

3.0 COST ESTIMATES:

The cost includes removal and disposal of all accessible ACM and an allowance for removal of inaccessible or hidden ACM that may be found during the renovation and demolition project.

Location	Material	Cost Estimate (\$)
Throughout	Hard Joint Insulation	50,000.00
	Vinyl Floor Tile and Mastic	250,000.00
	Fireproofing ¹	2,200,000.00
	Blackboard and Glue	25,000.00
	Ceiling Demolition ²	185,000.00
	Wall Demolition ³	125,000.00
Auditorium/Theater	Soft Ceiling Plaster	180,000.00
Various Locations	Wood Fire Doors	5,000.00
	Interior Windows ⁴	2,500.00
	Transite Panels	5,000.00
	Transite Window Sill	10,000.00
	Pipe Insulation	5,000.00
Boiler Room	Thermal Insulation	50,000.00
	Boiler Demolition ⁵	25,000.00
Stage	Stage Curtain	5,000.00
Exterior	Windows and Doors ⁴	45,000.00
	Transite Panels	25,000.00
Throughout the School	Misc. and Hidden Asbestos	50,000.00
	Oil Tank	15,000.00
Engineering fees for Design, Construction Monitoring and Air Sampling		342,500.00
Total		3,600,000.00

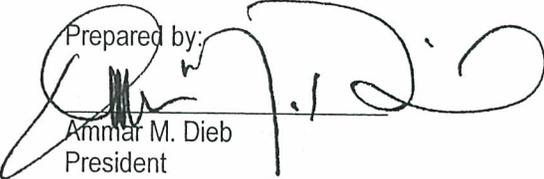
- 1: ACM fireproofing was found on columns, beams, wires, ceilings, ducts and roof deck
ACM fireproofing was also found in pipe chases as debris.
- 2: To access to ACM fireproofing
- 3: To access to ACM fireproofing
- 4: Caulking was found to contain asbestos
- 5: ACM may be found inside the boilers

4.0 DESCRIPTION OF SURVEY METHODS AND LABORATORY ANALYSES:

Asbestos samples were collected using a method that prevents fiber release. Homogeneous sample areas were determined by criteria outlined in EPA document 560/5-85-030a.

Bulk material samples were analyzed using PLM and dispersion staining techniques with EPA method 600/M4-82-020.

Prepared by:


Ammar M. Dieb
President



AmeriSci Boston

8 SCHOOL STREET
 WEYMOUTH, MA 02189
 TEL: (781) 337-9334 • FAX: (781) 337-7642

PLM Bulk Asbestos Report

Universal Environmental Consultant
 Attn: Ammar Dieb
 1151 Worcester Road
 Framingham, MA 01701

Date Received 08/31/04
Date Examined 09/01/04
 RE Belmont; H.S.

AmeriSci Job No. 504081662
P.O. # Belmont
Page 1 of 8

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
1A A	504081662-01 Location: Stairwell By C'Rm #130	Yes	8 %
Description: Black, Homogeneous, VT-I (Dark Brown) Asbestos Types: Chrysotile 8. % Other Material: Non-fibrous 92. %			
2 B	504081662-02 Location: Stairwell By C'Rm #130	Yes	15 %
Description: Black, Homogeneous, Glue (Black) #1 Asbestos Types: Chrysotile 15. % Other Material: Non-fibrous 85. %			
3 A	504081662-03 Location: C'Rm #112-A		NA/PS
Description: VT-II (Light Brown) Asbestos Types: Other Material:			
4 B	504081662-04 Location: C'Rm #112-A		NA/PS
Description: Glue (Black) #3 Asbestos Types: Other Material:			
5	504081662-05 Location: Faculty Lounge	Yes	25 %
Description: Brown, Homogeneous, Linoleum Asbestos Types: Chrysotile 25. % Other Material: Cellulose 5. %, Non-fibrous 70. %			

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Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
6 C	504081662-06 Location: Kitchen(Cafe Side)	Yes	30 %
Description: White, Homogeneous, Wood Fire Door (No Window) Asbestos Types: Amosite 15. %, Chrysotile 15. % Other Material: Cellulose Trace, Non-fibrous 70. %			
7 C	504081662-07 Location: C'Rm #247		NA/PS
Description: Wood FD (W/ Window) Asbestos Types: Other Material:			
8 C	504081662-08 Location: C'Rm #142		NA/PS
Description: Wood FD (W/ Window) Asbestos Types: Other Material:			
9 D	504081662-09 Location: Main Corr By Cust. Office	No	NAD
Description: Grey, Homogeneous, EI Off Small 0 Asbestos Types: Other Material: Cellulose Trace, Fibrous glass 15. %, Non-fibrous 85. %			
10 D	504081662-10 Location: Boiler Rm Left	Yes	10 %
Description: Grey, Homogeneous, EI Off Lg 0 Asbestos Types: Chrysotile 10. % Other Material: Cellulose Trace, Fibrous glass 15. %, Non-fibrous 75. %			



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P.O. # Belmont

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Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
11 Location: Boiler Rm.	504081662-11	No	NAD
Description: Off-White, Homogeneous, Clg Pla Asbestos Types: Other Material: Non-fibrous 100. %			
12 E Location: Little Theatre	504081662-12	Yes	5 %
Description: Off-White, Homogeneous, Soft Clg Pla Asbestos Types: Chrysotile 5. % Other Material: Cellulose Trace, Non-fibrous 95. %			
13 E Location: Little Theatre	504081662-13		NA/PS
Description: Soft Clg Pla Asbestos Types: Other Material:			
14 F Location: Auditorium From Catwalk	504081662-14	Yes	4 %
Description: White, Homogeneous, Cementitious, Soft Clg Pla Asbestos Types: Chrysotile 4. % Other Material: Cellulose 5. %, Non-fibrous 91. %			
15 F Location: Auditorium From Catwalk	504081662-15		NA/PS
Description: Soft Clg Pla Asbestos Types: Other Material:			


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RE Belmont; H.S.

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
16 G	504081662-16 Location: Under Hdwd Floor, Wood Shop	No	NAD
Description: Brown, Homogeneous, Pressed Wood Material Asbestos Types: Other Material: Cellulose 90. %, Non-fibrous 10. %			
17 G	504081662-17 Location: Under Hdwd Floor, Wood Shop	No	NAD
Description: Brown, Homogeneous, Pressed Wood Material Asbestos Types: Other Material: Cellulose 90. %, Non-fibrous 10. %			
18	504081662-18 Location: Rm. 143-h, Music Area	No	NAD
Description: Brown/Off-White, Homogeneous, 1x1 At AS Wall Asbestos Types: Other Material: Cellulose 45. %, Fibrous glass 35. %, Non-fibrous 20. %			
19	504081662-19 Location: Rm. 143-h, Music Area	Yes	< 1. %
Description: Brown, Homogeneous, Glue Daub #18 Asbestos Types: Anthophyllite Trace Other Material: Fibrous Talc 2. %, Non-fibrous 98. %			
20 H	504081662-20 Location: Library	No	NAD
Description: Brown/Off-White, Homogeneous, Typical 1x1 At On Tracks Asbestos Types: Other Material: Cellulose 45. %, Fibrous glass 30. %, Non-fibrous 25. %			

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1151 Worcester Road
Framingham, MA 01701**Date Received** 08/31/04**Date Examined** 09/01/04**RE** Belmont; H.S.**AmeriSci Job No.** 504081662**P.O. #** Belmont**Page** 5 **of** 8

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
21 H	504081662-21 Location: C'Rm #217	No	NAD
Description: Brown/Off-White, Homogeneous, Typical 1x1 At On Tracks Asbestos Types: Other Material: Cellulose 45. %, Fibrous glass 35. %, Non-fibrous 20. %			
22 I	504081662-22 Location: 2nd Fl Win	Yes	15 %
Description: Black, Homogeneous, Window Glazing (Blk), Soft Asbestos Types: Chrysotile 15. % Other Material: Non-fibrous 85. %			
23 I	504081662-23 Location: Exterior Win Courtyard		NA/PS
Description: Window Glazing (Blk), Soft Asbestos Types: Other Material:			
24 I	504081662-24 Location: Exteerior Win		NA/PS
Description: Window Glazing (Blk), Soft Asbestos Types: Other Material:			
25	504081662-25 Location: Main Corridor Along Cust. Office	No	NAD
Description: Brown/Off-White, Homogeneous, Newer 2x2 SAT Asbestos Types: Other Material: Cellulose 45. %, Fibrous glass 30. %, Non-fibrous 25. %			



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AmeriSci Job No. 504081662

P.O. # Belmont

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Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
26	504081662-26 Location: Main Corridor 2nd Fl By 228	No	NAD
<p>Description: Brown/Off-White, Homogeneous, Newer 2x2 SAT Asbestos Types: Other Material: Cellulose 35. %, Fibrous glass 35. %, Non-fibrous 30. %</p>			
27	504081662-27 Location: Wood Shop	No	NAD
<p>Description: Brown/Off-White, Homogeneous, 2x4 SAT - II Asbestos Types: Other Material: Cellulose 35. %, Fibrous glass 35. %, Non-fibrous 30. %</p>			
28	504081662-28 Location: Rm. 111, English Wing	No	NAD
<p>Description: Brown/Off-White, Homogeneous, 2x4 SAT - II Asbestos Types: Other Material: Cellulose 45. %, Fibrous glass 35. %, Non-fibrous 20. %</p>			
29	504081662-29 Location: C'Rm #140	No	NAD
<p>Description: Brown/Off-White, Homogeneous, 2x4 SAT - I (Spiral) Asbestos Types: Other Material: Cellulose 45. %, Fibrous glass 35. %, Non-fibrous 20. %</p>			
30	504081662-30 Location: Library Win	Yes	15 %
<p>Description: Grey, Homogeneous, Interior Window Putty Asbestos Types: Chrysotile 15. % Other Material: Non-fibrous 85. %</p>			



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Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
31	504081662-31 Location: Win In Door Assembly @ Main Corridor By #228	Yes	5 %
Description: Grey, Homogeneous, Interior Window Putty Asbestos Types: Chrysotile 5. % Other Material: Non-fibrous 95. %			
32	504081662-32 Location: Stairwell By Rm. #112	No	NAD
Description: Brown, Homogeneous, Cementitious, Hard, Rough Clg Pla Asbestos Types: Other Material: Non-fibrous 100. %			
33	504081662-33 Location: 143J, Music Area	No	NAD
Description: Brown/White, Heterogeneous, Cementitious, Wall Pla Asbestos Types: Other Material: Non-fibrous 100. %			
34	504081662-34 Location: C'Rm 247	No	NAD
Description: Brown/White, Heterogeneous, Cementitious, Wall Pla Asbestos Types: Other Material: Non-fibrous 100. %			
35	504081662-35 Location: Main Corridor Above Locker By #228	No	NAD
Description: Brown/White, Heterogeneous, Cementitious, Wall Pla Asbestos Types: Other Material: Non-fibrous 100. %			



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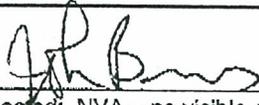
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Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
36	504081662-36 Location: C'Rm #140	Yes	15 %
Description: Grey, Homogeneous, Spray-On Above Clg On Beam Asbestos Types: Chrysotile 15. % Other Material: Cellulose Trace, Fibrous glass 15. %, Non-fibrous 70. %			
37	504081662-37 Location: Pipe Chase Floor From Main Corridor Wall Hatch By #108	Yes	15 %
Description: Off-White, Homogeneous, Spray On Debris Asbestos Types: Chrysotile 15. % Other Material: Cellulose Trace, Fibrous glass 15. %, Non-fibrous 70. %			
38	504081662-38 Location: Cafeteria	Yes	20 %
Description: Black, Homogeneous, Transite Windowsill Asbestos Types: Chrysotile 20. % Other Material: Non-fibrous 80. %			

Reporting Notes:

Analyzed by: John A. Burns ; Date Analyzed: 9/1/04
 *NAD/NSD = no asbestos detected; NVA = no visible asbestos; NA = not analyzed; NA/PS = not analyzed / positive stop; PLM Bulk Asbestos Analysis by EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab #102079-0);
 Note: PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. TEM is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing in New York State (also see EPA Advisory for floor tile, FR 59, 146, 38970, 8/1/94). National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. This PLM report relates ONLY to the items tested.
 Reviewed By: _____

Tab 6

SECTION 6

Master Plan and Feasibility Study for Renovations to Belmont High School

EXISTING CONDITIONS REVIEW AND RECOMMENDATIONS – SITE ENGINEERING AND DESIGN

I. Introduction

To provide design and cost estimating services for the site development and renovation portion of the Master Plan Study, Design Partnership selected **Larson Associates, Inc. Landscape Architects/Site Planners**, 22 Mill Street, Arlington, MA. Larson Associates' findings and conclusions follow. Cost information is included in the Conceptual Project Cost Estimate material to be found in **Section 10** and **Appendix D** of this Report.



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Belmont High School Feasibility Study Belmont, Massachusetts

Submitted to:

Design Partnership of Cambridge
500 Rutherford Avenue
Charlestown, Massachusetts

Submitted by:

Larson Associates, Inc.
Landscape Architects/Site Planners
22 Mill Street, Suite 001
Arlington, Massachusetts 02476

September, 2004





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Section 2

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Recommendations

Section 4

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MEPA Review
Zoning Review





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SECTION 1

Introduction





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Introduction

Larson Associates is working with the Design Partnership of Cambridge to perform a site and landscape feasibility analysis of the existing Belmont High School Campus and propose a conceptual Master Plan for additions and renovations to the facility located off Concord Avenue in Belmont, Massachusetts.

Overview

The Belmont High School Campus is located on approximately 33 acres of land off Concord Avenue in Belmont, Massachusetts. The two story structure was constructed in 1970 and situated between Clay Pit Pond and the Fitchburg MBTA Commuter Rail. The school houses approximately 1,200 students and 120 staff and teachers. Facilities include a field house, pool and locker rooms wing, a two story classroom block and library space and the auditorium and cafeteria wing. The site is serviced from Concord Avenue and a loop road provides access to all facilities and services. There are a softball field, 10 tennis courts and the main parking area on the east side of the facility. A fire lane loops the rear of the building and provides access to service and maintenance areas and temporary housing for the School Administration Department. The loop road passes the main entrances to the school and serves as the main drop-off and pick-up area for parents and busses. A large athletic complex is located to the west of the school. The varsity baseball field, junior varsity baseball field, soccer and multi-purpose fields, a new synthetic turf and all weather track venue, the Town skating rink and the White Field House are located here.





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SECTION 2

Existing Conditions

- Universal Accessibility
- Landscaping
- Outdoor Athletic Venues
- Traffic, Parking and Vehicular Circulation
- Site Lighting
- School Maintenance
- Utilities
- Site Constraints





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BELMONT HIGH SCHOOL

Existing Site Conditions

The Belmont High School is located south the Town Center off Concord Avenue adjacent to the Town Athletic Fields. The school campus is located across and to the north of Clay Pit Pond. The setting adjacent to the Pond provides a spectacular campus ambiance to the school and surroundings. The school building is a large two story classroom structure centered on an interior courtyard with an auditorium and cafeteria wing located to the east, and the gymnasium and pool wing to the west. The main building façade is oriented to the south overlooking the pond with the visitor and administrative entrance in the middle of the building.



High School Entrance at Concord Avenue



View Across Clay Pit Pond

Universal Accessibility:

Universal access to the school is problematic. The school's main entrance has an uneven brick surface and the parallel parking along the loop drive does not meet State or Federal Accessibility Standards. The primary entrance for students (near the auditorium at the large parking lot) is not accessible (ramp exceeds 8% and there are no hand rails). There are eight (8) handicap parking spaces at the school.





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Stairs with no ramp at Pool/Gymnasium Area



Handicap Spaces at Main Entrance

The walkway system throughout the site is old and the condition of the material is poor resulting in uneven surfaces and dangerous transitions. Handicap ramps are in poor condition or non-existent. There are several doorways that have a step and are not code compliant. The handicap parking spaces are also not to code. Striping, signage and the accessible routes from all the handicap parking areas requires review and appropriate remedial work.

Landscaping:

The landscape of the High School is highlighted by the main driveway loop around the pond. Clay Pit Pond is a large open water body edged by wetland plants and lawn. The deciduous plant material is large and attractive and provides a complementary visual setting for the school. The land around the pond is used by the community at large for passive recreation. The plant material on the south face of the building is mature and, in some cases, failing. Compacted soils have taken their toll on the health and vigor of most of the trees. The north side of the building is directly adjacent to the railroad tracks set above the school. A long steep grass embankment with deciduous vegetation at the edge of the property buffers the tracks. The main parking lot is a large open, uncontrolled paved area with no traffic islands, planting or pedestrian safety and control areas. The interior courtyard is a nicely landscaped area with mature plantings and old concrete benches and walks. The space is restricted and the plantings overgrown. Benches and tables are in need of repair and/or replacement. The limited landscape and lawn areas around the building are well used and the soils over compacted. All the lawn areas are in need of soil enhancement, irrigation, seeding, maintenance and repair.





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Outdoor Athletic Venues:

The athletic fields are mostly located adjacent to the school to the west of the gymnasium. The town hockey rink is located to the extreme west of the property and has a small parking lot and drop-off area. The football field is a new synthetic turf facility with bleachers, press box and all-weather track. The varsity baseball field has seen recent improvements and is in very good condition. The junior varsity baseball field and soccer and multi-purpose fields complete the athletic complex. These fields are in good shape considering the levels of intensive use. These facilities are shared with other town groups and organizations.

To the east of the school are ten tennis courts and one softball field. The tennis courts are old and in need of repair and/or replacement. The five most western courts require at a minimum new seal coating and line striping. The next four courts exhibit significant cracking which indicates subsurface soil structure problems. The eastern most court has significant settlement problems and is not playable. The chain link fence and gates are old and need to be removed and replaced. The water fountain is not functioning. The softball field near the courts is overused and needs to be reconstructed with new drainage, soils, infield material, sod, irrigation and backstops.



Tennis Court Net Post, Cracked Court Surface

Traffic, Parking and Vehicular Circulation:

The school's main entrance drive is off Concord Avenue at Underwood Street. A second access road from Brighton Street at Hittinger Street provides an alternative access and egress point. The main driveway is a long loop road that borders Clay Pit Pond and provides access to the main entrance and the main parking area (262 spaces). The loop returns traffic back to Concord Avenue. There is a





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small parking area (30 spaces) at the west end of the school that services the pool and gymnasium. There are a total of 8 handicap parking spaces on the site. There are 4 parallel parking handicap spaces on the main loop drive at the main entrance of the building, two spaces at the pool entrance and two spaces at the temporary School Administration Buildings. There is a loading dock for the cafeteria near the auditorium and service is accommodated on the north east side of the building.

Parking is provided in a large open lot east of the building. An emergency access way/fire lane loops around the back of the building and provides maintenance and service facilities access. To the west of the school are the Town football and track stadium, hockey facility and the varsity and junior varsity baseball fields. Immediately to the north of the entire property is the Amtrak Commuter Rail Line. The rail is elevated approximately 8 to 20 feet above the school site. There is a chain link fence along the entire length of the property. Wellington Brook feeds Clay Pit Pond from the west. There are residential districts to the north across the rail tracks, to the east along Underwood and Hittinger Streets and to the south across Concord Avenue. Utility services (water, sewer, gas, electric, telephone) are available at the site.

The main entrance to the school is from Concord Avenue down a one way street to the intersection of Hittinger Street. The drive continues past two entrances to the main parking lot at the east end of the building. Bus and parent drop-off and pick up takes place at the main entrance of the building which is located at the mid point of the loop road facing the Pond. All visitors, students and staff have to use the same roadways resulting in traffic and congestion at peak morning and afternoon hours. The site has approximately 300 parking spaces and 8 designated handicap spaces.



Student Parking Lot



Mid Afternoon Traffic Confusion





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There is accommodation for buses along the loop drive. Parking is limited at all times, even for daily school operations. Parallel parking along the entry drive can accommodate some overflow parking for 'special' events.



Poor Driveway Surface Conditions



Typical Light Pole, note over head wire

Site Lighting:

There is minimal functioning site lighting at the school. The site is very dark and dangerous after dusk. New site lighting will be required in the parking areas, along pedestrian routes and at the building. The existing typical light fixture is not well suited to illuminate large areas and should be replaced with a more energy efficient and effective light fixture.

School Maintenance:

The maintenance staff and supplies are currently located inside the school building near the auditorium. The existing space is confined and limited and occupy valuable space within the building better suited to academic uses. Storage for equipment must be rotated to accommodate the seasonal equipment because of a shortage of storage space in the building and due to restrictions for fire safety. Currently, the storage needs include space for 2 pick up trucks, 2 vans, a landscape trailer, snow blowers, lawn mowers and miscellaneous small equipment and materials. There are no provisions for vehicle or equipment maintenance on site. Another concern is the noise and hazardous (dust, smoke) from a maintenance shop operation within a school environment.





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Utilities:

Natural Gas:

The site has adequate natural gas service as provided by KeySpan.

Electric:

The site has adequate electric service as provide by the Belmont Municipal Light Company.

Telephone:

The site has adequate telephone service.

Water:

The site is serviced by the MWRA

Drainage:

All storm water from the site is directed into Clay Pit Pond. Storm water flows through an underground system to Alewife Brook and eventually the Mystic River. The management of storm water drainage, water quality and storm water detention will be a significant issue.

Sanitary Sewer:

The site is serviced by the MWRA

Site Constraints:

Wetlands: The wetlands associated with Clay Pit Pond will limit development potential. Wetlands will need to be identified and flagged to determine exact boundaries and a Notice of Intent will need to be filed with the Belmont Conservation Commission for any and all remedial work at the site.

Property Line Constraints: The proximity of the Pond to the south and the railroad tracks to the north physically limit the development potential of the site. Residential areas to the east and the south will require a significant public input process to explain the impacts and benefits any proposed redevelopment.

Rare Species: The site is not mapped as a Priority Site of Rare Species Habitat according to the latest version of the Natural Heritage Atlas.

Historic or Archaeological Resources: The site is not listed on the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth.





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SECTION 3

Recommendations

Universal Accessibility
Landscaping
Outdoor Athletic Venues
Traffic, Parking and Vehicular Circulation
Site Lighting
School Maintenance
Utilities





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Recommendations

Universal Accessibility:

The Commonwealth of Massachusetts, Architectural Access Board Regulations, 521 CMR requires a minimum of 8 spaces for parking capacities between 300-400 spaces. Eight (8) spaces will be provided for access to the major entry points to the building with four (4) at the auditorium entrance, two (2) at the science wing addition and two (2) spaces at the new locker room entry.

Landscaping:

In coordination with the building additions and renovations, the entire landscape of the school will be renovated and rejuvenated. Existing significant plant material will be saved and soil compaction issues solved and a program of fertilization, aeration and pruning will be devised. New plant material will be incorporated into the site plan to provide an environmentally friendly, visually pleasing and physically appropriate campus atmosphere. All lawn areas will be reconditioned and or replaced with new soils, drainage and seed.

Outdoor Athletic Venues:

Build 8 new tennis courts to replace the ten existing tennis courts. Provide all new tennis courts, fencing and gates, nets and posts. Construct a new girl's softball field. Re-orientation to accommodate site improvements in addition to sub surface drainage, irrigation and high quality loam is recommended.

Traffic, Parking and Vehicular Circulation:

As stated above, the condition of a significant quantity of vehicular and pedestrian surfaces are poor and need to be removed and replaced. As evidenced by cracking, settlement and poor drainage, the repair and replacement of bituminous parking, roadway and pathway surfaces should include removal of all surfaces and sub-bases and the replacement with a high quality gravel base, drainage systems (underground detention, catch basins with sumps and gas and oil traps), curbing and new bituminous surface. The proposed site plan, in coordination with the building additions and renovations, illustrates new parking areas and reconstructed road surfaces and pathways. The parking totals are as follows:

Staff Parking Spaces:	146
Student Parking Spaces:	146
Visitor Parking Spaces:	29
<u>Accessible Parking Spaces:</u>	<u>8</u>
Total Parking Spaces:	329

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Site Lighting:

Replace all site lighting with new energy efficient and effective poles and cut off luminaries. Highlight parking areas and pathways to and from parking lots and school entrances.

School Maintenance:

Construct a stand alone facility to the east of the tennis courts to house all of the school maintenance storage, repair and administrative needs. Facility (5,000 s.f.) would include office space, locker room, storage, repair area and vehicle parking. Ancillary use would be water fountain and bathroom space accessible from the exterior for the tennis courts and girls' softball.

Utilities:

The Town of Belmont utility systems (gas, electric, sewer, communication) are extensive and should accommodate proposed additions and alterations. The site drainage system is old, incomplete and environmentally insecure. Clay Pit Pond is a significant wetland resource area located within the school site. Future development of the site should be designed so that the existing Town of Belmont infrastructure is not affected and there is minimal alteration of areas within the 100-foot buffer area and to bordering vegetated wetlands. Any stormwater management system designed for the future development of the site should utilize DEP's Stormwater Management Policy and use Best Management Practices (BMP's) to protect wetlands and waters from adverse water quality impacts of stormwater runoff.

Once a program is determined the following tasks should be performed prior to the development of any design proposal:

1. A detailed definitive site topographic survey by a Licensed Professional Surveyor should be performed;
2. Wetland resource area delineation should be performed by a Wetland Specialist and a resource area report should be provided for permitting purposes;
3. Permeability testing and seasonal high ground water evaluation of possible stormwater management areas (detention/recharge areas) should be performed by a Geotechnical Engineer; and;
4. The existing Town of Belmont water, sanitary sewer, and storm drainage systems may need to be repaired, relocated and/or upgraded if these mains are disturbed by the proposed development of the existing school site. Any design or replacement of the Town systems would need to be performed in conjunction with the Town of Belmont Engineering

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Department. The existing building water, sanitary sewer, and storm drainage services may be reused depending on the proposed building service sizes and exit points.

5. Clay Pit Pond: A significant site feature, Clay Pit Pond is both a significant amenity and a significant site constraint. The pond has been the focus of an intensive clean up operation recently and any development at the site will need to comply with all current storm water management regulations. This will require Conservation Commission notification and approvals.
6. Traffic Flow: The flow of traffic through the site is confusing and constricted. The site plan proposes a reorganization to the traffic flow in parking lots to direct vehicles and protect pedestrians. Study, review and recommendations by a Traffic Engineer for the Concord Avenue entrances and exits is recommended.





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SECTION 4

Site Materials Table
MEPA Review
Zoning Review
Permitting Review





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<u>Materials</u>	<u>Location</u>	<u>Condition</u>	<u>Solution</u>
Bituminous Conc. Pavement	Main Lot (auditorium)	Poor, cracked, settling	Replace
Bituminous Conc. Pavement	Student Parking Lot	Poor, cracked, settling	Replace
Bituminous Conc. Pavement	Main Entry Drive	Poor, cracked, settling	Replace
Bituminous Conc. Pavement	Pool Parking Lot	Poor, cracked, settling	Replace
Concrete Sidewalk	Main Entry Drive	Spalling, settlement	Replace panels
Brick Walk	Main Entry	Poor, missing bricks, settling	Replace and reset
Bituminous Conc. Walkways	Main Entry Drive	Poor, cracked, settling	Replace
Granite Curb	Main Entry Drive Auditorium Edge Main Lot South	Settled ,mis-aligned	Remove and reset
Bituminous Conc. Curb	Fire Lane	Broken, missing	Replace
Precast Concrete Curb	Main Entry Drive	Spalling, broken, settlement	Replace panels
Chain Link Fence	Fire Lane (gym) Tennis Courts Railroad Tracks	Twisted, no bottom rail Rusted, twisted Rusted	Replace and reset Repair and paint Repair and Paint
Tennis Courts	Surface Net posts, tie downs	Poor, cracked, settling Heaving, leaning	Replace Replace
Basketball Courts	Surface Posts, nets	Poor, cracking Poor, leaning, broken	New tennis court system Replace
Water Fountain	Tennis Courts	Broken	Replace
Site Lighting	Site wide	Inefficient, broken	New lighting system





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MEPA Review

The following checklist summarizes the review thresholds in the state MEPA regulations, 301 CMR 11.00, which are most likely to affect schools project. The proponent must fill out every line in the checklist, relying upon its architect, engineers, or other technical consultants, as appropriate. For potential impacts upon rare species, the proponent should refer to the Natural Heritage Atlas and consult with the Natural Heritage and Endangered Species Program of the Division of Fisheries and Wildlife (1 Rabbit Hill Road, Westboro, MA 01581). Similarly, for potential impacts upon historic or archaeological resources, the proponent should refer to the State Register of Historic Places and the Inventory of Historic and Archaeological Resources of the Commonwealth and consult with the Massachusetts Historical Commission (220 Morrissey Boulevard, Boston, MA 02125). If the proponent is uncertain as to the requirement of MEPA review, one should refer to the full MEPA regulations and consult the MEPA Office (telephone: 617/727-5830). If necessary, the MEPA Office will issue a written advisory opinion as to whether MEPA review is required. A copy of the completed checklist should be enclosed with any request for an advisory opinion.

If any line of the checklist is answered "yes," MEPA review of the project will be required. Refer to the MEPA regulations and consult with the MEPA Office for the requirements governing the filing of an Environmental Notification Form.

Threshold		Yes	No
<i>Land</i>	1. Direct alteration of 25 or more acres of land.		X
	2. Creation of five or more acres of impervious area.		X
	3. Conversion of land held for natural resources purposes in accordance with Article 97 of the Massachusetts Constitution to any purpose not in accordance with Article 97.		X
	4. Conversion of land in active agricultural use to non-agricultural use, provided the land includes soils classified as prime, state-important or unique by the United States Department of Agriculture.		X
	5. Release of an interest in land held for conservation, preservation or agricultural or watershed preservation purposes.		X
	6. Approval in accordance with M.G.L. c.121B of a New urban renewal plan or a major modification of an existing urban renewal plan.		X
<i>Rare Species</i>	1. Alteration of designated significant habitat.		X
	2. Taking of an endangered or threatened species or species of special concern, provided that the Project site is two or more acres and includes an area mapped as a Priority Site of Rare Species Habitats and Exemplary Natural Communities.		X

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<i>Wetlands, Waterways and Tidelands</i>	1. Provided that a Permit is required, alteration of 5000 or more sq. ft. of bordering or isolated vegetated wetlands;		X
	2. Provided that a Permit is required, new fill or structure or Expansion of existing fill or structure, except a pile supported structure, in a velocity zone or regulatory floodway		X
	3. Provided that a Permit is required, alteration of ½ or more acres of any other wetlands.		X
	4. Provided that a Chapter 91 license is required, New or existing non-water dependent use of waterways or tidelands.		X
<i>Water</i>	1. New withdrawal or Expansion in withdrawal of 100,000 or more gpd from a water source that requires New construction for the withdrawal.		X
	2. Alteration requiring a variance in accordance with the Watershed Protection Act.		X
<i>Wastewater</i>	1. Construction of a New wastewater treatment and/or disposal facility with a Capacity of 100,000 or more gpd.		X
	2. Expansion of an existing wastewater treatment and/or disposal facility by the greater of 100,000 gpd or 10% of existing Capacity.		X
	3. Construction of one or more New sewer mains:		
	a. that will result in an Expansion in the flow to a wastewater treatment and/or disposal facility by 10% of existing Capacity;		X
	b. five or more miles in length; or		X
	c. ½ or more miles in length, provided the sewer mains are not located in the right of way of existing roadways		X
	4. New discharge or Expansion in discharge:		
	to a sewer system of 100,000 or more gpd of sewage, industrial waste water or untreated stormwater;		X
	b. to a surface water of:		
	i. 100,000 or more gpd of sewage;		X
ii. 20,000 or more gpd of industrial waste water; or		X	
iii. any amount of sewage, industrial waste water or untreated stormwater requiring a variance from applicable water quality regulations; or		X	





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	c. to groundwater of:		
	i. 10,000 or more gpd of sewage within an area, zone or district established, delineated or identified as necessary or appropriate to protect a public drinking water supply, an area established to protect a nitrogen sensitive embayment, an area within 200 feet of a tributary to a public surface drinking water supply, or an area within 400 feet of a public surface drinking water supply;		X
	ii. 50,000 or more gpd of sewage within any other area;		X
	iii. 20,000 or more gpd of industrial waste water; or		X
	iv. any amount of sewage, industrial waste water or untreated stormwater requiring approval by the Department of Environmental Protection of a variance from Title 5 of the State Environmental Code for New construction.		X
	5. New Capacity or Expansion in Capacity for:		
	a. combustion or disposal of any amount of sewage sludge, sludge ash, grit, screenings, or other sewage sludge residual materials; or		X
	b. storage, treatment, or processing of 50 or more wet tpd of sewage sludge or sewage sludge residual materials.		X
<i>Transportation</i>	1. Construction, widening or maintenance of a roadway or its right-of-way that will:		
	a. alter the bank or terrain located ten more feet from the existing roadway for one-half or more miles, unless necessary to install a structure or equipment;		X
	b. cut five or more living public shade trees of 14 or more inches in diameter at breast height; or		X
	c. eliminate 300 or more feet of stone wall		X
	2. Abandonment of a substantially intact rail or rapid transit right-of-way.		X
	3. Generation of 2,000 or more New adt on roadways providing access to a single location.		X
	4. Generation of 1,000 or more New adt on roadways providing access to a single location and construction of 150 or more New parking spaces at a single location.		X
	5. Construction of 300 or more New parking spaces at a single location.		X

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<i>Historical and Archaeological Resources</i>	1. Unless a Project is subject to a Determination of No Adverse Effect by the Massachusetts Historical Commission or is consistent with a Memorandum of Agreement with the Massachusetts Historical Commission that has been the subject of public notice and comment: a. demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; or b. destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth.		
			X
<i>ACECs</i>	1. Any Project within a designated ACEC		X

Name of Project: Belmont High School

Name of Proponent: Belmont High School Building Committee

Signature:

Date: September, 2004

This form must be filed with the School Building Assistance Grant Application. If any question is answered *yes*, a certification from Secretary of Environmental Affairs that the MEPA Review process has been completed must be enclosed with the application by the June 30 deadline.





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Belmont High School

Zoning Review

	Required	Proposed
1. Zoning		
<ul style="list-style-type: none"> • General Business <ul style="list-style-type: none"> • Property Boundary setback 	6'	
2. Parking Requirements		
	Standard Space	Compact Space
<ul style="list-style-type: none"> • Width of Stall • Length of Stall • Maneuvering Aisle 	8'-6" 18'-6" 24'-0"	7'-6" 15'-0" 24'-0"
<ul style="list-style-type: none"> • Parking Calculations: 1 space for each 3 permanent spectator seats in auditorium: 870 seats ÷ 3 = 290 spaces 		
<ul style="list-style-type: none"> • <u>Parking Summary:</u> 		
<ul style="list-style-type: none"> • Staff Spaces • Visitor Spaces • Accessible Spaces • <u>Student Spaces</u> 	117 15 8 150	146 29 8 150
TOTAL	290	333
<ul style="list-style-type: none"> • All site improvements must meet A.D.A. requirements outlined in the Massachusetts Architectural Access Board Regulations (521 CMR, 23.2.1). 		





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Permitting Review:

A school development project receiving State (SBA) funding is required to undergo a series of permitting reviews. State and local environmental and planning agencies require application, review and permitting prior to construction. The following agencies and departments will potentially be involved in reviewing the project:

Massachusetts Environmental Policy Agency (MEPA). The filling of an Environmental Notification Form (ENF) will be required. This form requires analysis and review of impacts to air, water, land and endangered resources. The review process can be accomplished in 60 days unless further review is mandated by the Secretary of Environmental Affairs.

Conservation Commission and the Department of Environmental Protection. The filing of a Notice of Intent with the Conservation Commission will be required to determine and regulate the impacts on wetlands resources. The review period can exceed 120 days.

Town Reviews. The Project will require coordination with the following Departments and/or Boards:

- Community Development
- Municipal Light Department
- Highway Department
- Water Department
- Fire Department
- Police Department
- Warrant Committee
- Capital Budget Committee
- Board of Health,
- Conservation Commission.





CLAY PIT POND



BELMONT HIGH SCHOOL
BELMONT, MASSACHUSETTS



Tab 7

SECTION 7

Master Plan and Feasibility Study for Renovations to Belmont High School

EDUCATIONAL SPECIFICATIONS AND PROGRAM OF SPACES

I. Introduction

Every school's academic program can be outlined and defined by a document called an "educational specification" or "ed spec". In its basic form, the ed spec lists every course offering and the number of pupils enrolled (or expected to be enrolled) in each course. Courses are further defined by how many times they meet in a cycle, the repeat for a particular schedule. A cycle is usually, but not always, 5 days. Beyond the number of meetings per cycle, it is necessary to know how many periods each meeting takes. For example, if a period for a specific educational plan is defined as 25 minutes, most courses will meet for 2 periods. However, some, like science labs or art studio courses, may meet for 3 or 4 periods. Belmont High School currently utilizes a 5-day cycle, with fifteen 25-minute periods per day, for a total of 75 periods per cycle. The other datum necessary to complete the equation is desired class size. For most core academic courses, a class size in the low to mid twenties is considered ideal. Studio courses, advanced placement courses and special education courses may benefit from smaller class sizes. For the Belmont High School educational specification, these general guidelines are adhered to.

Using the above information and the formula adopted as a standard by the Office of School Building Assistance (SBA), the number of teaching stations (classrooms or other) required for each course and, additively, for each department or discipline can be calculated. The final operation divides the resulting number by a utilization factor, 1 denoting 100% utilization of a teaching station, seldom if ever possible. For Belmont High School, historical data indicates a utilization factor of 75% (.75) for standard classrooms and 70% (.70) for specialized teaching stations is average. Therefore a calculated total requirement of 6 classrooms, when divided by the 75% utilization factor, translates to a space program requirement of 8 classrooms.

The educational specification in this Section is compiled on Form 645 -5M/S used by SBA and recognized as standard for this purpose. To complete the form, information concerning the pupil capacity of the facility is added. Also the area of each use must be calculated and inserted to define how much of the facility's total space is devoted to Basic Educational Use, Miscellaneous Educational Use (in general this includes core facilities such as the Cafeteria and support facilities such as the Guidance Office) and Other (this use includes all building area needed for corridors, toilets, mechanical equipment space, stairs, etc.). The percentages of each category give a fair picture of the efficiency of a facility, i.e. how much usable, educational space is provided relative to the building's total floor area.

The Belmont High School educational specification has been developed from information provided by the Curriculum Directors in each of the High School's discipline clusters. The Directors were asked to consider a reasonable expansion of their programs over the next decade, considering a slightly expanded pupil population and a slightly denser schedule (more electives, less student "free" time during the school day). Also, they were asked to consider the possible/probable evolution of their subject's scope and/or focus and of teaching and presentation methods. Additional information was received from the High School faculty via their responses to a detailed questionnaire sent out by the Advisory Committee, a copy of which is attached as **Appendix C**. The resulting specification was presented to the School Committee for review and approval on two occasions – July 21 and September 7, 2004. The School Committee's approval naturally indicates only that the educational specification, as developed, is a reasonable theoretical basis on which to construct the Master Plan and Feasibility Study. Actual changes to Belmont High School's educational program will no doubt be proposed and implemented over the coming decade and will be considered by the School Committee as they arise.

Other documents in this Section include an INVENTORY OF EXISTING SPACES, listing all spaces and uses dedicated to the basic academic and support programs in the present High School. Also included are a COMPARISON BETWEEN AVAILABLE SPACE AND PROJECTED SPACE REQUIREMENTS and TEACHING SPACE INCREASE (NECESSARY) TO PROVIDE FOR 1250 PUPILS (the Master Plan's design pupil population not including the LABBB Collaborative).

SECTION 7

Master Plan and Feasibility Study for Renovations to Belmont High School

II. INVENTORY OF EXISTING SPACES

Key

* = one or more walls of this room is/are folding partition

** = this room has a stepped or sloped floor

UNIT 1 – FIRST FLOOR

Swimming Pool Room	7020 SF
Pool Locker Rooms (total for 2)	1776 SF
Exercise Room	1638 SF*
Field House	27,067 SF
Boys' PE Locker Room	4712 SF
Boys' Team Locker Rooms (total)	4466 SF

UNIT 2 – FIRST FLOOR

CATV Studio	1160 SF
Science Labs (3)	1032 SF
	1160 SF
	1132 SF
Science CR	1001 SF
Social Studies CR	1160 SF
English CR	946 SF*
Lexington LABBB School	1203 SF
Little Theater	2076 SF
METCO Offices	550 SF
Nurse's Suite	900 SF
Athletic Director's Office Suite	475 SF
Sp. Ed. Rooms (3)	750 SF
	450 SF*
	450 SF*
Social Studies Small Group Room	625 SF

UNIT 3 – FIRST FLOOR

Social Studies CR's (7)	750 SF
	750 SF
	744 SF
	768 SF*
	768 SF*
	744 SF
	750 SF
Social Studies Large CR	819 SF**

Master Plan and Feasibility Study for Renovations to Belmont High School

II. INVENTORY OF EXISTING SPACES (cont.)

Social Studies Dep't Office	775 SF
Social Studies Dep't Storage	381 SF
Sp. Ed. Room	750 SF
English CR's (8)	750 SF
	750 SF
	744 SF
	768 SF*
	768 SF*
	744 SF
	750 SF
	750 SF
English Large CR	819 SF**
English Dep't Office	775 SF
English Dep't Storage	381 SF
I.M.C. Reading Room	4940 SF
I.M.C. Support Spaces (total)	1024 SF
Central Administration Suite (total)	2652 SF
Guidance Suite (total)	1613 SF
UNIT 4 – FIRST FLOOR	
Custodian's Office	648 SF
System – wide Maintenance Shop	1450 SF
Orchestra/Chorus Room	1820 SF
Music CR	792 SF
Band Room (incl. instr. stor.)	2070 SF**
Drama and Music Office	832 SF
Meeting Room	1211 SF
Student Publications Room	677 SF
Auditorium (incl. Lecture spaces)	8624 SF**
Stage	3150 SF
Stage Support	1260 SF
Cafeteria	7298 SF
Staff Dining	792 SF
Serving Area	748 SF
Dishwashing	330 SF
Kitchen and Support	2730 SF
UNIT 1 – SECOND FLOOR	
Field House Seating Mezzanine	2484 SF
Gymnasium	5782 SF

Master Plan and Feasibility Study for Renovations to Belmont High School
II. INVENTORY OF EXISTING SPACES (cont.)

Gym Storage	400 SF
Girls' Team Locker Room	440 SF
Girls' P.E. Locker Room	4200 SF
UNIT 2 – SECOND FLOOR	
Physics Lab	1445 SF
Chemistry Lab (3)	1161 SF
	1350 SF
	1350 SF
Chemistry Prep.	230 SF
Biology Labs (3)	1638 SF (incl. Greenhouse & Prep.)
	1198 SF
	1198 SF
Biology Prep	288 SF
Earth Science Labs (2)	930 SF
	930 SF
Earth Science Prep.	252 SF
Science Lecture (incl. Storage and Prep.)	2172 SF
Science Dep't Offices	800 SF
Science Dep't Storage	224 SF
Science Prep. Lab	396 SF
UNIT 3 – SECOND FLOOR	
Math CR's (8)	750 SF
	750 SF
	744 SF
	768 SF*
	768 SF*
	744 SF
	750 SF
	750 SF
Math Computer Lab	573 SF
Math Project Room	462 SF
Math Dep't Offices	625 SF
Math Dep't Storage	381 SF
Computer Lab (Library Mezzanine)	1272 SF
Drop-in Student Comp. Center (Lib. Mezz.)	2763 SF
I. T. Dep't Storage (Lib. Mezz.)	345 SF
I.T. Dep't Office (Lib. Mezz.)	312 SF
I.T. Head End Room (Lib. Mezz.)	462 SF

Master Plan and Feasibility Study for Renovations to Belmont High School
II. INVENTORY OF EXISTING SPACES (cont.)

Media Center Support (3 rooms, total)	550 SF	
Foreign Language CR's (8)	750 SF	
	750 SF	
	744 SF	
	768 SF*	
	768 SF*	
	744 SF	
	750 SF	
	750 SF	
Language Lab	1024 SF	
Foreign Language Dep't Offices	600 SF	
Foreign Language Dep't Storage	381 SF	
General Storage	714 SF	
UNIT 4 – SECOND FLOOR		
Art Rooms (5)	1690 SF	
	1206 SF	
	1517 SF	
	990 SF	
	1788 SF	
Art Dep't Office	216 SF	
Learning Center (Sp. Ed.)	414 SF	
Special Education Room	414 SF	
TOTAL EDUCATIONAL AND SUPPORT SPACE FIRST FLOOR		122,418 SF
TOTAL EDUCATIONAL AND SUPPORT SPACE SECOND FLOOR		<u>57,335 SF</u>
TOTAL FOR BOTH FLOORS		179,753 SF

SECTION 7

Master Plan and Feasibility Study for Renovations to Belmont High School

III. COMPARISON BETWEEN AVAILABLE SPACE AND PROJECTED SPACE REQUIREMENTS

<u>Avail. Teaching Stations</u>		<u>Req'd Teaching Stations</u>	<u>Delta</u>	<u>Comments</u>
<u>SOCIAL STUDIES</u>				
Classrooms	9	13	4	Assume exist. SS Large Group CR with stepped floor converted to dep't support function; Small Group Room in Unit 2 is adequate for small enrollment classes.
Comp. Lab	<u>0</u>	<u>1</u>	<u>1</u>	
	9	14	5	
<u>ENGLISH</u>				
Classrooms	9	11	2	Assume exist. English Large Group CR with stepped floor (planned to be temporary comp. lab) converted to dep't support function; *English Comp. Lab rebuilt in new location; Writing Lab superimposed on CR's via wireless environment.
Comp. Lab	<u>0*</u>	<u>1*</u>	<u>1*</u>	
	9	12	3	
<u>MATHEMATICS</u>				
Classrooms	8	10	2	Assume exist. Math Comp. Lab and Math Project Room converted to dep't support function; *replace each with full-size TS (24 students).
Comp. Lab	<u>0*</u>	<u>1*</u>	<u>1*</u>	
	8	11	3	
<u>SCIENCE</u>				
Intro. Science	1 (0)*	0	0	Assume exist. undersized labs replaced with new construction; exist. Science Lecture converted to dep't support function; new Sci. Comp. Lab added as additional TS. (*Note: Science area is a Candidate for total replacement by new construction with exist. Science area reconfigured for std. CR and/or other use.)
Physics Lab	3 (0)*	4	4*	
Chemistry Lab	3 (0)*	4	4*	
Biology Lab	5 (0)*	5	5*	
Design Tech	1 (0)*	1	1*	
Sci. Comp. Lab	<u>0 (0)*</u>	<u>1</u>	<u>1*</u>	
	12 (0)*	15	15*	

Master Plan and Feasibility Study for Renovations to Belmont High School

**III. COMPARISON BETWEEN AVAILABLE SPACE AND PROJECTED SPACE REQUIREMENTS
(cont.)**

<u>Avail Teaching Stations</u>	<u>Req'd Teaching Stations</u>	<u>Delta</u>	<u>Comments</u>
<u>FOREIGN LANGUAGE</u>			
Classrooms 8	9	1	*Assume exist. Language Lab. converted to dep't support function; new Lab to be digital/computer-based constructed elsew
Language Lab <u>0*</u> 9	<u>1*</u> 10	<u>1*</u> 2	
<u>COMPUTER SCIENCE</u>			
Comp. Lab 1	2	1	These labs are in addition to department labs and to those associated with the Learning Center, Music, Visual Arts Special Education, Wellness, Guidance and LABBB.
<u>FINE ARTS</u>			
2-D Art 2	2	0	Assume Computer Graphics is a 24 pupil computer lab; increase size of present Ceramics Studio. If possible reclaim School Dep't Workshop for additional Art Studio.
3-D Art 1	2	0	
Ceramics 1	1	1	
Photography 1	1	0	
Comp. Graphics <u>0</u> 5	<u>1</u> 7	<u>1</u> 2	
<u>PERFORMING ARTS</u>			
Classroom 0	1	1	Shared with Fine Arts.
Vocal Room 1	1	0	Renovate existing or new const.
Instru. Room 1	1	0	Renovate existing.
MIDI Lab <u>1</u>	1	0	Enlarge existing to 24 students.
Dance Studio 0	1	1	Could be Stage with new floor or exist. Vocal Room area, renovated
Drama Venue <u>1</u> 4	<u>1</u> 6	<u>0</u> 2	Renovate and equip Little Theater.
<u>WELLNESS</u>			
Classroom 0	1	1	For this dep't, increased/upgraded space needs are locker rooms and storage.
Lab (Gym) <u>6</u> 6	<u>2</u> 3	<u>0</u> 1	

SECTION 7**Master Plan and Feasibility Study for Renovations to Belmont High School****IV. TEACHING SPACE INCREASE TO PROVIDE FOR 1250-PUPIL CAPACITY**

<u>DEPARTMENT</u>	<u>TYPE OF SPACE</u>	<u># SPACES</u>	<u>TOTAL NET SF</u>
MATH	CLASSROOM	2	1,600 SF
	COMPUTER LAB	1*	1,000 SF*
<u>Net increase over existing program: 1 CR added; 1 CR enlarged; Comp.Lab enlarged.</u>			
ENGLISH	CLASSROOM	2	1,600 SF
	COMPUTER LAB	1*	1,000 SF*
<u>Net increase over existing program: 2CR added.</u>			
FOREIGN LANGUAGE	CLASSROOM	1	800 SF
	COMPUTER LAB	1*	1,000 SF*
<u>Net increase over existing program: 1 CR added.</u>			
SCIENCE	LAB/CLASSROOMS	12** +2*	15,600 SF*
	COMPUTER LAB	1*	1,000 SF*
<u>Net increase over existing program: 2 Labs added; 10 Labs and Comp. Lab enlarged.</u>			
SOCIAL STUDIES	CLASSROOM	4	3,200 SF
	COMPUTER LAB	1	1,000 SF
<u>Net increase over existing program: 4 CR AND Comp. Lab added.</u>			
FINE ARTS	STUDIO	1	1,200 SF
	COMPUTER LAB	1	1,000 SF
<u>Net increase over existing program: 1 (Ceramics) Studio and Comp.(Graphics) Lab added.</u>			
PERFORMING ARTS	CLASSROOM	1	800 SF
	STUDIO (DANCE)	1	1,500 SF
<u>Net increase over existing program: 1 (Dance) Studio and 1 CR (shared with FA) added.</u>			
WELLNESS	CLASSROOM	1	800 SF
<u>Net increase over existing program: 1 CR added.</u>			
COMPUTER SCIENCE	COMPUTER LAB	1	1,000 SF
<u>Net increase over existing program: 1 Computer Lab added.</u>			

* Shown as increased requirement because existing space reclaimed for new use

** In new construction

**Commonwealth of Massachusetts
DEPARTMENT OF EDUCATION
School Building Assistance
Middle/High School Educational Specifications**

Date: 9/7/04

Version #: 2

School District: Belmont

School Name: Belmont High School

Completed by: Robert B. Vogel., AIA - Design Partnership of Cambridge, Inc.

Type of Project: New School for _____ Students Addition of 133 Seats & Core Renovation of 1157 Spaces

Acquisition/Renovation of _____ Seats & Related Core Facilities

ENROLLMENT INFORMATION

Grades	1. Current Enrollments as of (9/04)	Grades	2. Projected Enrollments as of (9/14)
9	281	9	322
10	305	10	323
11	271	11	322
12	300	12	323
TOTAL	1157		1290

In order to determine the teaching station for the projected enrollment, the following information is needed to complete the Tables in this form.

- A) Subjects offered through project.
- B) Projected students in each class: the total number of students who will be taking each subject.
- C) Class size: the maximum proposed class size for each project.
- D) Sections: the number of sections of each course needed to serve the projected enrollment. Divide the total projected enrollment by the class size.
- E) Sessions per week: the number of times the class meets each week (usually 3 or 5).
- F) Periods per week: the number of periods each day times 5.
- G) Teaching stations required for program: multiply the number of sections by the sessions per week that each subject is taught.

- 1. Exclusive of School Choice Enrollment (currently 60); inclusive of LABBB Collaborative Program (currently 30).
- 2. School Choice Program discontinued; LABBB Collaborative Program increases to 40.

TABLE A - SPACE NEEDS SUMMARY

Total columns H, I, K, & N from Table I for all regular classroom curriculum including only those business and science courses that do NOT require specialized spaces; total all specialized teaching stations needed for basic educational use; then total all miscellaneous educational space and fill out the table below.

Teaching Station	# Needed	Sq.Ft. Area NEEDED	# Available	Sq. Ft. Area	# New Stations Needed
------------------	----------	-----------------------	-------------	--------------	--------------------------

GENERAL CLASSROOMS

MATH	10	8000	8		2
ENGLISH	11	8800	9		2
FOREIGN LANGUAGE	9	7200	8		1
SOCIAL STUDIES	13	10,400	9		4
WELLNESS	1	800	0		1
Subtotal General Instruction:	44	35,200	34		10

SPECIALIZED TEACHING STATIONS

COMP. LABS - DEPARTMENTAL	7	7000	5		2
COMP LABS. - GENERAL	2	2000	1		1
SCIENCE LABS. (INCL. PREP.)	14	19,600	12		2
ART (INCL. STOR.)	6	7190	5		1
MUSIC (INCL. STOR.)	5.5	6680	4.5		1
DRAMA (INCL. STOR)	1.5	6476	1.5		0
PHYSICAL ED.	6	41,011	6		0
SPECIAL ED.	6	3690	6		0
Subtotal Specialized Teaching Space:	48	93,647	41		7

TABLE B
MISCELLANEOUS EDUCATIONAL SPACE

Station/Space	Sq. Ft. Required	_ Sq. Ft. Available	New Area = Needed	Comments
Administration	3735	- 3127	= 608	INCREASES MEETING SPACE INCLUDE METCO OFFICE IN SUITE
Auditorium/Stage	8624/3150	_ 8624/3150	= %	Capacity: 870 WHEN REDESIGNED FOR BARRIER-FREE ACCESS
Cafeteria	7500	_ 7298	= 202	Seatings: 2.5 (ADD NEW "CAFE" @ 1125 sf)
Guidance	2904	_ 1613	= 1291	INCREASE COUNSELING OFFICE, LARGER COLLEGE & CAREER CENTER
Health Suite	900	_ 900	= 0	REPLAN FOR BARRIER-FREE ACCESS
Library/IMC INCL. SUPPORT	12,275	_ 6514	= 5761	BECOMES TRUE IMC - EXPAND TO INCLUDE TECH. LEARNING CENTER
Locker/Shower Rooms	19,254	_ 15,594	= 3660	ADD NEW MEN'S LR FOR POOL; ADD NEW GIRLS TEAM LRS; REPLAN FOR BFA.
Kitchen INCL. SERVERY	3473	_ 3473	= 0	REPLAN IN EXIST. SPACE
Teachers' Planning & Dining	PLAN. 11400 DIN. 770	_ 6250 770	= 5150 0	DEPARTMENTAL PLANNING/OFFICES
Other: TECH. CENTER	3600	_ 1375	= 2225	SUPPORTS HS, SCHOOL SYSTEM NETWORK
Other:	-		=	
Subtotal Miscellaneous Space	77,590	- 58,693	= 18,897	

OTHER SPACE (Non-Educational): 85,508 **Sq.Ft.**

TABLE C - SUMMARY OF SPACES FOR MAXIMUM CONSTRUCTION COST ALLOWANCE

Table C Summarizes the square footage of the educational program space in Tables A and B to determine the maximum allowable cost for the proposed school project.

Description of Space	(I) New Construction		(II) Renovated Space		(III) Total Planned Space	
	Sq.Ft.	%	Sq.Ft.	%	Sq.Ft.	%
Basic Educational	22,000		106,847		128,847	44.1
Miscellaneous Educational	6725		70,865		77,590	26.6
SUBTOTAL (Basic+Misc.)	28,725		177,712		206,437	70.7
Other Space	6100		79,408		85,508	29.3
TOTAL Gross Educational+Other)	34,825	11.9	257,120	88.1	291,945	100

D. MAXIMUM ALLOWABLE SQUARE FOOTAGE

allowable square feet per pupil as provided for in the School Building Assistance Regs is 115 for elementary schools. following other spaces may be approved in excess of this base and should be included in the table above.

Special Needs: (Yellow)	3690	Sq.Ft.	Collaboratives: (Yellow)	2600	Sq.Ft.
Special: (Blue)		Sq.Ft.	Community: (Red)	22,581	Sq.Ft.
Special: (Green)		Sq.Ft.	Technology: (Orange)	21,360	Sq.Ft.
			(#712 of Computer Stations x 30 sq. ft.)		

Total Allowable Square Feet in Excess of Base: 47,938 Sq.Ft.

E. MAXIMUM ALLOWABLE CONSTRUCTION COST

cost allowed per square foot for new school construction is published in the regulations and updated annually. renovation costs vary widely depending on the age and overall condition of the existing schoolhouse and be reviewed on individual basis by DOE staff prior to recommendation to the Board for approval.

Projected Enrollment x Sq. ft. allowance	+ Total Approved Excess (Table D)	= Maximum Gross Sq. Ft.
1290 x 135 = 199,950	+ 47,938 Sq.Ft.	= 247,888 Sq.Ft. High
		Sq.Ft. Middle

allowable Cost per Sq.Ft.	x	Gross Sq.Ft.	=	Maximum Allowable Cost
\$173.00(Middle)	x	Sq.Ft.	= \$	New
	x	Sq.Ft.	= \$	Renovation
			= \$	TOTAL
\$185.00(High)	x	Sq.Ft.	= \$	New
	x	Sq.Ft.	= \$	Renovation
			= \$	TOTAL

5% use of auditorium stage, field house, gymnasium, pool, pool locker rooms; 50% use of meeting rooms (2); 15% use of music rooms, art rooms, computer labs, media center, cafeteria and kitchen.

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New

MATHEMATICS

400 Algebra 1	21	21	1	9	9	75	0.12						
402 Algebra 1	63	21	3	9	36	75	0.48						
404 Geometry	147	21	7	9	63	75	0.84						
406 Geometry	136	22.7	6	9	54	75	0.72						
410 Geometry	64	21.3	3	9	27	75	0.36						
412 Algebra 2	64	21.3	3	9	27	75	0.36						
414 Algebra 2	137	22.8	6	9	54	75	0.72						
416 Algebra 2	94	23.5	4	9	36	75	0.48						
420 PreCalculus	52	17.3	3	9	27	75	0.36						
412 Finance/Bus Math	114	22.8	5	9	45	75	0.6						
424 Advanced Topics	18	18	1	9	9	75	0.12						
426 PreCalculus	144	24	6	9	54	75	0.72						
428 PreCalculus	64	21.3	3	9	27	75	0.36						
430 Calculus	89	22.3	4	9	36	75	0.48						
432 Calculus A.P.	33	16.5	2	9	18	75	0.24						
434 Calculus A.P.	20	20	1	9	9	75	0.12						

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
110 English 9	181	18.1	10	9	90	75	1.2						
112 English 9H	164	20.6	8	9	72	75	0.96						
025 English 9 Key	13	13	1	9	9	75	0.12						
120 English 10	159	19.8	8	9	72	75	0.96						
122 English 10H	148	21.2	7	9	63	75	0.84						
130 English 11	156	19.6	8	9	72	75	0.96						
132 English 11H	169	21.1	8	9	72	75	0.96						
148 A.P. English 12H	81	20.1	4	9	36	75	0.48						
140 English 12	129	21.47	6	9	54	75	0.72						
142 English Humanities	28	14	2	9	18	75	0.24						
146 English Hum. H12	48	24	2	9	18	75	0.24						
150 Transition English	9	9	1	9	9	75	0.12						
151 Creative Writing	38	19	1, 1	9	9	75	0.12						
154 Public Speaking	26	13	1, 1	9	9	75	0.12						
175 MCAS Skills	35	11.5	3	4	12	75	0.16						
						Total	8.2						
Utilization Factor 75%						/.75 =	10.93	9			2	800	1600
Computer Lab							0*	1*			1*	1000	1000

ENGLISH

*Assumes Writing Lab area becomes dep't support

and W. L. rebuilt elsewhere

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
FOREIGN LANGUAGE													
Chinese 1	22	22	1	9	9	75	0.12						
Chinese 2	8	8	1	9	9	75	0.12						
Chinese 3H	9	9	1	9	9	75	0.12						
Chinese 4H	10	10	1	9	9	75	0.12						
French 1	23	23	1	9	9	75	0.12						
French 2	21	21	1	9	9	75	0.12						
French 2H	64	21.3	3	9	27	75	0.36						
French 3	23	23	1	9	9	75	0.12						
French 3H	33	16.5	2	9	18	75	0.24						
French 4	22	22	1	9	9	75	0.12						
French 4H	30	15	2	9	18	75	0.24						
French 5	23	23	1	9	9	75	0.12						
A.P. French	17	17	1	9	9	75	0.12						
Latin 1	52	17.3	3	9	27	75	0.36						
Latin 2	67	22.3	3	9	27	75	0.36						
Latin 3H	31	15.5	2	9	18	75	0.24						
A.P. Latin	18	18	1	9	9	75	0.12						

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
Spanish 1	66	22	3	9	27	75	0.36						
Spanish 1B	47	23.5	2	9	18	75	0.24						
Spanish 2	131	21.8	6	9	54	75	0.72						
Spanish 2H	70	23.4	3	9	27	75	0.36						
Spanish 3	87	21.8	4	9	36	75	0.48						
Spanish 3H	44	22	2	9	18	75	0.24						
Spanish 4	52	17.3	3	9	27	75	0.36						
Spanish 4H	59	19.7	3	9	27	75	0.36						
Spanish 5	23	23	1	9	9	75	0.12						
A.P. Spanish	18	18	1	9	9	75	0.12						
						Total	6.48						
Utilization Factor 75%						/.75 =	8.64	8			1	800	800
Language Lab							1	0*			1*	1000	1000
									* Assumes exist. Language Lab area becomes dep't support, Lang. Lab rebuilt elsewhere.				
								8	750	6000	2		1800

FOREIGN LANGUAGE (continued)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
SOCIAL STUDIES													
610 World History	153	21.9	7	9	63	75	0.84						
612 World History	185	23.2	8	9	72	75	0.96						
620 M World History	107	21.4	5	9	45	75	0.6						
622 M World History H	161	23	7	9	63	75	0.84						
630 American Studies	109	21.8	5	9	45	75	0.6						
622 Am. Studies Honor	133	22.2	6	9	54	75	0.72						
634 Human Society	18	18	1	9	9	75	0.12						
638 A.P. Psychology	81	20.3	4	9	36	75	0.48						
640 A.P. European Hist.	76	19	4	9	36	75	0.48						
642 A.P. American Hist.	79	19.8	4	9	36	75	0.48						
668 Behavioral Sci. Hon.	85	21.3	4	9	36	75	0.48						
040 Key World History	17	17	1	9	9	75	0.12						
041 Key M World Hist.	12	12	1	9	9	75	0.12						
670 Community Service	83	20.8	4	9	36	75	0.48						
651 Macro Econ.H (Sem)	40	20	2	9	18	75	0.24						
653 Micro Econ. H	43	21.5	2	9	18	75	0.24						
Intro to Economics	36	18	2	9	18	75	0.24						

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
FINE ARTS													
801 Painting/Drawing 1	120	24	5	9	45	75	0.6						
802 Painting/Drawing 2	49	24.5	2	9	18	75	0.24						
821 A.P. Art	14	14	1	9	9	75	0.12						
822 A.P. Art 2	5	5	0	9	0	75	0	2			0		
809 Ceramics	160	20	8	9	72	75	0.96						
813 Advanced Ceramics	43	21.5	2	9	18	75	0.24						
Ceramics 3**	22	22	1	9	9	75	0.12	1			1		
829 Sculpture	66	22	3	9	27	75	0.36						
827 Advanced Sculpture	32	16	2	9	18	75	0.24						
Sculpture 3**	22	22	1	9	9	75	0.12	1			0		
815 Photography	104	20.8	5	9	45	75	0.6						
817 Advanced Photo	44	22	2	9	18	75	0.24						
Photography 3**	18	18	1	9	9	75	0.12	1			0		
						Total	3.96						
Utilization Factor 70%						1.7 =	5.66	5			1	1200	1200
Comp. Graphics Lab**							1	0			1	1000	1000
										5619			2200

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Course Offerings	Projected Students in Course	Class Size	Sections	Course Mods/Week	Total Mods/Course	Mods Avail./Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
PERFORMING ARTS													
861 Choir	28	28	1	9	9	75	0.12						
862 Honors Choir	82	82	1	9	9	75	0.12						
860 Women's Choir	28	28	1	9	9	75	0.12	1			0		
863 Wind Ensemble	53	53	1	9	9	75	0.12						
864 Symphonic Band	91	91	1	9	9	75	0.12						
865 Orchestra	98	98	1	9	9	75	0.12	1			0		
A.P. Music Theory	13	13	1	9	9	75	0.12						
866 Music Technology	14	14	1	9	9	75	0.12	1			0		
775 Intro. to Theater	25	25	1	9	9	75	0.12						
Acting*	25	25	1	9	9	75	0.12						
Stagecraft*	24	25	1	9	9	75	0.12	1			0		
Dance**	40	20	2	9	18	75	0.24						
Advanced Dance**	40	20	2	9	18	75	0.24	0				1500	1500
Music Hist./Apprec.**	22	22	1	9	9	75	0.12	0				800	400
Chamber Orchestra**	35	35	1	9	9	75	0.12						
						Total	2.04						* May be offered in 04-05
Utilization factor 70%						/1.7 =	2.91	4					** Represents expanded program

TABLE I Continued

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Subject	Projected Students per Class	Class Size	Sections	Sessions per Week	Total Sessions	Periods per Week	Total Stations Required	Stations Available	Sq.Ft. each Station	Total Area Available	New Stations Required	Sq.Ft. each Station	Total Area New
PHYSICAL EDUCATION 1													
FIELD HOUSE Teaching Station 1								1	9022	9022	0	-	0
FIELD HOUSE Teaching Station 2								1	9022	9022	0	-	0
FIELD HOUSE Teaching Station 3								1	9022	9022	0	-	0
SMALL GYM Teaching Station 4								1	5287	5287	0	-	0
POOL								1	7020	7020	0	-	0
Other: EXERCISE ROOM								1	1638	1638	0	-	0

SPECIAL EDUCATION

Special Needs:								1	750	750	DECREASE	416	(334)
Special Needs:								1	450	450	SIZE	416	(34)
Special Needs:								1	450	450	"	416	(34)
Small Group (LEARNING CENTER)								1	750	750	"	416	(334)
Small Group								1	414	414	ENLARGE	1050 ²	636
Tutorial								1	414	414	2	320, 200	520
Sp. Ed. Office								0	0	0	4	120, 120	440
Collaborative Class	40	1	75	75	75	75	1	1 (SUITE)	1203	1203	1 (SUITE) ENLARGED	2600	1397
Other:													
										45,442			1857

1. Covered under "Wellness - Lab Work", P. 12 of form 645-5HS Belmont
 2. Includes conference room

Tab 8

SECTION 8

Master Plan and Feasibility Study for Belmont High School

CONCEPTUAL DESIGN

I. Introduction

The goals to be achieved by the new design for Belmont High School are threefold. First, building and building system deficiencies must be addressed in a comprehensive manner to provide another several decades of useful and relatively trouble-free life for the facility. Second, the design must address the additional space needs and upgrades illustrated by the educational specification and responding to the most current teaching, learning and organizational models, with additional opportunity for further evolution as time passes. Third, the design must be reasonable and achievable in two critical dimensions: it must be responsible in its scope and cost, not too ambitious and therefore viewed by the Town as wasteful of scarce resources; nor can it be too modest, therefore failing to completely achieve its goals, allowing important aspects of the improvement program to be deferred to a future date when they will become even more critical in their impact and certainly more expensive. The second dimension concerns the actual implementation of the work. The design must be conceived and structured to allow the work to be accomplished with minimal impact to the educational and social environment and operation of the High School and with minimal impact on student, faculty and staff activities. This parameter is discussed in **Section 9, Phasing Plans** which follows.

II. Design Options and Overview

Several design directions were followed in the initial stages of the Master Plan Study. However, as is often the case, as more information was gained concerning both the physical requirements of the renovation (and expansion) and the goals and vision of the High School faculty and administrators and the Superintendent's Advisory Committee, the desirable options were focused on a few obvious directions that best met all of the criteria developed. It was soon concluded as desirable to concentrate the construction of new space in two main areas – a new Science Wing providing state-of-the-art facilities to replace the present outmoded and undersized labs and prep rooms; and a new “back-of-house” area adjacent to the Stage to provide much needed expansion of the Art and Music Departments’ support facilities including Storage, Scene Shop, Dressing Rooms, Offices and an expanded Band Room. In general, the design leaves the core academic areas of the present school in place to take advantage of using as many existing walls, doors, etc. as possible. Central zones within the classroom pods are reconfigured to create larger, barrier-free student and faculty toilets as well as more faculty support space. The present “lecture halls” in these areas are deleted. Increased need for classroom space is met by taking over former Science Lab areas; this allows all departments to remain

contiguous. The largest option decision, as the project developed, was the location of the new Science Wing. Refer to the discussion of Unit 1 – New Construction, below.

Other general design concepts the Master Plan attempts to achieve are as follows:

- Feature the building's three main, public entrances – the south entrance to the Field House Lobby, the Main Entrance and the east entrance to the Auditorium Corridor. These all deserve to be more prominent, more inviting and more evocative of the energy and forward-looking spirit of the school.
- Provide a significant expansion to the present Library, taking the form of a new section devoted mainly to information technology systems and their use for learning, media production and web-based research.
- Improve the functionality and aesthetics of the Main Entrance Foyer, the Courtyard and the Auditorium Entrance Corridor. Also provide for more convenient circulation from one side of the building to the other in this area.
- In this area, and throughout the building, provide larger and more welcoming places for students and staff to gather informally – for casual study, peer and staff mentoring or simply conversation. Spaces like this are seen as key to maintaining a healthy and balanced social environment at the school.
- Provide a separate, off-site, purpose - built headquarters for the School Maintenance Department. This effects two desirable goals- the noise, dust and fumes sometimes associated with this activity are removed from the school environment, and the resulting space vacated is needed to expand the Art Department.

III. Design Narrative

The Site Plan and Floor Plans in this Section illustrate the final architectural design to be achieved by the proposed renovation/addition program. Illustration and discussion of site design can be found in **Section 6** of this Report and matters of mechanical, plumbing and electrical systems design are discussed in **Section 4**. As noted, the design is conceived to be done in phases. The phases generally move from the west end of the present building (so-called Unit 1) to the east end (Unit 4) and Phase I includes the bulk of the proposed new construction. The major aspects of the new design – both renovation and new construction - are described below. Added to each Unit's or Phase's work scope, abatement of asbestos (ACM) and other hazardous materials will be done prior to start of the work within that Unit. This abatement will take place during summer break and other school vacations, when no students are in the building.

Unit 1

Unit 1 consists generally of the Fieldhouse, the Pool House and associated Locker Rooms - Boys' Physical Education (P.E.) and Boys' Team Rooms adjacent to the Field House and separate Boys' and Girls' serving the Pool - on the main (first) floor. There is also the Fitness Center, Mechanical and Electrical Equipment spaces and Storage for athletic

uses. On the second floor, are located a spectator mezzanine for the Fieldhouse, the “Small Gym”, the Girls’ P.E. and Girls’ Team Locker Rooms (which are too small).

The Master Plan project scope, as defined and included in the Project Cost Estimate presented in **Section 10**, will accomplish the following major work items:

Unit 1 – Existing Construction

- Fieldhouse - Exterior
 1. Replace “Kalwall” panels in the exterior walls with new, providing increased natural light and better insulation.
 2. Replace the “transite” panels, which are ACM’s, below the “Kalwall” panels.
 3. Replace the few windows in this Unit.
 4. Repoint a small amount of brickwork and repair a small amount of exterior concrete column and spandrel covers.
 5. Remove and replace all caulking.
- Fieldhouse - Interior
 1. Replace or substantially reconstruct all bleachers to provide for latest life safety and access code requirements.
 2. Replace or add to all railings at stairs and mezzanines to meet latest life safety codes.
 3. Modify stair treads and risers to meet present codes.
 4. Replace all aging basketball backstops and goals.
 5. Provide new nets and divider curtains.
 6. Replace the synthetic floor that is nearing the end of its ideal life span with new, DIN tested and IOC approved material. Investigate the possibility of incorporating a floating wood basketball game court in the design.
 7. Repaint all surfaces, including ceiling construction and exposed decking for better light reflectance (lighting will be upgraded under work described in **Section 4**).
 8. Provide acoustical paneling to dampen sound.
 9. Provide new interior and exterior doors in the existing frames – doors will replace several with asbestos cores and others with non-compliant hardware.
 10. Provide access-code-compliant internal access from the second floor Girls’ Locker Rooms to the main floor playing area. This will involve a new elevator positioned so that it can be used to get to the Fieldhouse playing level from the Locker Rooms without going out into the “public” part of the facility. The design achieves this while, by use of a front- and rear-opening design, allowing the elevator to be used by spectators to gain the upper seating level of the Fieldhouse and providing for general, barrier-free access between floors at this end of the building, remote from the original elevator.

- Pool House - Exterior
 1. Replace “Kalwall” as for Fieldhouse.
 2. Replace “transite” panels as for Fieldhouse.
 3. Repair brick and concrete as necessary and recaulk as for Fieldhouse.
- Pool House – Interior
 1. Increase the length of the pool tank by approximately 7 feet to create an MIAA-compliant, 25-meter pool.
 2. Provide local repair/replacement of ceramic tile floor and wall finishes.
 3. Replace ceiling to upgrade visually and acoustically and as a consequence of needed HVAC and asbestos abatement work.
 4. Replace interior and exterior doors in existing frames.
 5. Provide barrier-free access to the pool using a lift designed specifically for the purpose.
 6. Provide barrier-free access to the raised seating area by means of a lift; provide wheelchair and companion seating to meet code. Note this will require extension of the present raised platform.
 7. Repaint all presently painted surfaces.
 8. Provide moisture –resistant acoustic absorption paneling on new walls.
- Locker Rooms
 1. Replan all Locker Rooms, including connected toilet rooms and shower areas to provide barrier-free access. In many cases this will involve relocating walls and locker banks. Final design will be carefully studied to keep this to a minimum as the existing ceramic tile walls and floors are in good condition.
 2. Replace all lockers.
 3. Remove and replace ceilings as a consequence of HVAC and abatement work.
 4. Replace all toilet and shower accessories to meet barriers codes.
 5. Redesign showers to meet plumbing code.
 6. Replace all doors and hardware using existing frames.
- “Small Gym” – Exterior
 1. Replace “Kalwall”, “transite” panels and caulking as above.
- “Small Gym” - Interior
 1. Replace or rework bleachers to provide barrier-free access.
 2. Repaint and refinish all wall and ceiling surfaces. (Floor has been recently refinished, although by the time this project is implemented this work may need to be done again.)\
 3. Replace doors in existing frames.
 4. Replace retractable divider partition.

Unit 1 – New Construction

- **Science Wing**

The new Science Wing is proposed in response to several issues. First, the present

Science Labs are not configured properly for the two-part teaching station – lecture and bench work in separate areas of the same room – that is now considered a standard. Second most casework and equipment is original, 1970 vintage. It is old, sometimes unreliable and, in the case of the lack of an acid-neutralization system, does not meet present codes. The casework has only scattered, makeshift provisions for wheelchair-bound students and all drawer and door pulls fail to meet requirements. Technology is not sufficiently pervasive and is not integrated into the room or casework design. Many labs, having been retrofitted into spaces originally designed for the now-defunct business program, are too small to be ideal. Finally, in the present Science Wing, a large area is taken up with what the original design termed a “Lecture Hall”. This is stepped-floor space, now very lightly used and functionally obsolete. At the same time, and similar to all other departments, Science has a pressing need for more faculty office and work area, tutorial and one-on-one meeting space and department storage.

The new wing is proposed to be located parallel to and running the length of the southern face of the Pool House. This location was selected from other alternatives studied for several reasons. First, it is adjacent to the academic portion of the school – it is desirable to have all core academic uses closely grouped to cut down on student passing time. Also this promotes cross-departmental communication and collegiality. Second, it is buffered from the noise and vibration of the rail tracks by the mass of the Fieldhouse and Pool House. Third, the southern exposure is ideal for sophisticated manipulation of daylight and solar gain/shading to create an ideal interior environment with the least energy use. This is accomplished by exterior screen elements that produce shade in the warmer parts of the year while allowing relatively more solar gain in the winter when sun angles are low. At the same time these screens deflect direct sunlight to the room’s ceiling plane that is configured to further reflect the light deep into the space. This design, when correctly implemented, creates more and better ambient light within the room from natural sources and cuts the need for artificial lighting substantially. Finally, the Committee deemed it highly desirable that the new construction, in so far as possible, serve to radically update and present the new image of the school as a whole, embracing the 21st century and providing its students and the Town with a facility second to none in its technology, not only as it applies to learning, but as it is integrated into the design and operation of the building itself. The south façade location serves this purpose well as it is perhaps one of the most visible portions of the building, from both the main drive and the athletic fields.

The new Wing consists of two closely identical floors, with Chemistry, Biology and Physics Labs and their Support Rooms aligned directly over one another for maximum efficiency in utility connections. On the first floor there is a Design Tech Lab whose functioning and products will be prominently displayed at the

new entrance to the athletic complex. On the second floor, new, much enlarged quarters for Science Department faculty offices and work space overhang this entrance and provide a covered plaza, giving this important public area a presence and visibility now lacking.

The location of the new wing allows it to serve more needs than that of the Science Department. Its adjacency to the Pool provides new space for badly needed expansion of the Pool Locker Rooms. In the specific design, the Men's Locker Room is moved into the new space, thus freeing up more area to replan the Women's Locker Room. Additional uses provided for on the First Floor of the new wing are a dedicated Wellness Classroom connected to an expanded Fitness Center. The Second Floor of the new wing contains a large space devoted to expansion of the Girls' Team Locker Rooms. Finally, a broad corridor link between the former and new Science Wings will be provided with display opportunities and casual seating for student socializing and informal study.

As noted, one of the reasons for selecting this location for the new wing is its prominence to the public and the desire it should exemplify the renewed, 21st-century spirit of Belmont High School. To this end, and responding to the opportunities of its orientation and location, the Science Wing will be very contemporary in appearance. Its façade of glass and spandrel glass panels, banded by metal sunshades and solar reflectors, will be designed to appear very light and transparent, inviting the outside observer inside and showcasing the activities within, especially in the evening hours when many people will be present in the area for athletic events. At the same time, the large amount of glass will allow sweeping views of Claypit Pond and the parkland beyond from inside the building.

Unit 2

Unit 2, as redesigned by the Master Plan, will contain, on the first floor, the Athletic Director's and Nurse's Offices essentially where they are presently, but in renovated space. CATV Channel 8 will also remain in its present space. Humanities classrooms will occupy the north and south walls while the center block will be renovated to substantially expand the space for the LABBB program. The "Little Theater" will continue in its present location as will LABBB and the gang toilets.

On the second floor, north and south walls are occupied by teaching spaces – Classrooms, Computer Labs, Special Education Rooms and Science Labs, renovated to complement the new labs in the adjacent wing. In the center block, a series of interconnected Computer Labs and Tech Support spaces forms the Information Technology/Computer Applications Academic Support Cluster. Student and staff Toilet Rooms are located here also.

The Master Plan project scope, as defined and included in the Project Cost Estimates presented in **Section 10**, will accomplish the following major work items:

Unit 2 – Existing Construction

- Exterior
 1. Replace all windows with new insulated units, operable, with screens and new shading devices.
 2. Replace “transite” panels below the windows.
 3. Repoint brickwork and repair concrete as necessary.
 4. Remove and replace all caulking at windows, control joints and meetings of dissimilar materials.
 5. Replace all exterior doors and hardware.
- Interior – First Floor
 1. Abate all asbestos materials – structural fireproofing, floor tile, doors, etc.
 2. Replace door hardware throughout to comply with access codes.
 3. Replace fire doors containing asbestos and damaged door units.
 4. Demolish and rebuild walls to provide the new plan. Note Corridor walls will remain, as will most corridor door openings.
 5. Provide new Classroom casework, marker boards, tack boards and computer projection systems.
 6. Provide new ceilings throughout.
 7. Repaint all painted surfaces.
 8. Remove existing VAT floor covering and replace with VCT.
 9. Reconfigure Toilet Rooms for barrier-free access, including all new fixtures and fittings, new toilet partitions and new finishes (ceramic tile floors and walls, plaster ceilings).
 10. Provide new student corridor lockers.
 11. Modify all stairs and handrails to meet access code.
 12. Rebuild “Little Theater” seating and stage access to provide barrier-free access. Provide new seating.
 13. Provide new lighting, sound, video and stage equipment in Theater.
 14. Provide new seating in Theater.
 15. Deal with water infiltration problem at the lower level of the Theater – waterproof foundation and provide sump pit and pump. Rebuild Stage at a higher elevation.
- Interior – Second Floor
 1. Repeat work scope Interior Items 1 – 11 above.
 2. Replan, renovate and re-equip Physics Lab, Biology Lab and associated Lab Support.
 3. Construct new Corridor between Physics and Biology Labs to provide convenient connection to new Science Wing.

Unit 2 – New Construction

- **Entrance from North Parking Lot**

New construction allocated to Unit 2 is confined to a covered new entrance plaza and vestibule to be located at the rear of the building at the connecting point between Units 1 and 2. This will provide a more prominent and functional entrance to the athletic complex from a new parking area to be constructed at the present location of the portables. The parking area will replace the small parking lot displaced by the new Science Wing and increase the amount of parking available near the Fieldhouse.

Unit 3

Unit 3 consists of four distinct areas – two 2-story Classroom wings, termed the North Wing and the South Wing, and a central core housing, on the first floor, the main part of the Library as well as the school’s Central Administration Office and Guidance Suite. The second floor is devoted to additional Library space on a mezzanine level overlooking the main Library (this is now used as a “drop-in” Computer Resource Lab), a Computer Lab and the Tech Support Center for the school. The fourth area also included in Unit 3 is the present Courtyard and the High School’s Main Entrance Foyer.

The Master Plan project scope, as defined and included in the Project Cost Estimates presented in **Section 10**, will accomplish the following major work items:

Unit 3 – Existing Construction

- Exterior
 1. Repeat work scope for Exterior Items 1 - 5 noted for Unit 2 above.
- Interior – First Floor
 1. Repeat work scope for Interior Items 1 – 11 noted for Unit 2 above.
 2. Renovate, refinish and re-equip Classrooms in North and South Classroom Wings as noted for Unit 2 Classrooms.
 3. Replan center cores of Classroom Wings to provide increased departmental office and work space in place of present Lecture Room.
 4. In the central core, remove and relocate walls at the Library main entrance location to provide increased visibility and more display space.
 5. Reconfigure Library Work Room and Librarians Office to new plan.
 6. Replace shelving, charge desk and other elements of Library furnishings to provide barrier-free access.
 7. Replace two perimeter stairs to Mezzanine with single, central stairway.
 8. Provide new finishes and new doors as noted above (Library to have carpeted floor).
 9. Replan Administration Suite, using new construction (see below) to expand Offices and provide Conference Room.
 10. Install new, accessible counter.
 11. Provide new doors as necessary and all new door hardware.

12. Relocate Metco Office to present Assistant Principal's Office, expanded into present Library Storage.
 13. Provide new Public Meeting Room.
 14. Utilizing new construction, expand Guidance Suite to include additional offices for Counselors, School Psychologist and School Adjustment Counselor, as well as College and Career Center.
- Interior – Second Floor
 1. North and South Classroom Wings – same scope as for First Floor.
 2. Infill present Library “overlook”, resulting in much smaller two-story “well” and increased Second Floor area. Resulting enlarged Second Floor will become the new Media Center with a concentration on technology and computer-assisted research.
 3. In this area, provide two new Computer Labs for general use.
 4. Provide Media and Audio/Video Production workshops and storage.
 5. Provide an expanded Technology Center and Head End to support High School and Town networks and systems.
 6. Modify all stairs and handrails to meet access code.
 7. Replace existing elevator with new, larger shaftway and cab and new controls to meet current access and fire department criteria..
 8. Replace all finishes with exception of Corridor ceramic tile walls in good condition.

Unit 3 – New Construction

- **Courtyard**
 In the Master Plan, the present exterior Courtyard will be roofed over with a vaulted skylight to become an atrium space. Existing outdoor paving, benches, planters and trees will be replaced with new interior furniture and plant material. The space will still feel very garden-like, but will have the advantage of all-year, all-weather utility for student gatherings and will create a new interior circulation path from one side of the building to the other at this heavily trafficked location. This space will be opened to, and become a part of, the Main Foyer. It will be divided from the rear corridor by a retractable grill so it can be open to the public, without opening the rest of the school. It will serve as an ideal intermission and reception area during school productions or Town Meetings.
- **Administration and Guidance Expansion – First Floor**
 Part of the first floor of the Courtyard will be used to expand the Administration and Guidance Suites. Administration is provided with two Assistant Principals' Offices in a more private location. The Principal's Office is enlarged and a large Public Meeting Room that can double as a second Administration Meeting Room is provided. Guidance is expanded with more Counselor Offices and a larger College and Career Center. This connects directly to the Courtyard “Mall” and should become a focus for student socialization. Note the more discipline-related counseling activities of the Guidance Department are zoned away from the Career Center with a separate entrance.

- **Circulation, Casual Meeting Space and Art Gallery – Second Floor**
The Master Plan proposes a bridge “floating” in the new atrium, combining a needed second-floor circulation connection between the two sides of the building with another space for student socialization. To one side, adjacent to the newly created “Honors Art Studio” is an Art Gallery where student exhibits and also traveling exhibits from other artists can be mounted.
- **The Main Entrance**
As has been noted in other segments of this Report, the entrances to Belmont High School generally lack prominence and impact. Rather than announcing an important point of an important public facility, they are all but invisible. This is not only a wrong message, it creates actual difficulties in way-finding for visitors. Anyone not knowing the building, if told to park in the main lot and go to the Main Entrance, would have difficulty following these instructions. To add impact to the Main Entrance, to increase its visibility and to provide a covered, exterior space where students and others can wait for rides or socialize protected from the rain, the Master Plan proposes a new canopy, soaring and light, perhaps supported by a spiderweb of arched steel trusses, that will rise above the existing cornice line of the building and also project beyond the existing façade line. Under this shelter, new paving, benches, planters and perhaps even café tables will provide amenity to further increase the lively action that already occurs here.
- **The Café**
Equally a part of Unit 3 and Unit 4, the new Café extension of the Cafeteria proposed by the Master Plan will project into the Main Entrance plaza with a sparkling all-glass façade glowing with light in the evening. It is designed to open onto the plaza and to provide outside as well as inside eating and socialization opportunities. It will be equipped with special internet access and access to the Town’s and School’s networks. The desired image is of a combination of cyber-café and sidewalk café, a model that has become very popular in college and university student centers.

Unit 4

Unit 4 has the largest floor plan of all the segments of the overall High School plan. Here are found the Cafeteria, Kitchen, Auditorium, Stage, Music and Art Departments. The Master Plan keeps the important core facilities in place, renovating and expanding them in some cases. Behind the Auditorium, on the first floor, is a suite of rooms designed to provide space for student activities such as the Yearbook and School Newspaper. The Music department is headquartered in a wing running along the building’s north side next to the Auditorium and there is direct access to the Stage from the Band Room which can also function as a Green Room for productions. On the second floor over the Student Activity Rooms and partially over the Music Suite are Studios for 2-D and 3-D Art, Ceramics and Photography.

The Master Plan project scope, as defined and included in the Project Cost Estimates presented in **Section 10**, will accomplish the following major work items:

Unit 4 – Existing Building

- Exterior
 1. Repeat work scope noted for Unit 2 above.
 2. Additionally, repair and replace sections of the standing-seam metal roofing and siding covering the upper part of the Stagehouse.
 3. Replace overhead doors in the Custodian's Office, the Orchestra/Chorus Room and the present Maintenance Shop,
- Interior – First Floor
 1. Repeat work scope for Interior Items 1 – 11 noted for Unit 2 above.
 2. Additionally, provide the following work in the indicated locations.
- Auditorium
 1. Remove ceiling to allow removal of asbestos; replace ceiling with new, acoustically tuned “cloud” design.
 2. Construct level pathway from mid-level (entrance level) of audience chamber to Stage to fulfill barrier-free access requirements.
 3. Replace seating; include accessible and companion seating at scattered locations.
 4. Provide wheelchair lift from lower audience chamber level to Stage.
 5. Paint and refinish all surfaces including urethane coating on concrete in seating area and carpet in aisles.
 6. Provide additional wall acoustical panels.
 7. Refurbish existing retractable partition separating Lecture Halls from area of main house.
 8. At main entrance from Corridor, enlarge entry portal to accept 2 sets of double doors. Enhance and signify this entrance with wood paneling and/or other high-end treatment. (Present single set of doors has no distinguishing characteristics, is literally a “hole in the wall”.)
- Stage
 1. Replace original equipment rigging and curtains.
 2. Provide new “sprung” floor designed for dance performance.
 3. Provide new, extended dance mirror and bar at rear Stage wall.
- Corridor leading to Auditorium from parking lot entrance.
 1. At present, this Corridor is dark, stark and depressing. As the main path of entrance to/egress from the Town's premiere performance and meeting venue, it deserves far better. Remove ceiling and abate asbestos. New ceiling will be coffered to high roof, contain cove lighting and a series of pyramidal skylights.
 2. Existing brick walls to remain to door head height only, light wood paneling above and/or wood and fabric acoustical panels.
 3. Remove dark brown VAT floor tile and replace with light-color-range stone tile pavers; consider bright accent colors in the pattern.
 4. In the area of the Auditorium entrance, create an enlarged Foyer by removing Corridor wall and expanding into present Cafeteria Dish Room (now unused).

5. Continue finish upgrade to Corridor in front of Cafeteria entrance and leading to public Toilet rooms that will serve Auditorium.
- Toilet Rooms
 1. The present Toilet Rooms located to serve the public when the Auditorium is in use after school hours are very small, with few fixtures and no amenity. Also they do not meet access code requirements.
 2. Reconfigure and substantially enlarge these Toilet Rooms. New design to have upgraded fixtures, accessories and ceramic tile finishes.
 - Student Activity Rooms
 1. These rooms will be refinished with new ceilings, lighting and computer drops. Provide doors directly to Atrium.
 - Faculty Toilets
 1. Replan to provide for barrier-free access.
 2. All new finishes, fixtures and fittings.
 - Music and Art Rooms
 1. Present School Maintenance Shop reverts to academic use. Refinish and re-equip this space to be 3-D Art Studio.
 2. Provide ramp access for ADA compliance to this room and adjacent Orchestra/Chorus Room.
 3. Return present Storage area to original use as small Practice rooms.
 4. Extend Corridor past Band Room to present exterior door.
 - Cafeteria
 1. Replace all finishes. Ceiling to be coffered, with indirect and cove lighting.
 2. Floor to be non-slip stone tile pavers.
 3. Walls to be painted to door head height and acoustical panels above.
 4. New windows (see Exterior scope) and new window treatments (shading devices).
 5. Refurbish existing retractable partition.
 - Kitchen and Served
 1. Redesign and re-equip Kitchen; change primary heat source from electric to gas.
 2. Redesign Serving Area from "cafeteria" style to "food court" style presentation.
 - Interior – Second Floor
 1. Repeat work scope for Interior Items 1 – 11 noted for Unit 2 above.
 2. Provide doors from Honors art room (in location of present Learning Center), Ceramics studio and 2-D Art Studio to access new Gallery space in Atrium.
 3. Re-equip all Art Studios as necessary to provide for barrier-free access.
 4. Re-equip Photography Studio and Dark Room with current equipment.
 5. Create Computer Graphics Studio in existing space.

Unit 4 – New Construction

- **Music and Drama Support Wing**

The proposed new Music and Drama Support Wing is scheduled to be constructed in Phase I and provide needed “swing” space during renovations of other school areas. As such, it will be originally designed for easy reconfiguration, with light-guage (drywall) partitions and flexible mechanical and electrical system runs. At the end of the project, it will be turned to its intended use of “back-of-house” space for the Music and, especially, the Drama programs. Music will benefit from an enlargement of the Band Room and greatly increased Storage for instruments, band uniforms, etc. Drama will gain greatly increased space for scene storage, a Scene Shop, Dressing Rooms with Toilets and a Drama Office.

- **The Auditorium Entrance**

It is the intent of the Master Plan to substantially upgrade this entrance, possibly the most used of all school entrances, by students, staff and visitors alike. The roof of the Music/Drama wing will be extended beyond the exterior wall line in a sweep, creating an elegant, covered patio here. New paving, benches, lighting and planting will complete the transformation of this area. The canopy is designed to be held in place by a pylon and tension cables. This device will literally signal the place where the building can be entered and also may be used for identification signage. Formal steps leading up to the entrance will be complemented by a ramp for barrier-free access. The pathway created will be continued as a pedestrian street reaching out into the parking lot to provide a safe means of travel to the building.

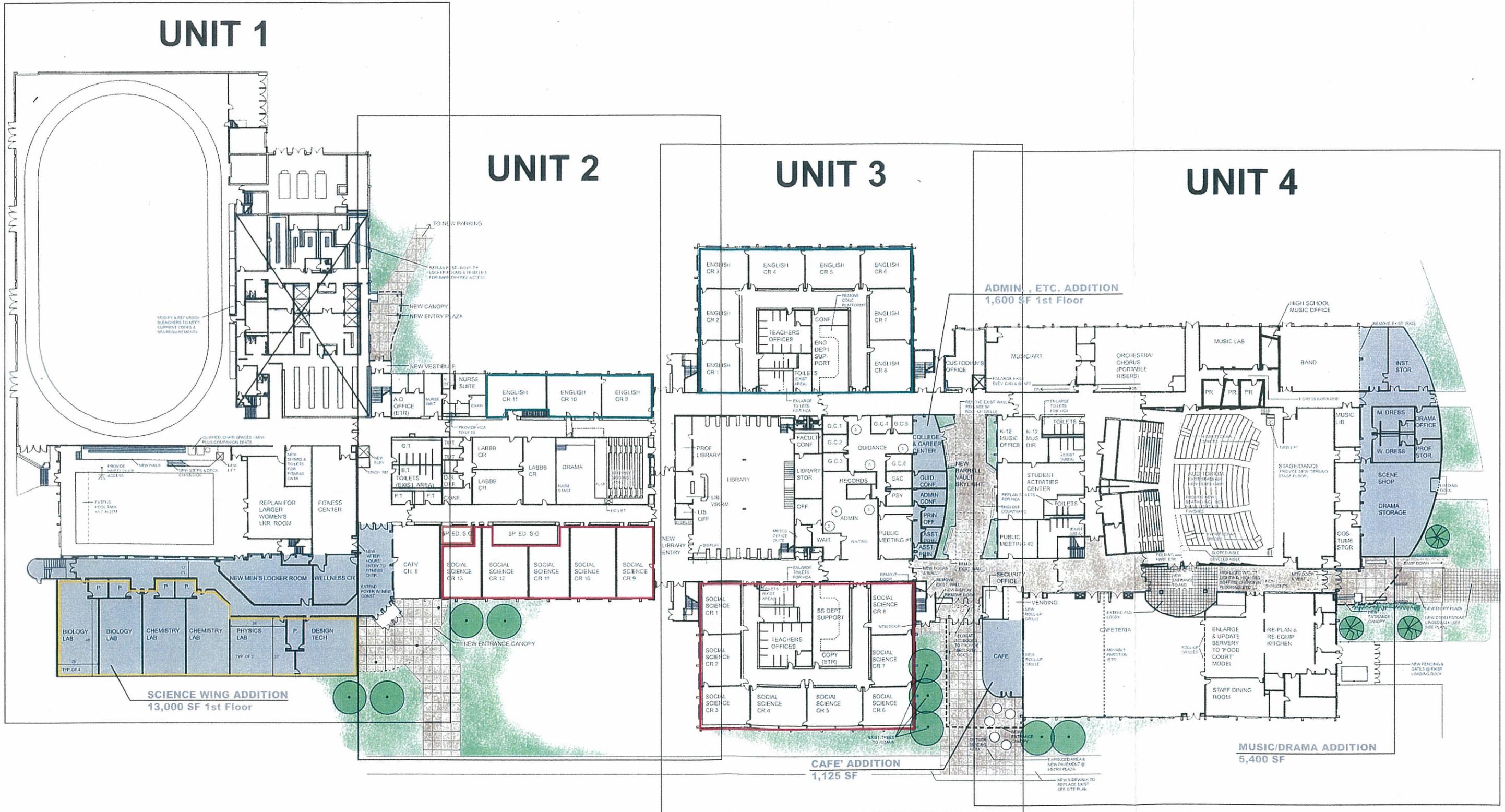
School Department Maintenance Shop, Storage and Garage

- **Explanation**

The School Department Maintenance Shop is now located in a former Woodworking Shop space in the High School. This space will be needed for the new school program as student population increases and the variety of course offerings grows. Furthermore, the noise, the frequent use of strong chemicals and the traffic associated with this operation are not compatible with a school environment. Therefore, as a component of the Master Plan and Feasibility Study for Belmont High School, it is proposed that this use be removed from the school proper and relocated to a new, purpose-built facility to be located to the east of the existing tennis courts. This siting will reduce the number of tennis courts from 10 to 8. However, the courts to be removed are those in the worst condition and all other courts will be completely rebuilt and renovated. Also the girls’ softball field will need to be rebuilt in a different orientation. However, this work is needed and would be a part of the project regardless. A great advantage of this location (refer to the Site Plan) is the ability to enter and leave the area without passing into the school’s circulation pattern and parking lot and especially to avoid the one-way drive leading past the school out to Concord Avenue where a left turn is not permitted.

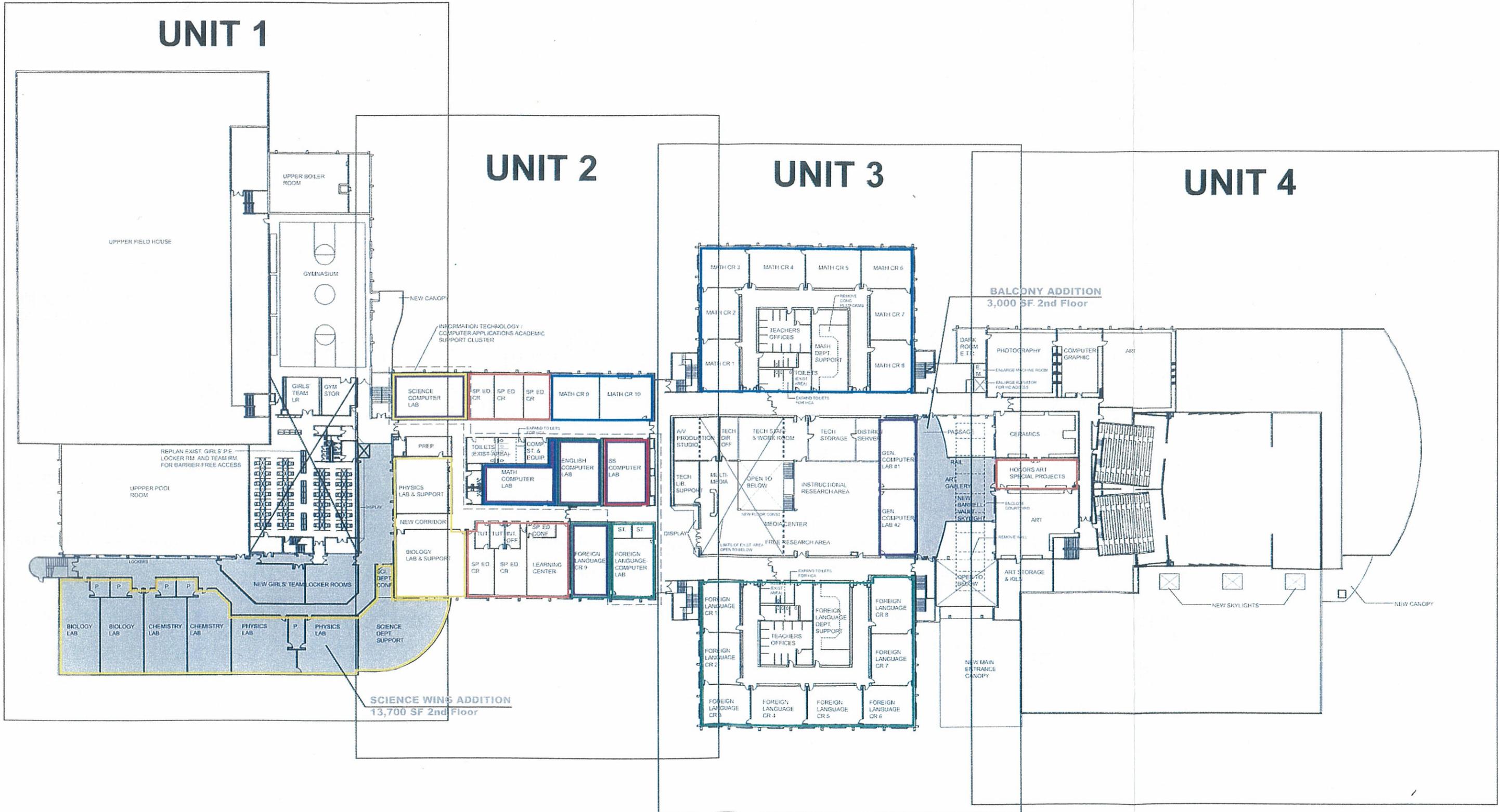
- **Assumptions for Program and Cost Estimate**

1. Assume 5000 square feet floor area.
2. Assume 40% Garage, 25% General Storage, 35% Shop w/ Locker Room, Toilets and Shower, Lunch Room, etc.
3. Garage to have 4 – 10' wide sectional overhead doors.
4. Assume single story, single-width 12" CMU exterior bearing walls, bar joists and metal deck roof structure, single-ply membrane roof
5. Assume 6" and 8" CMU interior walls
6. Assume standard foundation design
7. Assume concrete floor, painted walls and painted exposed ceiling in Garage, General Storage and Shop
8. Assume ceramic tile floors and walls, plaster ceiling in Toilet and Shower
9. Assume VCT floor, painted walls and suspended 2x4 tile ceiling in Lunch Room
10. Assume site work to consist of demo tennis courts; excavate unsuitable fill over site area to be developed; replace with compacted gravel under building and parking/roadways; 2-coat bituminous topping for parking and roadways with concrete aprons at Garage doors; 6" concrete slab on grade for garage, 4" elsewhere in building.



Belmont High School Master Plan

1st Floor



Belmont High School Master Plan
2nd Floor

Tab 9

SECTION 9

Master Plan and Feasibility Study for Renovations to Belmont High School

PHASING PLANS AND PROJECT SCHEDULE

I. Introduction

Early in the development of the Master Plan Study, it was determined that students and programs should not be required to relocate off site or outside the existing High School building at any time during the construction process. In order to allow the continued full utilization of the High School facility, it is therefore necessary to stage, or phase, the construction process. The phasing plan developed for this Study provides most of the new space called for by the program in Phase I (the new Science Wing and the new Art/Music Support Wing). When the new space is complete, it is occupied for school use and areas of the existing building are then available for construction activities.

In this strategy, contractor use is strictly confined to designated areas of the building not in use by the school. Unimpeded paths of circulation, convenient entry and safe egress are maintained for the school population and functions that previously existed in the areas under construction are relocated to other suitable space within the building. In the work area(s) the contractor's forces are contained and self-sufficient. Each area has a designated contractor-only entrance and a designated exterior site area. During subsequent stages of the development of the program specifications, the exact location and extent of contractor-use areas will be determined. Barriers between contractor work and school use zones are strictly specified in the contract documents and provisions are made for noise and dust control and uninterrupted utility services. Not only the territorial limits, but the hours of work and even the deployment of the contractor's personnel are defined in the contract documents.

As an example, at the end of Phase I the Science Department is in its new home and Unit 2 becomes the focus of Phase II contractor activities. Reference to the Phasing Plans following in this Section illustrates how steps within each phase serve to provide dedicated school access through the construction zones. The plans also illustrate the intention to abate all asbestos within the building during the 4 summer break periods that the project spans, when students and staff are not present.

The conceptual phasing strategy is divided into five Phases, as noted, basically moving in sequence from east to west, building Units 1 to 4. This is intuitively the correct sequence since it begins work in the least congested area of the building and also at the point from which utilities (the heating and electrical system runs) emanate. The Phases span from spring of year 1 through three full academic years and four summers, culminating during the 4th academic year at approximately the February break. This extended period of approximately 45 ½ months is necessary to insure each segment of the project is

completed within the allocated time since the next segment cannot start until and unless the previous one is complete. Also the schedule allows sensitive work, like asbestos abatement and construction at the main entrances, to be done during vacation and summer breaks. Finally, relatively small and limited increments of construction activity prevent wholesale disruption of the facility and insure that educational use will not be adversely impacted.

Note that the Phasing Plans included in this Section depict the layout of the facility as it will be when the Master Plan is fully realized. No attempt has been made to portray interim plan steps. The colors and hatching identified by the plan keys illustrate areas under construction during each time interval that Phase consumes.

SECTION 9

Master Plan and Feasibility Study for Renovations to Belmont High School

II. DESCRIPTION OF WORK IN EACH PHASE; ANALYSIS OF SPACE AVAILABLE DURING RENOVATION/ADDITON PROJECT; PROJECT SCHEDULE

PHASE #	PHASE DATES	ROOM COUNT DURING PHASE				NOTES
		CLRM.	SCI.LAB.	COMP.LAB.	SP.ED.	
IA.1 (Summer vacation – 10 wks.)	6/20/yr1 – 9/1/yr1	34	12	5	6	Field House, Boys' L.R. Small Gym, Pool L.R. Fitness Center abated.
IA.2 (Period of no heat required – 22 wks.)	5/1/yr1 – 10/1/yr1					Work in Boiler Room; Pool off line.
IB (Start of 1 st summer - end of 2 nd summer -- 62 wks.)	6/20/yr1 – 9/1/yr2	34	12	5	6	New const. ongoing. Work in exist. bldg. during vacations.

NARRATIVE FOR PHASE IA:

Construction contract award April 1. Work begins in Boiler Room at seasonal shutdown May 1 (temporary provisions for domestic hot water in place). Abatement of Field House, Pool House, Pool Locker Rooms, Fitness Room, Small Gym starts 6/20 when classes let out. Abatement is completed and these areas are "buttoned up" for Owner's use by 9/1 except for Pool where HVAC work continues until 10/1. Boiler Room construction complete 10/1, prior to seasonal turn-on.

NARRATIVE FOR PHASE IB:

New construction during this period for Science Wing and Music/Art Support Wing. Construction activities at two main entrance points (to Field House and to Auditorium) controlled to maintain safe egress routes.

IIA (Summer vacation – 10 wks.)	6/20/yr2 – 9/1/yr2	34	12	5	6	Field House, Boys' and Girls' L.R., Small Gym, Pool, Pool LR renovated. New const. being completed. Unit B abated. Kitchen abated and renovated.
IIB (Start of 2 nd summer – end of Feb. vacation – 35 wks.)	6/20/yr2 – 2/20/yr3	34	12	5	6	Fitness Center <u>or</u> Small Gym used for temp CR's. Unit B renovated.

NARRATIVE FOR PHASE IIA:

Renovations to Boys' and Girls' PE and Team Locker Rooms and Small Gym, already abated and with some work done during previous year vacations, substantially completed this period. Abatement of Unit B, both floors. Renovations of corridors and toilet rooms both floors Unit B. Complete new construction at entryway areas until now needed for egress routes. Kitchen abated and renovated (bring in new gas line).

NARRATIVE FOR PHASE IIB:

Unit B vacated by school (except for corridors and toilet rooms). Science Labs move to new Science Wing. AD Office and Nurse move to temp quarters in new Science Wing. Classrooms (3) relocate to temp quarters Fitness (or Small Gym) and new Wellness CR. Sped CR's (4), LABBB and METCO relocate to temp quarters in new Music/Art Wing. Unit B renovated.

Master Plan and Feasibility Study for Renovations to Belmont High School

II. DESCRIPTION OF WORK IN EACH PHASE; ANALYSIS OF SPACE AVAILABLE DURING RENOVATION/ADDITON PROJECT; PROJECT SCHEDULE

PHASE #	PHASE DATES	ROOM COUNT DURING PHASE				NOTES
		CLRM.	SCI.LAB.	COMP.LAB.	SP.ED.	
IIIA.1 (Start of Feb. vacation – end of 3 rd summer – 32 wks.)	2/15/yr3 – 9/1/yr3	34	14	6	6	Unit C South Wing relocates to Unit B. C South abated Feb. vacation and renovated. Complete Men's Pool LR.
IIIA.2 (Summer vacation – 10 wks.)	6/20/yr3 – 9/1/yr3	34	14	6	6	Reno Courtyard, Main Entrance Foyer, install canopy. Complete Women's Pool LR.
IIIB (Start of 3 rd summer – end of Christmas vacation – 28 wks.)	6/20/yr3 – 1/2/yr4	34	14	6	6	Unit C North Wing relocates to completed Unit C South. abate and reno C North.

NARRATIVE FOR PHASE IIIA:

With unit B renovations complete, LABBB moves back to enlarged quarters. Nurse and AD also move back and new Men's Locker Room for Pool completed. Two additional Science Labs available on B 2nd floor. Besides relocated classrooms, B has space for additional Computer Lab and Departmental Work Space. During April vacation and continuing through summer, area of Courtyard floored and roofed, main entrance Foyer abated and renovated, new entrance canopy installed with exterior plaza and footings and slab for Café.

NARRATIVE FOR PHASE IIIB:

Beginning at the start of summer, Unit C North relocates to completed Unit C South, C North abated and renovated in next 28 weeks.

IVA (Start of Christmas vacation – end of 4 th summer – 36 wks.)	12/20/yr3 – 9/1/yr4	39	14	6	6	Library relocates to Small Gym, Guidance to Unit C, Admin to Student Activities Area. Unit C Center abated Christmas break, renovated. Build new space in Courtyard.
IVB (Summer vacation – 10 wks.)	6/20/yr4 – 9/1/yr4	39	14	6	6	Build Café. Abate Auditorium, Stage, abate and begin reno Auditorium Corridor/Lobby.

NARRATIVE FOR PHASE IVA:

Although Guidance takes 3 CR equivalents and 2 more are used for Comp. Labs, completion of work in C brings 5 additional CR's on line at the beginning of this Phase. HS can now easily accommodate expanded student population. Last half of school year sees Admin. and Guidance displaced and Library in Small Gym. Exist. Courtyard walls remain up to isolate construction zone until summer.

Master Plan and Feasibility Study for Renovations to Belmont High School

II. DESCRIPTION OF WORK IN EACH PHASE; ANALYSIS OF SPACE AVAILABLE DURING RENOVATION/ADDITON PROJECT; PROJECT SCHEDULE

NARRATIVE FOR IVB:

During summer Café is built on footings and a slab and under a roof all previously done in Phase III. Abatement done in Auditorium, Stage and Corridor. Work in Aud. Corridor proceeds toward final design but needs to be "buttoned up" by 9/1 to provide a safe egress path.

<p>VA 6/20/yr4 – 2/20/yr5 (Start of 4th summer – end of February vacation – 39 wks.)</p>	<p>44 14 6 6</p>	<p>All core academic subjects now in permanent positions. Full CR count. Ditto Admin and Guidance. Auditorium closed for renovations. Music and Drama move to temp. locations in Support Wing and Student Activities Area. Art moves to Small Gym. Reno Aud. Corridor/Lobby during vacations to maintain egress.</p>
<p>VB 6/20/yr4 – 9/1/yr4 (Summer vacation – 10 wks.)</p>	<p>44 14 6 6</p>	<p>Abate Music, Art, Drama and Cafeteria during summer. Caf renovations to be done in summer and vacations to allow continued use.</p>

END OF PROJECT

TOTAL PROJECT DURATION : May 1, Year 1 – February 20, Year 5, approximately 45 ½ months.

PHASE IA.1

6/20/yr. 1 -- 9/1/yr. 1 (10 wks.)

PHASE IA.2

5/1/yr. 1 -- 10/1/yr. 1 (22 wks.)

PHASE IB

6/20/yr. 1 -- 9/1/yr. 2 (62 wks.)

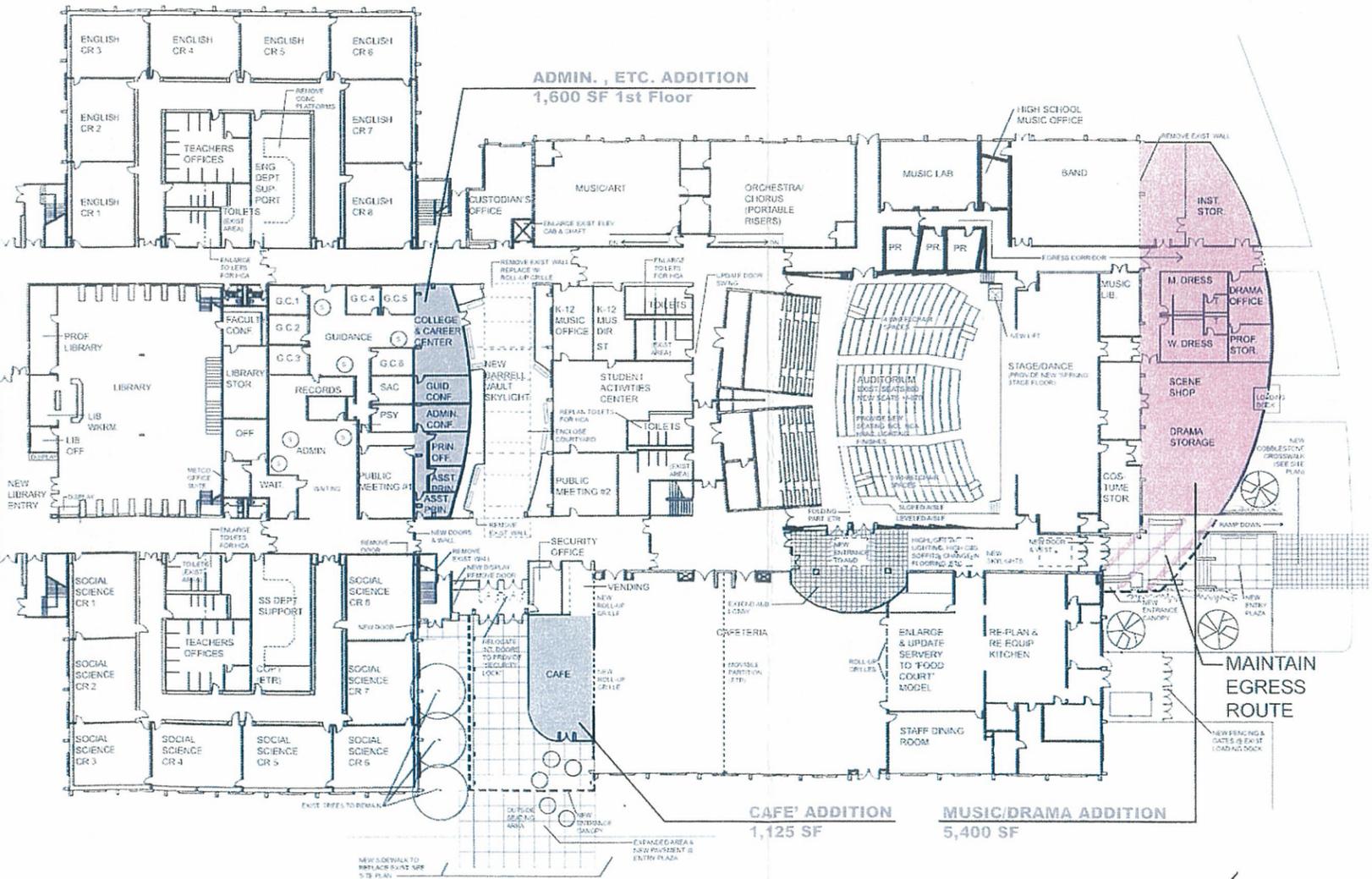
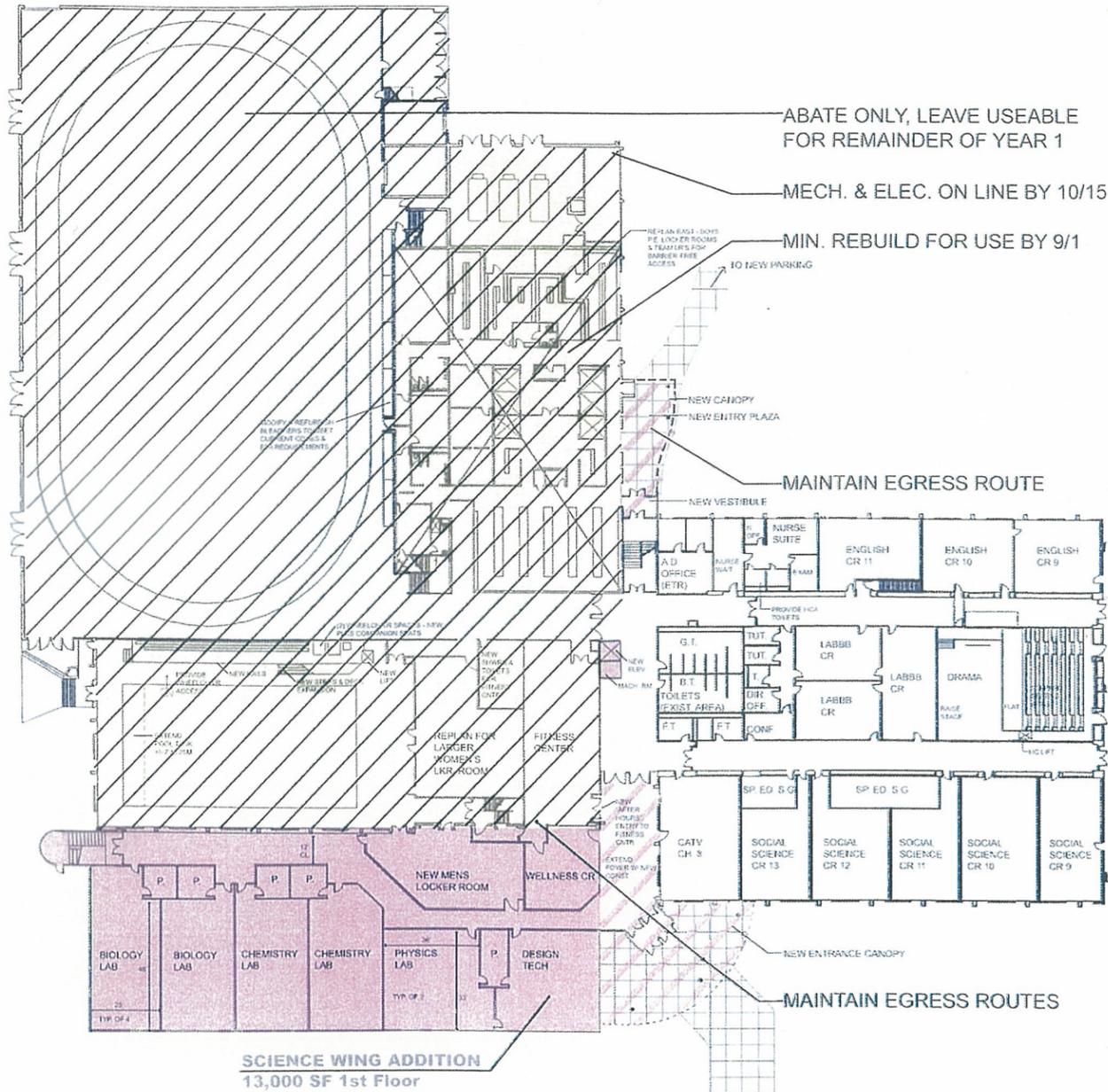


NEW CONSTRUCTION



ABATE

RENOVATE



AT COMPLETION OF PHASE I
 NEW ADDITIONS (THIS PHASE): 32,100 SF
 SCIENCE LABS: 12
 STANDARD CLASSROOMS: 34

Belmont High School Master Plan

1st Floor

PHASE IA.1

6/20/yr. 1 -- 9/1/yr. 1 (10 wks.)

PHASE IA.2

5/1/yr. 1 -- 10/1/yr. 1 (22 wks.)

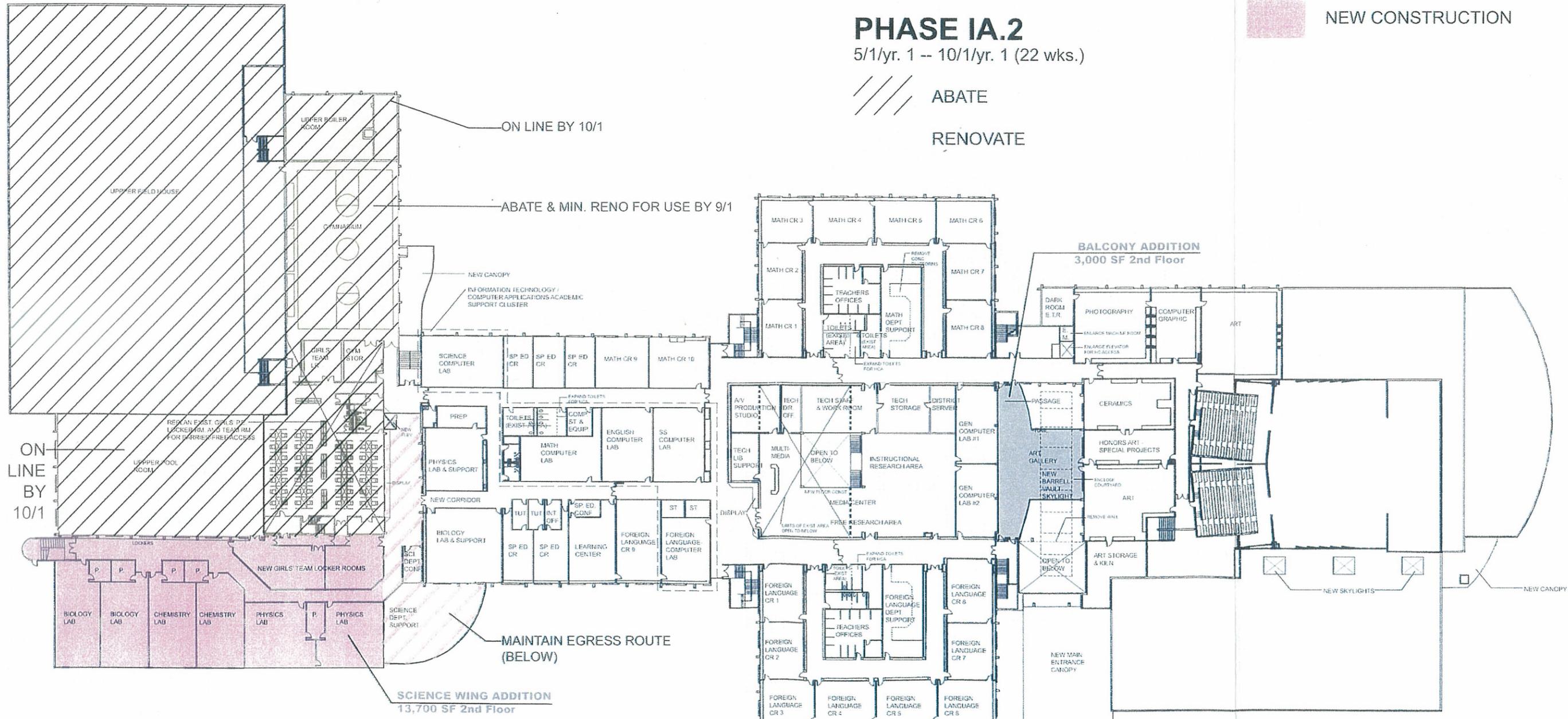
PHASE IB

6/20/yr. 1 -- 9/1/yr. 2 (62 wks.)

 NEW CONSTRUCTION

 ABATE

 RENOVATE



AT COMPLETION OF PHASE I
NEW ADDITIONS (THIS PHASE): 32,100 SF
SCIENCE LABS: 12
STANDARD CLASSROOMS: 34

Belmont High School Master Plan

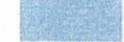
2nd Floor

PHASE IIIA.1

2/15/yr. 3 -- 9/1/yr. 3 (32 wks.)

PHASE IIIA.2

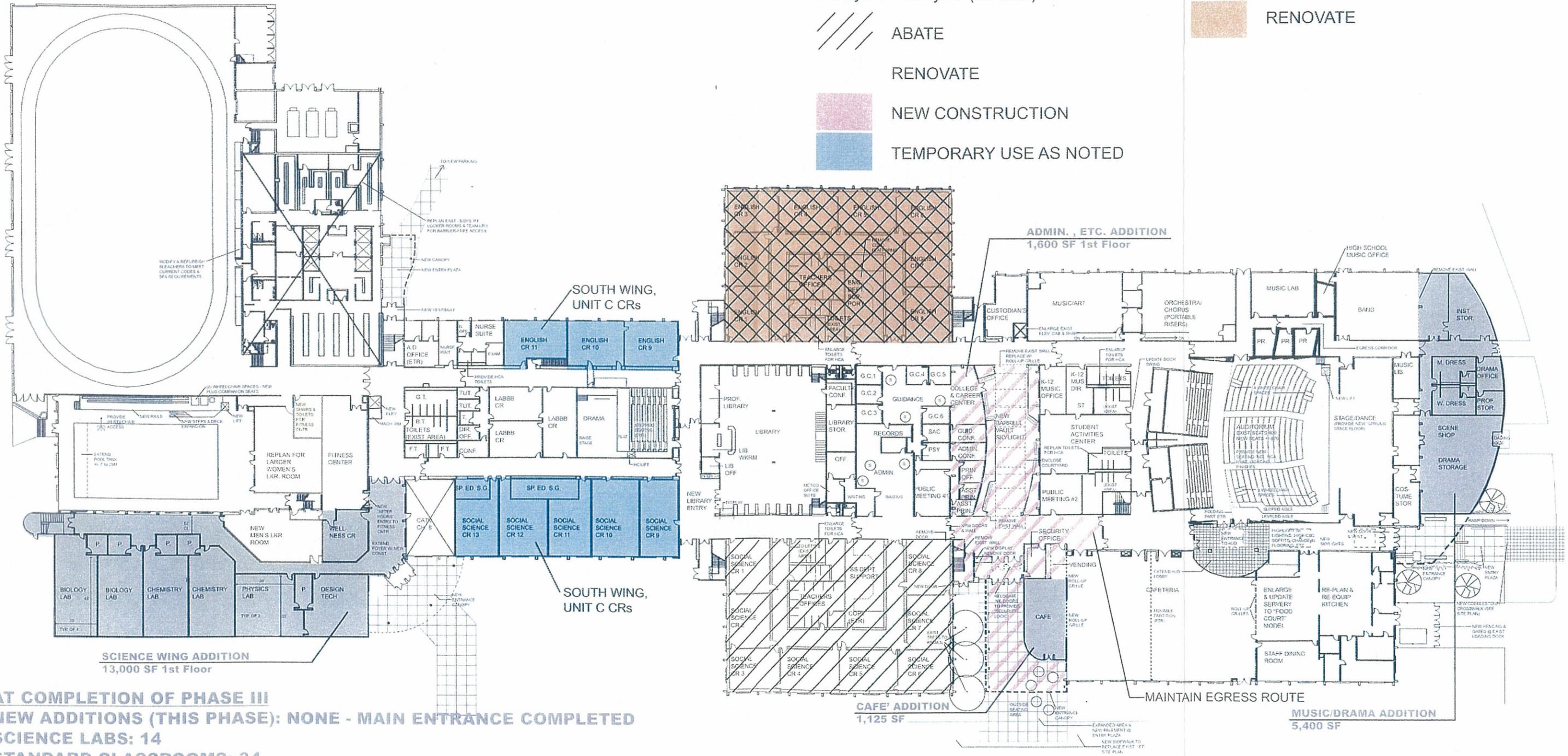
6/20/yr. 3 -- 9/1/yr. 3 (10 wks.)

-  ABATE
-  RENOVATE
-  NEW CONSTRUCTION
-  TEMPORARY USE AS NOTED

PHASE IIIB

6/20/yr. 3 -- 1/2/yr. 4 (28 wks.)

-  ABATE
-  RENOVATE



AT COMPLETION OF PHASE III
NEW ADDITIONS (THIS PHASE): NONE - MAIN ENTRANCE COMPLETED
SCIENCE LABS: 14
STANDARD CLASSROOMS: 34

Belmont High School Master Plan

1st Floor

PHASE IIIA.1

2/15/yr. 3 -- 9/1/yr. 3 (32 wks.)

PHASE IIIA.2

6/20/yr. 3 -- 9/1/yr. 3 (10 wks.)

ABATE, 1ST STAGE

RENOVATE, 1ST STAGE

NEW CONSTRUCTION

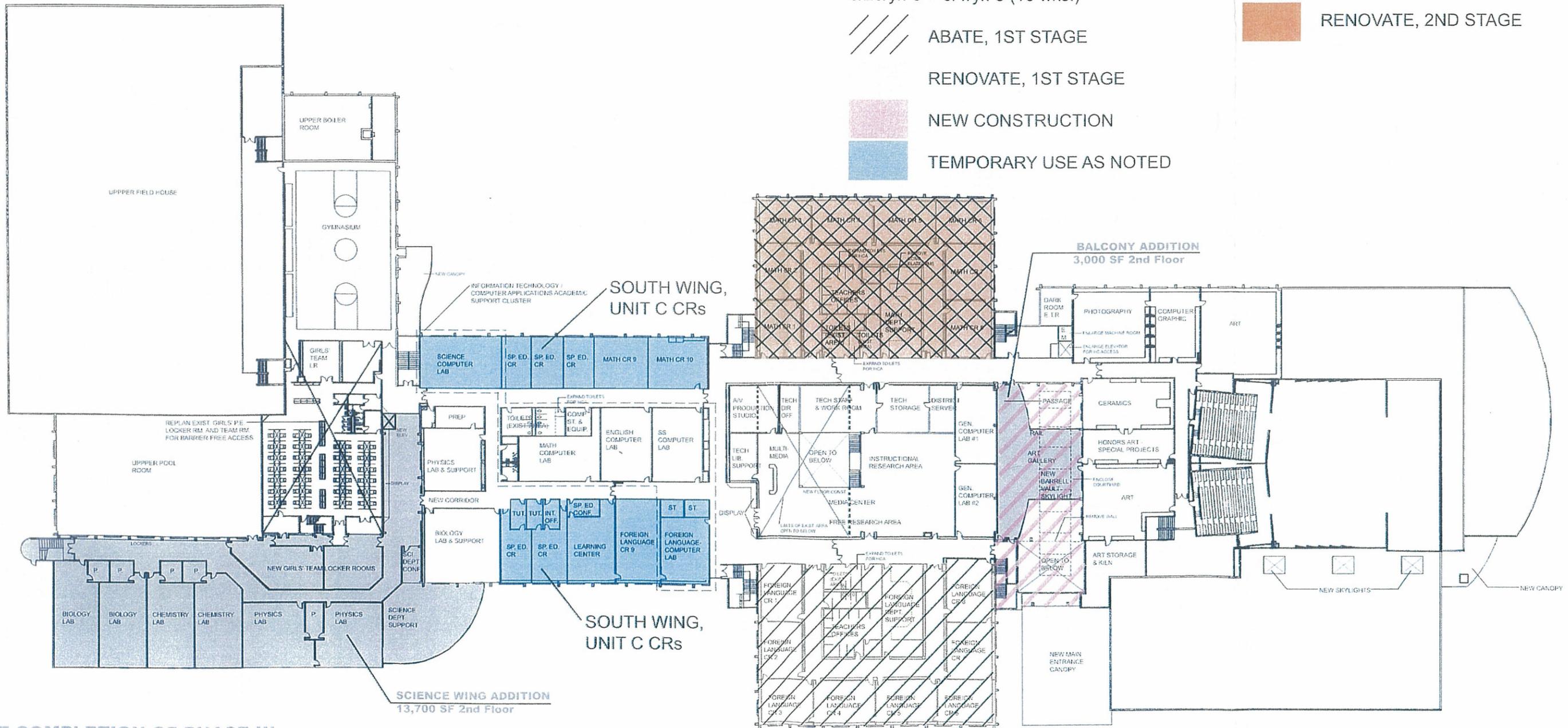
TEMPORARY USE AS NOTED

PHASE IIIB

6/20/yr. 3 -- 1/2/yr. 4 (28 wks.)

ABATE, 2ND STAGE

RENOVATE, 2ND STAGE



AT COMPLETION OF PHASE III
NEW ADDITIONS (THIS PHASE): NONE - MAIN ENTRANCE COMPLETED
SCIENCE LABS: 14
STANDARD CLASSROOMS: 34

Belmont High School Master Plan

2nd Floor

PHASE IVA

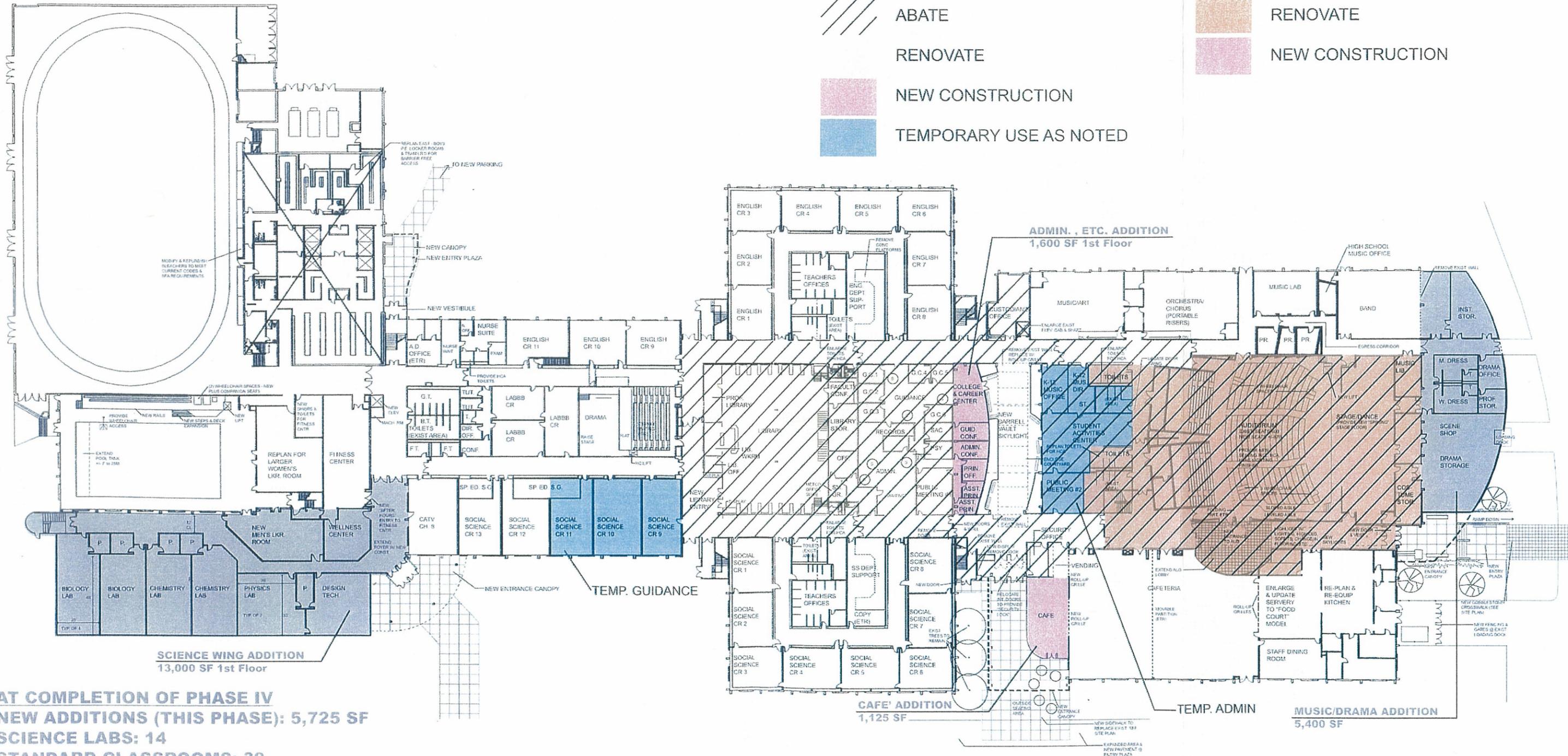
12/20/yr. 3 -- 9/1/yr. 4 (36 wks.)

-  ABATE
-  RENOVATE
-  NEW CONSTRUCTION
-  TEMPORARY USE AS NOTED

PHASE IVB

6/20/yr. 4 -- 9/1/yr. 4 (10 wks.)

-  RENOVATE
-  NEW CONSTRUCTION



AT COMPLETION OF PHASE IV
NEW ADDITIONS (THIS PHASE): 5,725 SF
SCIENCE LABS: 14
STANDARD CLASSROOMS: 39

Belmont High School Master Plan

1st Floor

PHASE IVA

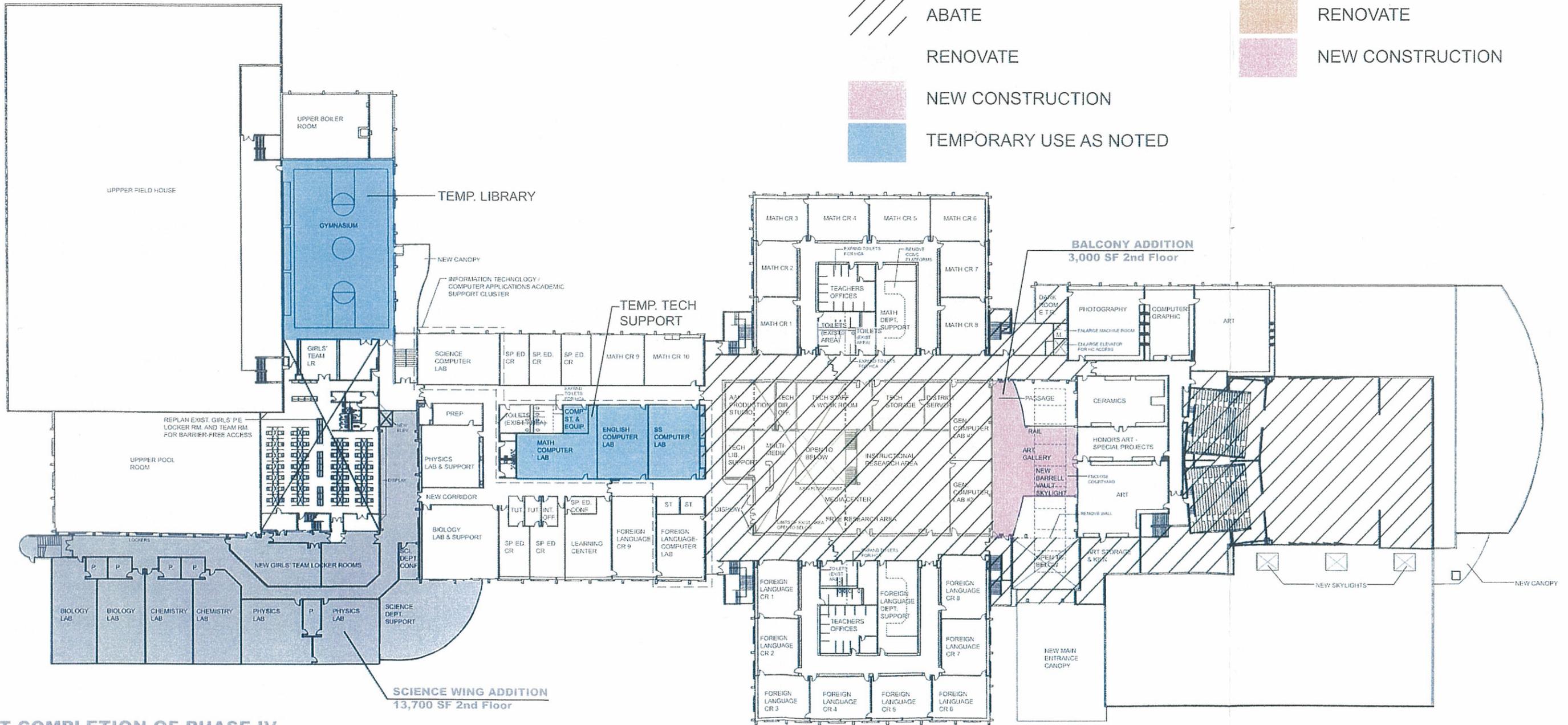
12/20/yr. 3 -- 9/1/yr. 4 (36 wks.)

-  ABATE
-  RENOVATE
-  NEW CONSTRUCTION
-  TEMPORARY USE AS NOTED

PHASE IVB

6/20/yr. 4 -- 9/1/yr. 4 (10 wks.)

-  RENOVATE
-  NEW CONSTRUCTION



AT COMPLETION OF PHASE IV
NEW ADDITIONS (THIS PHASE): 5,725 SF
SCIENCE LABS: 14
STANDARD CLASSROOMS: 39

Belmont High School Master Plan

2nd Floor