Credit	Site Development - Protect or Restore Habitat	2
1			Credit	Open Space	1
2	1		Credit	Rainwater Management	3
	2		Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1
		X	Credit	Site Master Plan	1
1			Credit	Joint Use of Facilities	1

6	1	0	**Water Efficiency**		12
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
2	1		Credit	Indoor Water Use Reduction	7
1			Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

18	6	0	**Energy and Atmosphere**		31
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
5			Credit	Enhanced Commissioning	6
8	2		Credit	Optimize Energy Performance	16
	1		Credit	Advanced Energy Metering	1
2			Credit	Demand Response	2
2	1		Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
	2		Credit	Green Power and Carbon Offsets	2

3	6	0	**Materials and Resources**		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
	3		Credit	Building Life-Cycle Impact Reduction	5
1			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
	1		Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1	1		Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1	1		Credit	Construction and Demolition Waste Management	2

11	2	0	**Indoor Environmental Quality**		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
Y			Prereq	Minimum Acoustic Performance	Required
1			Credit	Enhanced Indoor Air Quality Strategies	2
1	1		Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
2			Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
2			Credit	Interior Lighting	2
1	1		Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1

2	0	0	**Innovation**		6
1			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

4	0	0	**Regional Priority**		4
1			Credit	Regional Priority: LT Surrounding Density and Diverse Uses	1
1			Credit	Regional Priority: WE Outdoor Water Use Reduction	1
1			Credit	Regional Priority: EA Optimized Energy Performance	1
1			Credit	Regional Priority: EA Renewable Energy Production	1

57	27	1	**TOTALS**	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

Preferred Solution

Total Project Budget

Preferred Solution

Budget Statement

Category	FY12 2011-2012 Staff (FTE)	FY12 2011-2012 Expenditure	FY13 2012-2013 Staff (FTE)	FY13 2012-2013 Expenditure	FY14 2013-2014 Staff	FY14 2013-2014 Expenditure	Change from Previous Year Staff (FTE)	Change from Previous Year Expenditure	Post-Construction Budget Staff	Post-Construction Budget Budget	New Facility vs. Current Staff (FTE)	New Facility vs. Current Budget
Salaries												
Administration												
Admin. Secretary	3.00	96,214	3.00	96,427	3.00	110,964	0.00	14,537	4.00	140,964	1.00	30,000
Assistant Principal	2.00	170,322	2.00	177,314	2.00	191,938	0.00	14,624	2.00	191,938	0.00	-
Business Office	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Curriculum Director/Coord.	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Custodians/Maintenance Staff	4.48	187,325	4.48	187,325	4.48	192,047	0.00	4,722	6.48	277,782	2.00	85,735
Executive Secretary	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Facilities Manager	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Guidance	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Adjustment Counselor	2.00	135,627	2.00	136,984	2.50	176,027	0.50	39,043	3.00	203,527	0.50	27,500
Guidance Counselors	3.00	218,153	3.00	222,881	3.00	206,302	0.00	(16,579)	3.50	233,802	0.50	27,500
Guidance Director	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Legal	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Nurse	2.00	86,730	2.00	101,708	2.00	103,238	0.00	1,530	2.00	103,238	0.00	-
Other	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Principal	1.00	107,134	1.00	109,000	1.00	118,500	0.00	9,500	1.00	118,500	0.00	-
Special Education Admin	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Superintendent/Asst. Superintendent	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Transportation	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Treasurer	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Total Administration	**17.48**	**1,001,505**	**17.48**	**1,031,639**	**17.98**	**1,099,016**	**0.50**	**67,377**	**21.98**	**1,269,751**	**4.00**	**170,735**
Instruction - Teaching Services												
Arts	1.00	69,655	1.00	40,272	1.00	43,193	0.00	2,921	2.00	98,193	1.00	55,000
Business	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Communications	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Coping Instructor	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Culinary Arts	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
ELL	1.00	62,891	1.00	63,520	1.00	68,028	0.00	4,508	1.00	68,028	0.00	-
English Language	9.00	570,554	9.00	584,838	9.00	584,612	0.00	(226)	9.00	584,612	0.00	-
Family Consumer Services	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Foreign Language	6.00	350,179	6.00	362,894	6.00	351,731	0.00	(11,163)	6.50	379,231	0.50	27,500
Health Services	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
History & Social Science	9.00	604,423	9.00	541,578	9.00	561,335	0.00	19,757	9.00	561,335	0.00	-
Instructional Assistant/Paraprofessionals	23.04	430,717	22.00	408,026	23.00	432,806	1.00	24,780	23.00	432,806	0.00	-
Library/Media	1.00	56,388	1.00	61,961	1.00	65,447	0.00	3,486	1.00	65,447	0.00	-
Mathematics	10.00	577,914	10.00	589,908	10.00	621,603	0.00	31,695	10.00	621,603	0.00	-
MCAS	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Music	2.00	127,384	2.00	128,658	2.00	133,410	0.00	4,752	3.00	188,410	1.00	55,000
Other (Elementary) 5th Grade Teachers	14.00	796,528	14.00	897,787	14.00	902,317	0.00	4,530	12.00	792,317	-2.00	(110,000)
Physical Education	4.00	288,711	4.00	278,298	4.00	284,964	0.00	6,666	5.00	339,964	1.00	55,000
Reading	4.40	303,559	4.00	251,816	4.00	282,763	0.00	30,947	5.00	337,763	1.00	55,000
School Adjustment Counselor	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Science (Middle School Level)	9.00	595,521	9.00	608,686	9.00	630,510	0.00	21,824	9.00	630,510	0.00	-
Biology	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Botany	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Chemistry	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Geology	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Physics	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Special Education	14.00	828,471	14.00	935,637	14.00	977,629	0.00	41,992	14.00	977,629	0.00	-
Teaching Additional Classes Stipends	0.00	22,000	0.00	36,000	0.00	36,000	0.00	-	0.00	36,000	0.00	-
Technology	2.00	123,181	2.00	132,882	2.00	137,364	0.00	4,482	3.00	192,364	1.00	55,000
Vocational Tech.	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-	0.00	-
Total Instruction - Teaching Services	**109.44**	**5,808,076**	**108.00**	**5,922,761**	**109.00**	**6,113,712**	**1.00**	**190,951**	**112.50**	**6,306,212**	**3.50**	**192,500**
Total Salaries Administration & Instruction	**126.92**	**6,809,581**	**125.48**	**6,954,400**	**126.98**	**7,212,728**	**1.50**	**258,328**	**134.48**	**7,575,963**	**7.50**	**363,235**

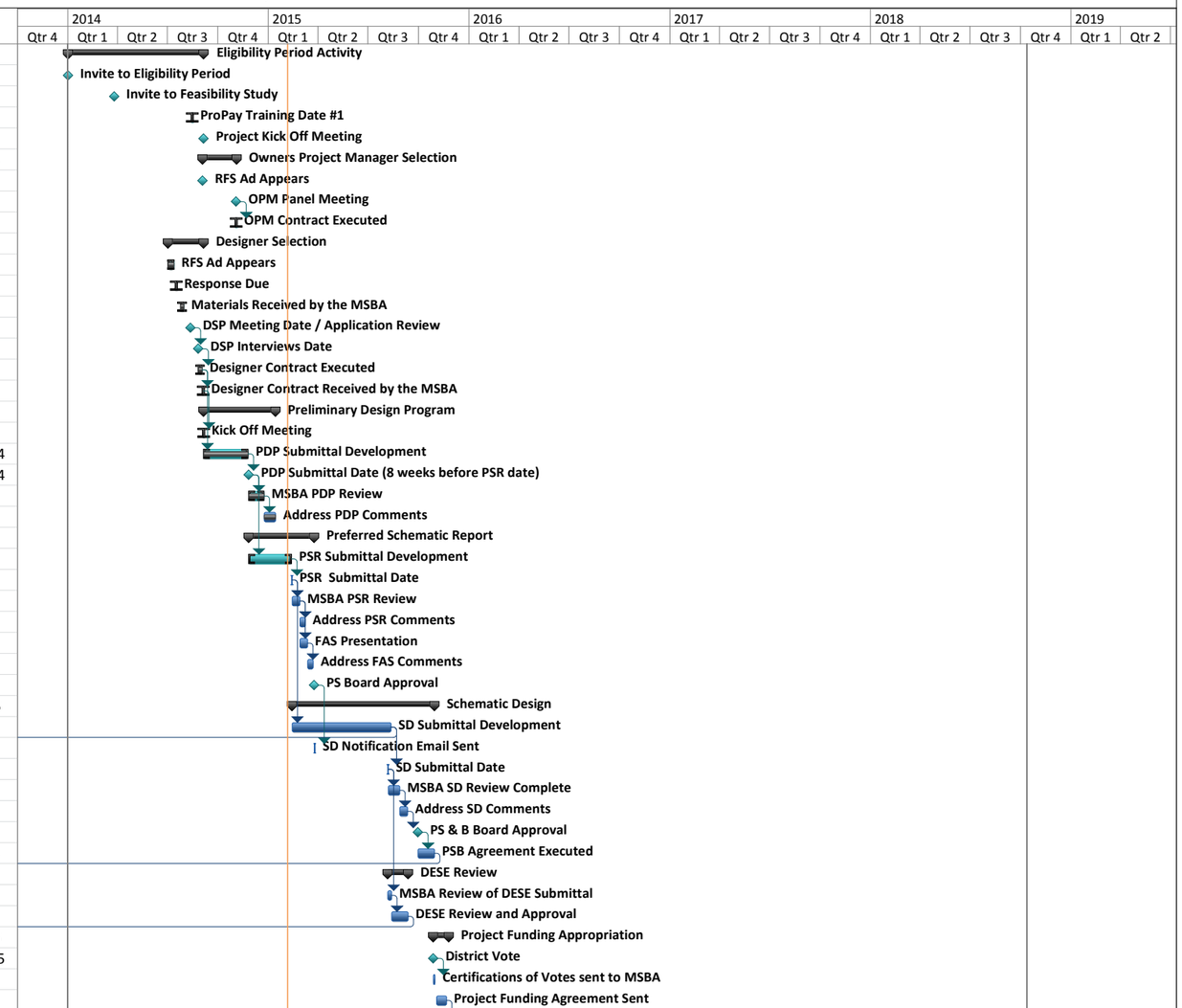
Employee Benefits (Budgeted District-Wide)												
All employee-related fringe (health insurance, retirement etc)			**7,208,526**		**6,601,052**		**6,770,752**		**169,700**		**7,109,290**		**338,538**
Materials & Services												
Materials												
Audio-Visual Materials			-		-		-		-		-		-
Culinary Arts Materials			-		-		-		-		-		-
General Office Supplies/Printing			38,219		29,865		60,877		31,012		81,169		20,292
Information technology (Budgeted District-wide)			-		-		-		-		-		-
Hardware			-		-		-		-		-		-
Software			-		-		-		-		-		-
Library Materials			-		-		-		-		-		-
Non info-tech equipment			-		-		-		-		-		-
Curriculum Materials & Supplies			49,952		31,060		50,675		19,615		67,567		16,892
Professional Development			5,444		7,089		7,065		(24)		9,420		
Textbooks			9,904		5,726		20,907		15,181		27,876		6,969
Vocational Program Materials			-		-		-		-		-		-
Total Materials			**103,519**		**73,740**		**139,524**		**65,784**		**186,032**		**46,508**
Services												
Athletics			2,355		2,355		2,355		-		2,355		-
Attendance			-		-		-		-		-		-
Food Service		**4.52**	98,211	**4.52**	102,652	4.52	102,652		-	6.52	148,073	2.00	45,421
Health Services			-		-		-		-		-		-
Other Student Activities			18,052		20,974		18,881		(2,093)		27,000		8,119
Psychological Services			-		-		-		-		-		-
School Security			-		-		-		-		-		-
Student Transportation			-		-		-		-		-		-
Total Services			**118,618**		**125,981**		**123,888**		**(2,093)**		**177,428**		**53,540**
Total Material & Services			**222,137**		**199,721**		**263,412**		**63,691**		**363,460**		**100,048**
Facility Costs & Capital Improvements												
Facility Costs												
Custodial Supplies			17,639		20,172		20,511		339		27,763.15		7,252
Electricity			58,212		61,009		58,036		(2,973)		78,556.00		20,520
Heating Oil			-		-		-		-		-		-
Maintenance (Budgeted District-wide)												
Building Security Maintenance			-		-		-		-		-		-
Elevator			-		-		-		-		-		-
Equipment Maintenance			-		-		-		-		-		-
Exterminating			-		-		-		-		-		-
Facility Maintenance			-		-		-		-		-		-
Fire Alarm			-		-		-		-		-		-
Fire Extinguisher Inspection			-		-		-		-		-		-
Generator			-		-		-		-		-		-
HVAC Maintenance			-		-		-		-		-		-
Other			-		-		-		-		-		-
Site Maintenance (Grounds)			-		-		-		-		-		-
Technology			-		-		-		-		-		-
Trash Removal			-		-		-		-		-		-
Natural Gas			77,706		106,445		125,125		18,680		169,366		44,241
Snow Removal			-		-		-		-		-		-
Telephone			2,295		2,748		2,806		58		-		(2,806)
Water/Sewer			-		-		-		-		-		-
Total Facility Costs			**155,852**		**190,374**		**206,478**		**16,104**		**275,685**		**69,207**
Capital Improvements												
Capital Improvements			-		-		-		-		-		-
Total Facility Costs & Capital Improvements			**155,852**		**190,374**		**206,478**		**16,104**		**275,685**		**69,207**
Debt Service												
Short-term			-		-		-		-		-		-
Long-term			-		-		-		-		-		-
Total Debt Service			-		-		-		-		-		-
Total Budget & Staff		**126.92**	**14,396,096**	**125.48**	**13,945,547**	**126.98**	**14,453,370**	**1.50**	**507,823**	**134**	**15,324,398**	**7.50**	**871,028**

Preferred Solution
Project Schedule

CITY OF BEVERLY, MA
MODULE 3 FEASIBILITY STUDY

HEERY INTERNATIONAL, INC.

ID	Task Name	% Complete	Duration	Start	Finish
1	**Eligibility Period Activity**	**100%**	**247 days**	**Wed 1/1/14**	**Fri 9/5/14**
2	Invite to Eligibility Period	100%	0 days	Wed 1/1/14	Wed 1/1/14
3	Invite to Feasibility Study	100%	0 days	Wed 3/26/14	Wed 3/26/14
4	ProPay Training Date #1	100%	1 day	Fri 8/15/14	Fri 8/15/14
5	Project Kick Off Meeting	100%	0 days	Fri 9/5/14	Fri 9/5/14
6	**Owners Project Manager Selection**	**100%**	**62 days**	**Wed 9/3/14**	**Mon 11/3/14**
7	RFS Ad Appears	100%	0 days	Wed 9/3/14	Wed 9/3/14
8	OPM Panel Meeting	100%	0 days	Mon 11/3/14	Mon 11/3/14
9	OPM Contract Executed	100%	1 day	Mon 11/3/14	Mon 11/3/14
10	**Designer Selection**	**100%**	**65 days**	**Wed 7/2/14**	**Thu 9/4/14**
11	RFS Ad Appears	100%	11 days	Wed 7/2/14	Sat 7/12/14
12	Response Due	100%	1 day	Thu 7/17/14	Thu 7/17/14
13	Materials Received by the MSBA	100%	6 days	Fri 7/25/14	Wed 7/30/14
14	DSP Meeting Date / Application Review	100%	0 days	Tue 8/12/14	Tue 8/12/14
15	DSP Interviews Date	100%	0 days	Tue 8/26/14	Tue 8/26/14
16	Designer Contract Executed	100%	7 days	Tue 8/26/14	Mon 9/1/14
17	Designer Contract Received by the MSBA	100%	1 day	Thu 9/4/14	Thu 9/4/14
18	**Preliminary Design Program**	**100%**	**131 days**	**Fri 9/5/14**	**Tue 1/13/15**
19	Kick Off Meeting	100%	1 day	Fri 9/5/14	Fri 9/5/14
20	PDP Submittal Development	100%	81 days	Fri 9/5/14	Mon 11/24/14
21	PDP Submittal Date (8 weeks before PSR date)	100%	0 days	Wed 11/26/14	Wed 11/26/14
22	MSBA PDP Review	100%	28 days	Wed 11/26/14	Tue 12/23/14
23	Address PDP Comments	100%	21 days	Wed 12/24/14	Tue 1/13/15
24	**Preferred Schematic Report**	**0%**	**119 days**	**Wed 11/26/14**	**Wed 3/25/15**
25	PSR Submittal Development	0%	78 days	Wed 11/26/14	Wed 2/11/15
26	PSR Submittal Date	0%	1 day	Thu 2/12/15	Thu 2/12/15
27	MSBA PSR Review	0%	14 days	Fri 2/13/15	Thu 2/26/15
28	Address PSR Comments	0%	10 days	Fri 2/27/15	Sun 3/8/15
29	FAS Presentation	0%	14 days	Fri 2/27/15	Thu 3/12/15
30	Address FAS Comments	0%	10 days	Fri 3/13/15	Sun 3/22/15
31	PS Board Approval	0%	0 days	Wed 3/25/15	Wed 3/25/15
32	**Schematic Design**	**0%**	**259 days**	**Fri 2/13/15**	**Thu 10/29/15**
33	SD Submittal Development	0%	180 days	Fri 2/13/15	Tue 8/11/15
34	SD Notification Email Sent	0%	2 days	Wed 3/25/15	Thu 3/26/15
35	SD Submittal Date	0%	1 day	Thu 8/6/15	Thu 8/6/15
36	MSBA SD Review Complete	0%	21 days	Fri 8/7/15	Thu 8/27/15
37	Address SD Comments	0%	14 days	Fri 8/28/15	Thu 9/10/15
38	PS & B Board Approval	0%	0 days	Wed 9/30/15	Wed 9/30/15
39	PSB Agreement Executed	0%	30 days	Wed 9/30/15	Thu 10/29/15
40	**DESE Review**	**0%**	**37 days**	**Thu 8/6/15**	**Fri 9/11/15**
41	MSBA Review of DESE Submittal	0%	7 days	Thu 8/6/15	Wed 8/12/15
42	DESE Review and Approval	0%	30 days	Thu 8/13/15	Fri 9/11/15
43	**Project Funding Appropriation**	**0%**	**28 days**	**Wed 10/28/15**	**Tue 11/24/15**
44	District Vote	0%	0 days	Wed 10/28/15	Wed 10/28/15
45	Certifications of Votes sent to MSBA	0%	3 days	Wed 10/28/15	Fri 10/30/15
46	Project Funding Agreement Sent	0%	18 days	Tue 11/3/15	Fri 11/20/15



Project: City of Beverly, MA Modu
Date: Thu 2/5/15

Task		Summary		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only	
Split		Project Summary		Inactive Task		Manual Task		Manual Summary		Deadline	
Milestone		External Tasks		Inactive Milestone		Duration-only		Start-only		Progress	

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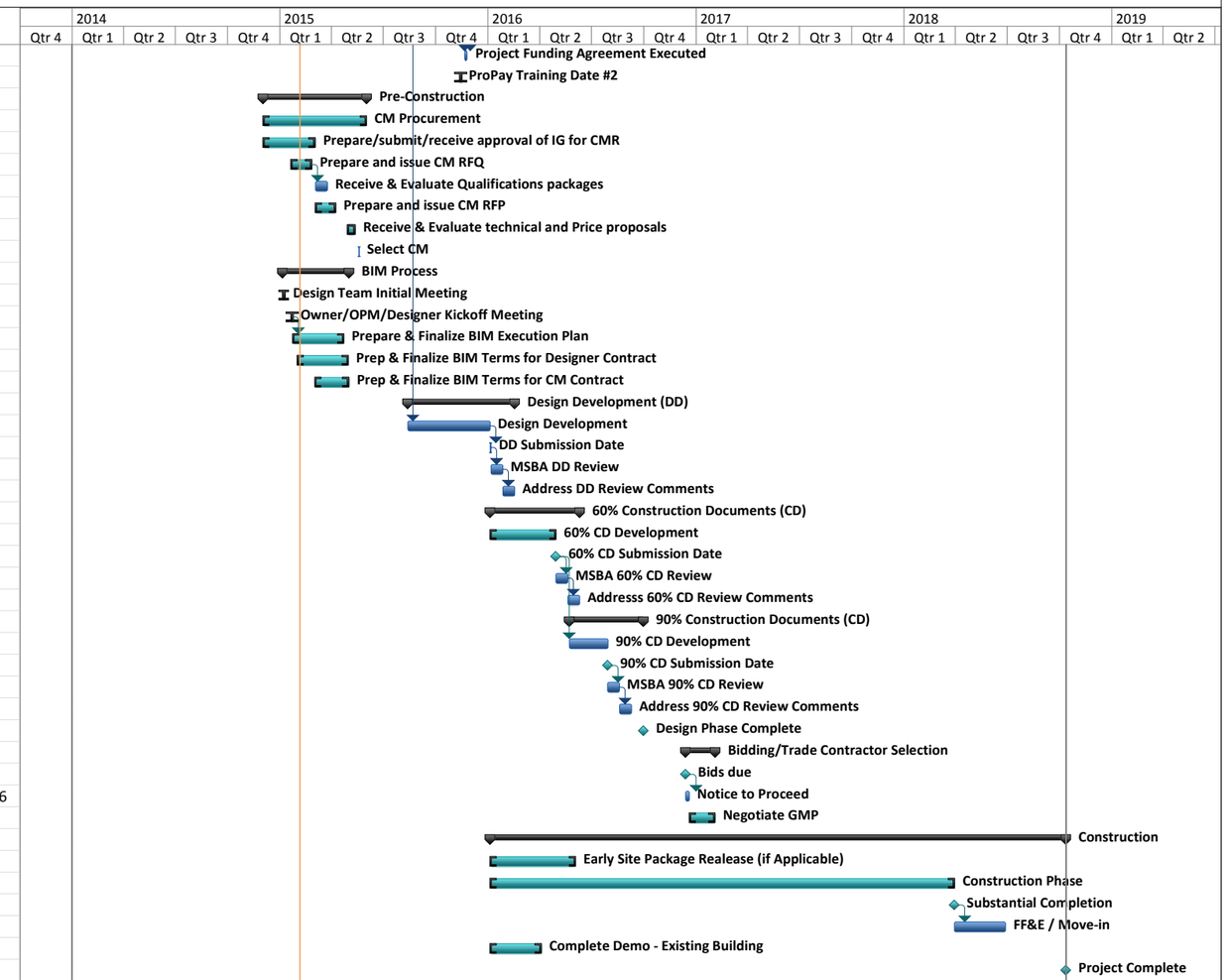
CITY OF BEVERLY, MA
MODULE 3 FEASIBILITY STUDY

HEERY INTERNATIONAL, INC.

ID	Task Name	% Complete	Duration	Start	Finish
47	Project Funding Agreement Executed	0%	4 days	Sat 11/21/15	Tue 11/24/15
48	ProPay Training Date #2	0%	1 day	Sat 11/14/15	Sat 11/14/15
49	**Pre-Construction**	**0%**	**182 days**	**Tue 12/2/14**	**Mon 6/1/15**
50	CM Procurement	0%	182 days	Tue 12/2/14	Mon 6/1/15
51	Prepare/submit/receive approval of IG for CMR	0%	92 days	Tue 12/2/14	Tue 3/3/15
52	Prepare and issue CM RFQ	0%	37 days	Tue 1/20/15	Wed 2/25/15
53	Receive & Evaluate Qualifications packages	0%	21 days	Wed 3/4/15	Tue 3/24/15
54	Prepare and issue CM RFP	0%	36 days	Wed 3/4/15	Wed 4/8/15
55	Receive & Evaluate technical and Price proposals	0%	14 days	Wed 4/29/15	Tue 5/12/15
56	Select CM	0%	1 day	Tue 5/19/15	Tue 5/19/15
57	**BIM Process**	**0%**	**117 days**	**Mon 1/5/15**	**Fri 5/1/15**
58	Design Team Initial Meeting	0%	5 days	Mon 1/5/15	Fri 1/9/15
59	Owner/OPM/Designer Kickoff Meeting	0%	1 day	Thu 1/22/15	Thu 1/22/15
60	Prepare & Finalize BIM Execution Plan	0%	90 days	Fri 1/23/15	Wed 4/22/15
61	Prep & Finalize BIM Terms for Designer Contract	0%	90 days	Sat 1/31/15	Thu 4/30/15
62	Prep & Finalize BIM Terms for CM Contract	0%	60 days	Tue 3/3/15	Fri 5/1/15
63	**Design Development (DD)**	**0%**	**188 days**	**Thu 8/13/15**	**Tue 2/16/16**
64	Design Development	0%	145 days	Thu 8/13/15	Mon 1/4/16
65	DD Submission Date	0%	1 day	Tue 1/5/16	Tue 1/5/16
66	MSBA DD Review	0%	21 days	Wed 1/6/16	Tue 1/26/16
67	Address DD Review Comments	0%	21 days	Wed 1/27/16	Tue 2/16/16
68	**60% Construction Documents (CD)**	**0%**	**157 days**	**Tue 1/5/16**	**Thu 6/9/16**
69	60% CD Development	0%	116 days	Tue 1/5/16	Fri 4/29/16
70	60% CD Submission Date	0%	0 days	Fri 4/29/16	Fri 4/29/16
71	MSBA 60% CD Review	0%	21 days	Fri 4/29/16	Thu 5/19/16
72	Addresss 60% CD Review Comments	0%	21 days	Fri 5/20/16	Thu 6/9/16
73	**90% Construction Documents (CD)**	**0%**	**130 days**	**Mon 5/23/16**	**Fri 9/30/16**
74	90% CD Development	0%	68 days	Mon 5/23/16	Fri 7/29/16
75	90% CD Submission Date	0%	0 days	Fri 7/29/16	Fri 7/29/16
76	MSBA 90% CD Review	0%	21 days	Fri 7/29/16	Thu 8/18/16
77	Address 90% CD Review Comments	0%	21 days	Fri 8/19/16	Thu 9/8/16
78	Design Phase Complete	0%	0 days	Fri 9/30/16	Fri 9/30/16
79	**Bidding/Trade Contractor Selection**	**0%**	**52 days**	**Tue 12/13/16**	**Thu 2/2/17**
80	Bids due	0%	0 days	Tue 12/13/16	Tue 12/13/16
81	Notice to Proceed	0%	7 days	Tue 12/13/16	Mon 12/19/16
82	Negotiate GMP	0%	45 days	Tue 12/20/16	Thu 2/2/17
83	**Construction**	**0%**	**1011 days**	**Tue 1/5/16**	**Fri 10/12/18**
84	Early Site Package Realease (if Applicable)	0%	150 days	Tue 1/5/16	Thu 6/2/16
85	Construction Phase	0%	816 days	Tue 1/5/16	Fri 3/30/18
86	Substantial Completion	0%	0 days	Fri 3/30/18	Fri 3/30/18
87	FF&E / Move-in	0%	90 days	Fri 3/30/18	Wed 6/27/18
88	Complete Demo - Existing Building	0%	90 days	Tue 1/5/16	Sun 4/3/16
89	Project Complete	0%	0 days	Fri 10/12/18	Fri 10/12/18



Project: City of Beverly, MA Modu
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Task		Summary		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only	
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Milestone		External Tasks		Inactive Milestone		Duration-only		Start-only		Progress	

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Local Actions and Approvals

Local Actions and Approvals Process

Here is an overview of the process by which Beverly may authorize the issuance of debt by passing a loan order. The process involves several steps required by Massachusetts General Law, the City's Home Rule Charter, City Ordinances and the Rules and Orders of the City Council. Below is an outline of the process and a description of the items that are required.

1. Mayoral Request. The process begins when the Mayor asks the City Council to appropriate funds to be raised by borrowing.

2. First Reading and Referral to Committee. Loan orders require two readings in the City Council, at a regular or duly called special meeting, the City Council will (i) give the loan order its first reading, (ii) refer the loan order to the Committee on Finance and Properly and (iii) order a public hearing regarding the loan order. The hearing is typically set to coincide with a subsequent City Council meeting at which the second reading and vote will be taken as described below.

3. Notice. Notice of the public hearing shall be published in full in a local newspaper, 7 to 14 days in advance of the hearing date. Note, however, that there exists a separate requirement that each loan order must be published in full at least 10 days prior to final passage. Therefore, in the typical case where the hearing coincides with a City Council meeting, the notice should be published l0 to l4 days prior to the hearing/meeting date.

4. Public Hearing. Second Reading and Vote. At the public hearing, the public will be given the opportunity to comment. In addition, at a regular or duly called special meeting (which may coincide with the public hearing), the City Council will (i) give the loan order its second reading, (ii) receive the report and recommendation of the Committee on Finance and Property and (iii) vote on the loan order. The affirmative vote of at least two-thirds of all members the City Council (i.e., at least six affirmative votes of the nine member board) are needed to pass a loan order.

5. Reconsideration and Referendum. Approval by the City Council starts two waiting periods:

    a. The City Clerk must hold the loan order for 24 hours (not including Sundays and holidays). If, in that period, any City Council member files a notice of intent to file a motion to reconsider the loan order, then the loan order shall be returned to the City Council for further action. If no such notice is filed, then the City Clerk shall present the loan order to the Mayor for approval.

    b. There is a20-day referendum period during which a petition, signed by at least twelve

percent of the total number of voters and protesting against the loan order, will temporarily suspend the effective date of the loan order and send the loan order back to the City Council for further action, In such case, if the City Council does not act, the loan order will be presented to the voters in a City-wide vote.

6. Mayoral Approval. The Mayor must approve the loan order.

Local Actions and Approvals

Local Actions and Approvals

Local Actions and Approvals Certification

Local Actions and Approvals

School Building Committee Meeting Minutes

Local Actions and Approvals

School Committee and Board of Selectmen Meeting Minutes