BETHESDA - CHEVY CHASE HIGH SCHOOL

Addition Feasibility Study

Prepared for

Montgomery County Public Schools

By

Smolen ▪ Emr ▪ Ilkovitch Architects
Rockville, MD

October 2013

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SMOLEN • EMR • ILKOVITCH ARCHITECTS
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Bethesda - Chevy Chase High School
Addition

4301 East - West Highway
Bethesda, Maryland 20814

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I. Introduction

Bethesda - Chevy Chase High School is located in Bethesda at 4301 East - West Highway. This feasibility study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm of Smolen ■ Emr ■ Ilkovitch Architects to develop options for adding capacity to Bethesda - Chevy Chase High School.

Feasibility Study Participants

The feasibility study participants reviewed, revised, and approved the design options for the addition to Bethesda - Chevy Chase High School through a series of work sessions. The work sessions occurred on August 14, 2012, October 9, 2012, October 24, 2012, November 8, 2012 and November 28, 2012. The proposed designs are a result of the participants' suggestions and guidance during the feasibility study process.

Listing of Participants

Karen Lockard	Principal	Bethesda - Chevy Chase High School
Carlotta Amaduzzi	Community	Bethesda - Chevy Chase High School
Lynn Amano	Community	Bethesda - Chevy Chase High School
Valarie Barr	Community	Bethesda - Chevy Chase High School
Katrina Baum	Community	Bethesda - Chevy Chase High School
Sarah Beck	Community	Bethesda - Chevy Chase High School
Charlie Birney	Community	Bethesda - Chevy Chase High School
Barbara Bollman	Parent	Bethesda - Chevy Chase High School
Carole Brand	Community	Bethesda - Chevy Chase High School
Craig Brown	Community	Bethesda - Chevy Chase High School
Stasi Brown	Community	Bethesda - Chevy Chase High School
Stan Chase	Community	Bethesda - Chevy Chase High School
Adam Clay	Community	Bethesda - Chevy Chase High School
Mary Cobbelt	Parent	Bethesda - Chevy Chase High School
Bridget Cowie	Parent	Bethesda - Chevy Chase High School
Ana Conner	Community	Bethesda - Chevy Chase High School
Patty Craver	Community	Bethesda - Chevy Chase High School

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I. Introduction (Continued)

List of Participants (Continued)

Bruce Crispell	Director	Division of Long - range Planning - MCPS
Liz Dayen	Community	Bethesda - Chevy Chase High School
Karen Dubrow	Community	Bethesda - Chevy Chase High School
Alysa Emden	Parent	Bethesda - Chevy Chase High School
James Emr	Principal / Architect	SEI Architects
Stacy Farrar	Staff / Parent	Bethesda - Chevy Chase High School
Gerd Fischer	Community	Bethesda - Chevy Chase High School
Chris Garran	Associate Superintendent for High Schools	Office of School Support and Improvement - MCPS
Michelle Hainbach	Parent	Bethesda - Chevy Chase High School
Daniel Handwerker	Community	Bethesda - Chevy Chase High School
Jack Hayes	Community	Bethesda - Chevy Chase High School
Monica Hayes	Community	Bethesda - Chevy Chase High School
Claire Helm	Community	Bethesda - Chevy Chase High School
Ricardo Hernandez	Assistant Principal	Bethesda - Chevy Chase High School
Fritz Hirst	Community	Bethesda - Chevy Chase High School
Hunter Hogewood	Staff	Bethesda - Chevy Chase High School
Ilaya Hopkins	Community	Bethesda - Chevy Chase High School
Mark Horton	Community	Bethesda - Chevy Chase High School
Greg Ip	Community	Bethesda - Chevy Chase High School
Karen Jacob	Community	Bethesda - Chevy Chase High School
Elliot Kaye	Community	Bethesda - Chevy Chase High School
Andrea Kelly	Community	Bethesda - Chevy Chase High School
Patrick Kidd	Community	Bethesda - Chevy Chase High School
Veronica Kidd	Community	Bethesda - Chevy Chase High School
Suzanne King	Community	Bethesda - Chevy Chase High School
Susan Kitt	Community	Bethesda - Chevy Chase High School
Ina Kovacheva	Architect	SEI Architects

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I. Introduction (Continued)

List of Participants (Continued)

Aaron Krant	Community	Bethesda - Chevy Chase High School
Ed Krauze	Parent	Bethesda - Chevy Chase High School
Ariel Lautman	Community	Bethesda - Chevy Chase High School
Jason Levy	Intern Architect	SEI Architects
Anne Lieberman	Community	Bethesda - Chevy Chase High School
Lisa Loche	Community	Bethesda - Chevy Chase High School
Nicole Macon	Community	Bethesda - Chevy Chase High School
Jennifer Maged	Community	Bethesda - Chevy Chase High School
Margot Mahoney	Parent	Bethesda - Chevy Chase High School
Will McConarty	Community	Bethesda - Chevy Chase High School
Karie McMickile	Community	Bethesda - Chevy Chase High School
Debbie Missal	Parent	Bethesda - Chevy Chase High School
Mikel Moore	Community	Bethesda - Chevy Chase High School
Gary Mosesman	Senior Architect	SEI Architects
Nancy Nantais	Community	Bethesda - Chevy Chase High School
Andrew Niebler	Community	Bethesda - Chevy Chase High School
Roger Paden	Community	Bethesda - Chevy Chase High School
Rafe Petersen	Parent	Bethesda - Chevy Chase High School
Linda Platt	Parent	Bethesda - Chevy Chase High School
Tim Price	Community	Bethesda - Chevy Chase High School
Khalin Redding	Intern	SEI Architects
Barbara Rice	Community	Bethesda - Chevy Chase High School
Dana Rice	Community	Bethesda - Chevy Chase High School
Eleanor Rice	Community	Bethesda - Chevy Chase High School
Laurie Rosen	Parent	Bethesda - Chevy Chase High School
David Rubashkin	Community	Bethesda - Chevy Chase High School
Marcie Sandalow	Community	Bethesda - Chevy Chase High School
Peggy Schwartz	Community	Bethesda - Chevy Chase High School
Steve Seidel	Community	Bethesda - Chevy Chase High School

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I. Introduction (Continued)

List of Participants (Continued)

Amy Selco	Community	Bethesda - Chevy Chase High School
Michael Shpur	Architect	Division of Construction - MCPS
Peter Siegel	Parent	Bethesda - Chevy Chase High School
Teddy Springer	Community	Bethesda - Chevy Chase High School
Debbie Szyfer	Senior Planner	Division of Long - range Planning - MCPS
James Tapley	Staff	Bethesda - Chevy Chase High School
James Tokar	Project Manager	Division of Construction - MCPS
Kim Vela	Community	Bethesda - Chevy Chase High School
Shoshana Vequliart	Community	Bethesda - Chevy Chase High School
Sabrina Wallach	Student	Bethesda - Chevy Chase High School
Christine Waltz	Community	Bethesda - Chevy Chase High School
Jane Ward	Parent	Bethesda - Chevy Chase High School
Mike Wolf	Community	Bethesda - Chevy Chase High School
Dana Wright	Parent	Bethesda - Chevy Chase High School
Traci Zambolti	Community	Bethesda - Chevy Chase High School

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II. Executive Summary

Purpose

The purpose of this feasibility study is to explore options to increase the student capacity at Bethesda - Chevy Chase High School to accommodate the projected enrollment at the school. The study evaluated a series of potential options that would satisfy the requirements of the educational specifications and space summary. The intent of this study is to provide Montgomery County Public Schools with specific recommendations and construction costs associated with the implementation of each proposed option.

History

Bethesda - Chevy Chase High School was originally constructed in 1934. The school is named in honor of the two towns it serves, along with Kensington and Silver Spring.

Since the original construction, several additions have been constructed to the building. In February 2002 Bethesda - Chevy Chase High School reopened after being revitalized and expanded.

Methodology

The existing school was evaluated by the design team to determine the most advantageous approach to adding the proposed programmed spaces. Additionally, the study indicates the impact, if any, that can be reasonably expected as a result of each proposed option. The evaluation is based on compliance with Montgomery County Public Schools educational specifications.

The study is based on the following:

- Work sessions with the feasibility study participants & Montgomery County Public Schools Staff.
- Analysis of existing site features and meeting with Montgomery County related to storm-water management.
- Review of the educational specifications.
- Research conducted by the design team.

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II. Executive Summary (Continued)

Overview

Bethesda - Chevy Chase High School is comprised of the original building constructed in 1934, with 11 additions and renovations that occurred over the past 79 years. The facility has several construction types which include steel - framed structure with an exterior masonry façade as well as masonry bearing wall construction. The northern portion of the building is four stories tall and contains a basement level. The bus loading entrance and portions east and south are three stories tall and share the same floor elevations with the northern portion. This area also surrounds a courtyard. Spread footings support the columns throughout the building with strap footings along the south side. At - grade levels contain a concrete slab on grade and the elevated floors are composite beam systems framing to steel columns. The roof is mainly framed with low slope steel joists with some roof features containing sloped joists.

Exterior concrete stairs and ramp lead upward from the bus loop to the first floor level. Numerous exterior concrete stairs and ramps provide access to the east and south side of the building.

The proposed building additions located along the north and west sides of the building are expected to minimally impact the existing structure. Some new door openings are anticipated while renovation of the existing façade will be minimized as much as feasible in the areas directly impacted by the building additions. Some underpinning may be required, depending on the locations and elevations of the existing footings relative to new footings.

Vehicular access to the school is provided through two driveways located off of East - West Highway. One driveway serves as the main entry to the bus loop and on - site parking. The second driveway, located along Chelton Road, provides access to the parent drop - off loop. Additional staff and visitor parking spaces are located along the access way. There are 234 parking spaces currently on - site. Sidewalks link the pedestrian circulation routes of the facility to the public sidewalks along Pearl Street and Chelton Road.

The current capacity at Bethesda - Chevy Chase High School is 1665, with an official enrollment of 1,835 students, and enrollment projected to grow to almost 2200 students by the 2018-2019 school year. Long term, enrollment at the school is projected to increase to 2,300 students in the ten to fifteen year forecast.

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II. Executive Summary (Continued)

Proposed Options

Three building addition options were developed with input from the feasibility study participants and Montgomery County Public Schools' staff. Each option meets all of the programmatic requirements set forth by the educational specifications and explores different approaches of increasing the school capacity. All options will impact the existing building and site, however, the school will remain occupied and fully functional during construction.

Common Design Elements

All three options have the following common elements:

Building

- Conform to current building standards and will be Americans with Disabilities accessible.
- Increase the current capacity from 1665 to the maximum capacity of 2400.
- Occupied school during construction.
- Minimal disturbance of the existing building and academic curriculum.
- Improve circulation in the existing building by allowing students to use corridors in the existing building that are currently under-utilized.
- Provide the same number of teaching spaces.
- Provide, when possible, program relationship between new and existing teaching spaces by strategically locating new program in close proximity and at the same floor elevation to the existing space.

Site

- Preserve existing vehicular and bus circulation through the site.
- Provide a raised tennis court structure to accommodate six tennis courts and additional surface parking below. Provide access to athletic fields between the raised tennis courts and the addition.
- Require relocatable classrooms for any of the proposed options, (If any relocatable classrooms are required prior to construction, it is recommended that they be located at the parking lot adjacent to the existing tennis courts.)
- Require after school athletic program to occur offsite due to construction staging.

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II. Executive Summary (Continued)

Option 1 Description

(Area 78,000GSF || Efficiency Factor: 61%)

The proposed option consists of a two - story addition along with a lower level and is located along the northwestern side of the site. The main level of the addition provides loop circulation to the existing school. Additionally, the raised two - story single loaded corridor will be built above the existing bleachers providing covered seating. The open space option will maintain the existing fire - lane and provides fire - truck access through Pearl Street. The stadium field and existing tennis court area will be required for contractor staging during construction. This options provides 90 additional parking spaces to the site by raising the tennis courts up onto a structure with surface parking below.

Design Elements include:

•A two story addition, which includes a lower level that provides connection to the existing locker rooms.
•The stadium field and tennis court areas will be used as contractor staging areas during construction.
•Three stairways provide vertical access through the addition to ensure proper means of egress and improve building circulation.
•Looped circulation will connect the addition to the existing school on the main level.
•Raised classrooms over the bleachers provide views to the stadium field.

Total Construction Cost:	$29,547,000

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II. Executive Summary (Continued)

Option 2 Description

(Area 80,000GSF || Efficiency Factor: 59%)

The proposed option consists of a three - story addition along with a lower level and is located along the northwestern side of the site. The main level of the addition provides loop circulation to the existing school. Additionally, the raised three - story single loaded corridor will be built above the existing bleachers providing covered seating. The open space option will maintain the existing fire - lane and provides fire - truck access through Pearl Street. The stadium field and tennis courts will be required for staging during the construction phase. This option provides 110 additional parking spaces to the site by raising the tennis courts up onto a structure with surface parking below.

Design Elements include:

- Most compact option with the best efficiency factor.
- A three - story addition that includes a lower level which provides connection to the existing locker rooms.
- The stadium field and tennis court areas will be used for contractor staging during construction.
- Three stairways provide vertical access through the building to ensure proper means of egress and improve building circulation.
- Looped circulation will connect the addition to the existing school on the main level.
- Raised classrooms over the bleachers provide views to the stadium field.
- The three story addition over the tennis courts provides three connections at the front of the existing building entrance.

Total Construction Cost:	$30,305,000

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II. Executive Summary (Continued)

Option 3 Description

(Area 85,000GSF || Efficiency Factor: 55%)

The proposed option is located in front of the existing main entrance on the northwestern side of the site. The option investigates raising the proposed addition to accommodate the existing bus loop. The option provides loop circulation on both the second and third floors and a connection to the existing fourth floor. An exterior courtyard separates the existing building from the new addition allowing for natural light into the existing facility. The raised addition provides a new main entrance, including an interior stepped plaza while providing a covered bus loop. This option provides 76 additional parking spaces. The main parking lot, bus loop, and tennis courts will be required for contractor staging. During construction, the secondary parking lot along Pearl Street will be temporarily used as bus drop - off and pick - up.

Design Elements include:

•A four story addition, that includes a raised academic structure along with a lower level that connects to the existing locker rooms.
•A new courtyard will provide natural light to spaces in both the existing facility and addition.
•The bus loop, main parking lot, and the tennis courts will be utilized for contractor staging during construction.
•Three separate stairwells are added along the north and south ends of the addition to ensure proper means of egress.
•The new main entrance creates an interior stepped plaza that can be used during lunch periods to accommodate a large number of the student population.
•A new fourth story connection to the existing fourth floor will provide for an expanded academic wing.

Total Construction Cost:	$32,199,000

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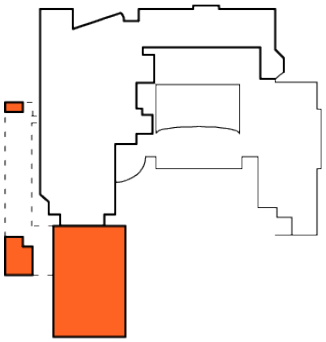
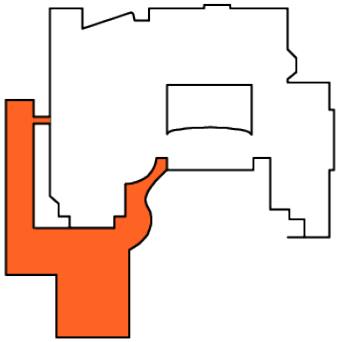
II. Executive Summary (Continued)

OPTION 1

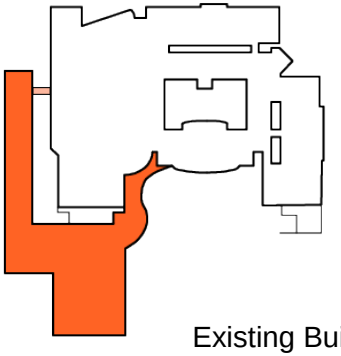
LOWER FLOOR



FIRST FLOOR (MAIN LEVEL)

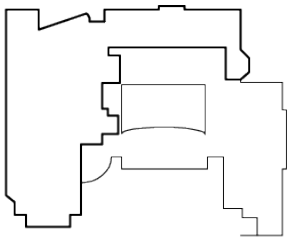


SECOND FLOOR

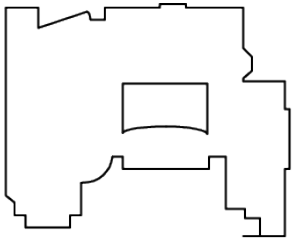


Existing Building =	367,000 SF
Proposed Addition =	78,000 SF
Total Gross =	445,000 SF

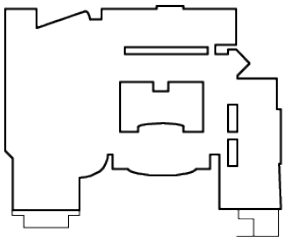
LOWER FLOOR



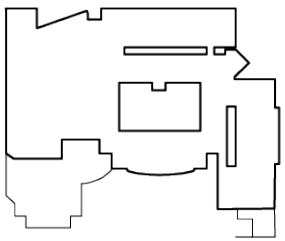
FIRST FLOOR (MAIN LEVEL)



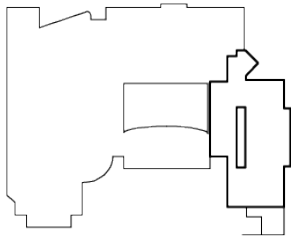
SECOND FLOOR



THIRD FLOOR



FOURTH FLOOR



EXISTING BUILDING

Existing Building = 367,000 SF

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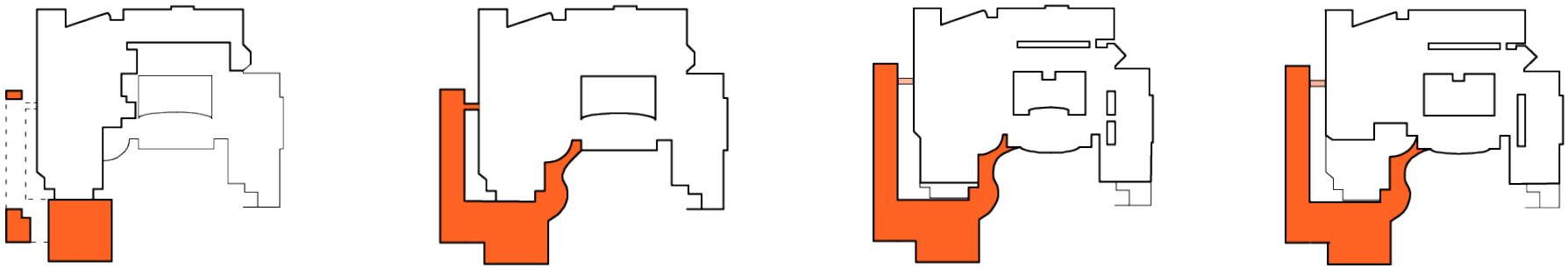
II. Executive Summary (Continued)

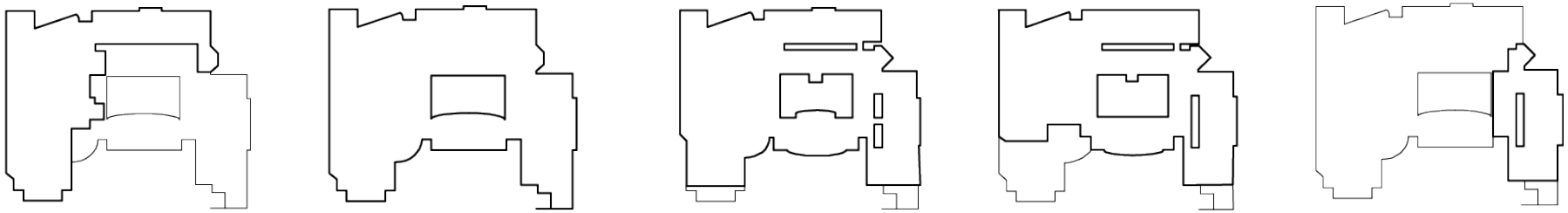
OPTION 2

LOWER FLOOR | **FIRST FLOOR (MAIN LEVEL)** | **SECOND FLOOR** | **THIRD FLOOR**



Existing Building =	367,000 SF
Proposed Addition =	80,000 SF
Total Gross =	447,000 SF

LOWER FLOOR | **FIRST FLOOR (MAIN LEVEL)** | **SECOND FLOOR** | **THIRD FLOOR** | **FOURTH FLOOR**



EXISTING BUILDING

Existing Building = 367,000 SF

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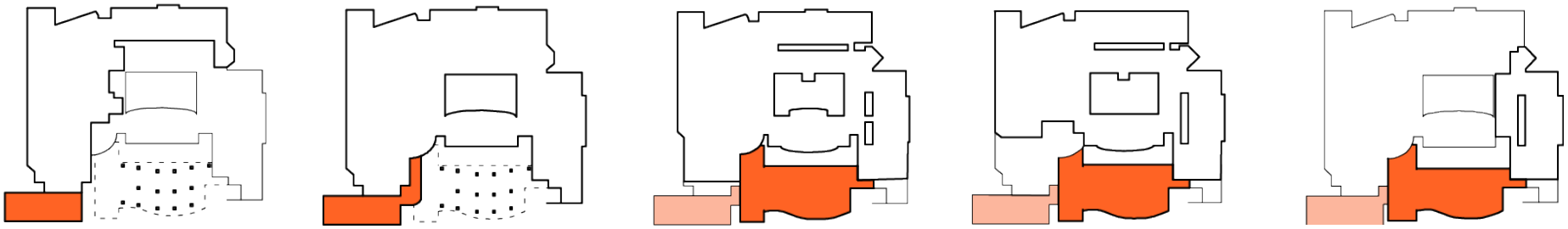
II. Executive Summary (Continued)

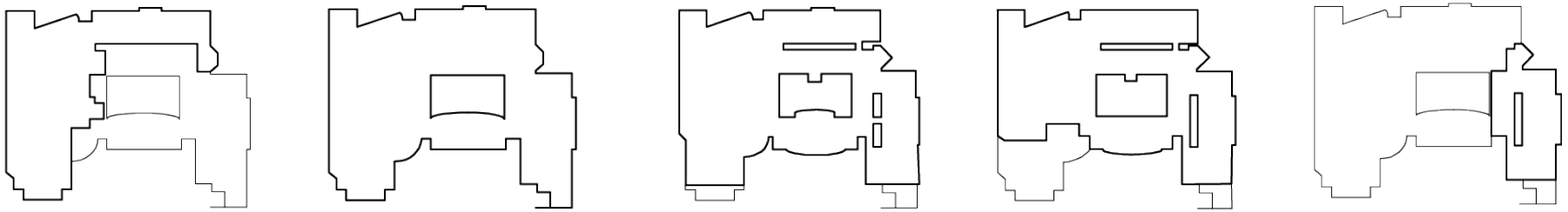
OPTION 3

LOWER FLOOR | **FIRST FLOOR (MAIN LEVEL)** | **SECOND FLOOR** | **THIRD FLOOR** | **FOURTH FLOOR**



Existing Building =	367,000 SF
Proposed Addition =	85,000 SF
Total Gross =	452,000 SF

LOWER FLOOR | **FIRST FLOOR (MAIN LEVEL)** | **SECOND FLOOR** | **THIRD FLOOR** | **FOURTH FLOOR**



EXISTING BUILDING

Existing Building = 367,000 SF

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II. Executive Summary (Continued)

Conclusions and Recommendations

Smolen ■ Emr ■ Ilkovitch Architects recommends the following course of action to meet the program requirements for the addition to Bethesda - Chevy Chase High School. The recommendations are consistent with Montgomery County Public Schools standards, meet the program requirements, and address the interests and concerns of the principal, school staff, the Parent and Teacher Association, and the community as represented by the feasibility study participants.

All three options presented in this report have been developed and evaluated in accordance with the feasibility study process. All options satisfy the program requirements per Montgomery County Public Schools educational specification and received positive feedback from the feasibility study participants during the work sessions. Any one of the options and their associated site improvements as described in Section V, can be recommended for consideration for implementation.

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III. Scope, Methodology & Goals

Scope and Intent

The purpose of this feasibility study is to explore options for increasing the capacity of Bethesda - Chevy Chase High School by evaluating a series of possible additions that will satisfy the requirements of the educational specifications dated September 21, 2012.

The intent of this feasibility study is to provide viable options for the proposed school expansion, to fulfill the educational program requirements of students and staff, and respond to the concerns of the community. Each option addresses issues related to the incorporation of additional classroom space, additional parking on site, and site circulation. The scope of work also includes a limited survey evaluation of the existing mechanical, electrical and plumbing systems to determine if existing equipment could be extended to serve the proposed addition.

Work sessions were held at Bethesda - Chevy Chase High School on August 14, 2012, October 9 and October 24, 2012, and November 8 and November 28, 2012. The design team analyzed the educational specifications and developed several options that would increase the capacity of Bethesda - Chevy Chase High School and address both building and site program. The feasibility study participants reviewed and evaluated the development of the building and site options at each work session. The comments and suggestions were discussed at each work session and incorporated when found to be practical and beneficial by those in attendance. The final options presented in this report are a result of comments and suggestions of the feasibility study participants, incorporated through the work sessions held at Bethesda - Chevy Chase High School.

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III. Scope, Methodology & Goals (Continued)

Methodology

The existing school was evaluated by the design team to determine the most advantageous approach to adding the proposed program spaces. Additionally, the impact, if any, that can be reasonably expected by adding to the existing facility and incorporating limited interior renovations was explored. The evaluation was conducted with the intent of adding to the existing school to comply with the educational specifications dated September 21, 2012. The evaluation is based on the following:

- Non - destructive visual evaluations, where possible, of the existing facility and follow-up interviews with Montgomery County Public Schools staff.
- Review of existing construction documents provided by Montgomery County Public Schools: The design team utilized existing documentation to understand the existing building construction and systems.
- Analysis of existing site features: Existing amenities, utilities, and site access were reviewed to determine if they were capable of supporting the proposed options.
- Analysis of geotechnical composition of the site: Montgomery County Public Schools contracted for a limited geotechnical report to determine composition of existing soils and identify any rock and/or poor soil conditions on site.
- Work sessions with the feasibility study participants & Montgomery County Public Schools staff: Work sessions established the needs and goals for the study.
- Review of the educational specifications: The review established a thorough understanding of the requirements and objectives of the project.

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III. Scope, Methodology & Goals (Continued)

The following are the goals and objectives established by the feasibility study participants to be addressed by the design team and Montgomery County Public Schools staff in this feasibility study.

Building Goals

The building addition should:

- Provide additional classrooms and core learning spaces per the educational specifications.
- Improve circulation throughout the building.
- Minimize disruption during construction for students and staff.
- Create flexible spaces that can accommodate students during lunch periods.

Site Goals

The proposed site should:

- Increase parking on site.
- Improve safety conditions for pedestrians during dismissal through greater visibility.
- Increase Americans with Disabilities accessibility on site.
- Keep playing fields at optimal conditions.

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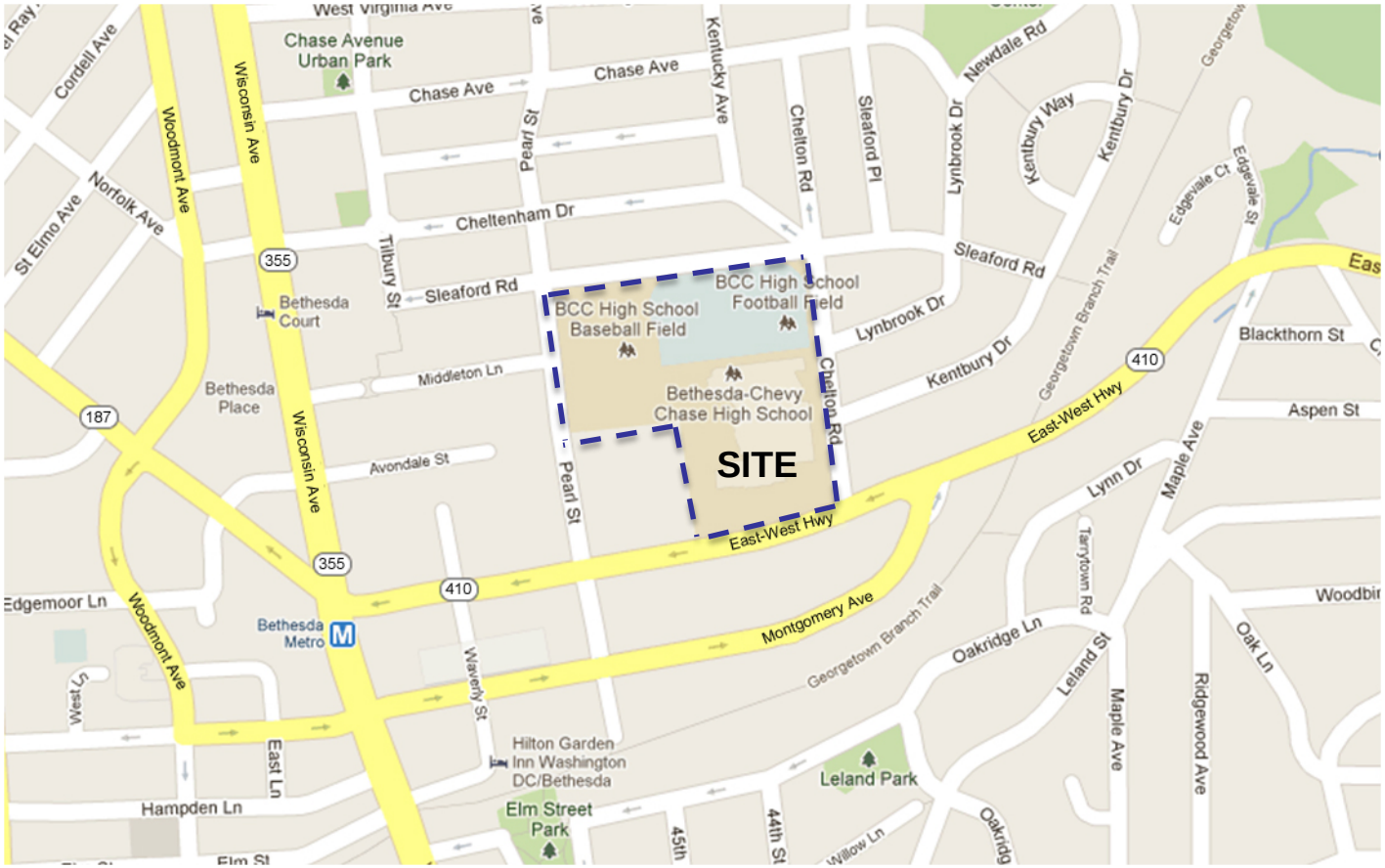
IV. Existing Conditions

Vicinity Map



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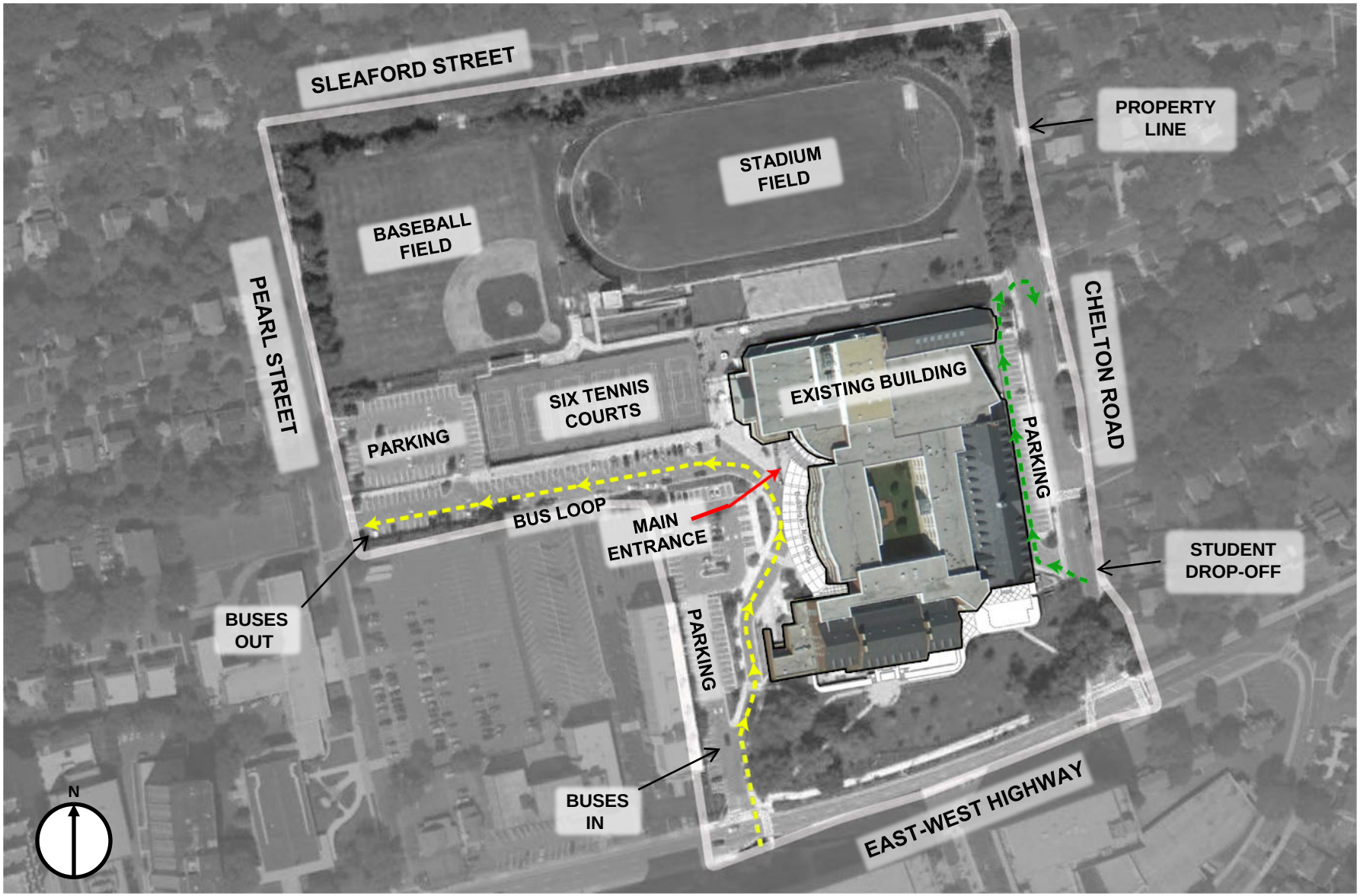
IV. Existing Conditions (Continued)

Existing Site Plan



0' 40' 80' 160'

GRAPHIC SCALE

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IV. Existing Conditions (Continued)

Existing School Three - Dimensional Model

NTS

Bethesda - Chevy Chase High School Three - Dimensional Model - View of Front

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IV. Existing Conditions (Continued)

Existing Site (Continued)

General Site Information:

The Bethesda - Chevy Chase High School is situated on a parcel comprising a 16.36 - acre lot at 4301 East - West Highway in Bethesda, Maryland. The site is zoned R-60 and is bounded on the south by East - West Highway (MD-410), on the east by Chelton Road, on the west by Pearl Street and private development, and finally along the north by Sleaford Road.

Based on the current Montgomery County Zoning Ordinance, dimensional regulations for the property include the following:

Street setback - 25’
Side Setback - 8'
Sum of Both Sides - 18'
Rear setback - 20’
Maximum Building Height - 35' (3 stories or 40' if accepted by the Planning Board)
Maximum Site Building Coverage - 35%

Site Access, Parking and Circulation:

On - Site Pedestrian and Vehicular Access :

Vehicular and pedestrian access for the surrounding community is currently attained by five driveways (two from Chelton Road, one from East - West Highway and two from Pearl Street). The access from Chelton Road serves a student drop - off loop. The access from East - West Highway serves as the entrance to the bus loop and site parking. Lastly, the driveways on Pearl Street are for additional parking and the exit from the bus loop. All driveway entrances offer sidewalk connections to the right - of - way with Americans with Disabilities compliant handicap curb ramps and crosswalks. See site photo #1 in appendix VII.

Driveway Entrances:

All driveways are asphalt and appear to be in good condition. In terms of site distance, there does not appear to be any issues with the location and proximity of opposite and adjacent driveway intersections; additionally, the 25 mph speed limit on the surrounding streets likely reduces any risks that may be involved with these access point locations. Of the five driveways, the only two intended for two - way traffic are the main entrance from East - West Highway, and the parking lot entrance from Pearl Street. The remaining driveways are all intended for one - way use.

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IV. Existing Conditions (Continued)

Existing Site (Continued)

Site Access, Parking and Circulation:

Bus Loop:

The schools bus loop is accessed from a two - way entrance off of East - West Highway. Buses circle clockwise in front of the high school and exit onto Pearl Street. The bus loop consists of a one - way 26 - foot drive aisle which circles around a parking lot in the southwest portion of the site. Although the bus loop driveways are shared with the smaller parking lot and loading areas, the queuing area is designated with signage for the sole use of the school buses during peak times. With approximately 17 bus parking spaces and 175 linear feet of queuing space it does appear that the loop is sufficient in size for the 18 routes currently serving the school. The bus loop also is demarcated as a fire lane for the school. See site photo #2 in appendix VII.

Student Drop - Off Loop:

The student drop - off loop is located on the eastern portion of the site, off of Chelton Road. The 20 - foot, one - way drive aisle with associated parking starts at the intersection with Lynbrook Drive and reconnects with Chelton Road 155 feet from the intersection with East - West Highway. From here, students can enter the building through the eastern side of the building. It is not known the number of parents utilizing the loop in a given day; however, the loop does provide over 380 - linear feet of queuing space (approximately 18 vehicles).

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IV. Existing Conditions (Continued)

Existing Site (Continued)

On-Site Parking:

There are three parking areas located around the site. The main parking area is located within the bus loop, on the south and west region of the property. This parking lot contains approximately 162 standard spaces (this figure includes several spaces that overlap the bus parking spaces) and 7 Americans with Disabilities compliant handicap spaces (1 is van accessible). This lot does not meet current Americans with Disabilities parking requirements.

The small parking lot located in the northwestern corner is accessed by a two - way entrance and exit from Pearl Street. This parking lot contains 64 parking spaces, none of which are designated for handicap usage. This lot does not meet current Americans with Disabilities parking requirements.

The parking area along the eastern boundary of the site is situated within the student drop - off loop. This lot contains 34 parking spaces, one of which is designated for handicap usage. This lot does not meet current Americans with Disabilities parking requirements.

Overall, pavement and curbing is currently functioning. The most glaring needs of the parking areas center around the lack of Americans with Disabilities compliance. At a minimum, it is recommended that Americans with Disabilities accessible parking spaces with associated accessible routes be added to all parking lots.

On - Site Loading:

The loading area is located on the southwestern corner of the building and is accessed through the bus loop entrance off of East - West Highway. The loading area has two docks, and is approximately 24 - feet wide and 60 - feet in length. Pedestrian access in this area is provided through the use of a concrete stairs; no Americans with Disabilities access appears to exist in this area. See site photo #4 in appendix VII.

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IV. Existing Conditions (Continued)

Existing Site (Continued)

Sidewalks:

The existing site predominantly provides sidewalks around the perimeter of the building, with connections to the athletic fields and facilities throughout the campus. Overall, a good network of sidewalks is provided allowing users to move about the various facilities with relative ease. The major concern with the existing sidewalks is Americans with Disabilities compliance. Additionally, multiple areas throughout the site were observed with excessive gradients. At a minimum, an Americans with Disabilities compliant route is recommended for access to all areas of the property. See site photo #3 in appendix VII.

Fire Access:

Currently, the bus loop and the student drop - off loop are serving as the on - site fire lanes. The bus loop and the drop - off loop are both in compliance with current fire lane dimensional requirements. The fire access lanes provide sufficient hose - reach around the structure to meet current fire code. Depending on the proposed layout, sufficient fire access will be required to cover all portions of the structure with a 450 - foot maximum of hose - lay.

Site Topography:

The site predominantly slopes from the building to the northernmost portions of the property. The areas of greatest topographic relief which include slopes greater than a 3:1 ratio occur between the building and the northern athletic fields and between the tennis courts and the baseball diamond. Overall, the site has a great deal of relief with several terraces. Depending on the improvements, the topographic character of the site could create issues. It is likely that the proposed site improvements will need to consider improved access to the athletic fields and it can be anticipated that ramps and retaining walls will be required. See site photo #5 in appendix VII.

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IV. Existing Conditions (Continued)

Existing Site (Continued)

Vegetation:

The majority of significant on-site vegetation consists of parking lot, street and shade trees. There also is a vegetated area at the southern portion of the site, as well as along the northern property line. As it is likely that there is little on the property that will qualify as forest, avoidance of certain areas may not be required. However, forest classification and the extent of forestation requirements will depend upon an accepted Natural Resources Inventory/Forest Stand Delineation. It should also be noted that impacts to root zones of specimen trees will require a variance from the County Arborist.

Water and Sewer:

The existing building is served by an 8 - inch sewer main, contract #36104, built in 1936. The existing facility has two connections to existing 10 - inch water mains, contract #35111N, in the Chelton Road and East - West Highway right - of - ways which were built in 1937. The existing sanitary main is flowing from East - West Highway along the west side of the building heading north towards the existing tennis courts. The sanitary main turns east and continues along the existing fire lane between the stadium bleachers and building. The main again turns north, near Chelton Road, under the existing track, heading off the property.

According to WSSC, the site is in a 495 pressure zone with a High Hydraulic Gradient of approximately 540 and a Low Hydraulic Gradient of approximately 460. On that basis, per WSSC prescribed calculations, the water pressure at the existing connection to the water main in East - West Highway is approximated to be between 50 psi and 107 psi The exact pressures and flows should be confirmed via field testing at the time of design.

Gas, Electric and Telephone, Etc.:

Power, cable and telephone service connections are made with the main service lines in the Chelton Road right - of - way. Power lines feed into the transformers at the northeastern corner of the existing building. Cable and telephone lines run into the facility from the Chelton Road right - of - way along the eastern edge of the existing building. Finally, gas mains are located in the East - West Highway, and Chelton Road right - of - ways, and it appears that the building is serviced by a gas connection from Chelton Road. There is no evidence of a natural gas connection to the building. Additionally, existing utility poles flank the site on all sides within the right - of - ways and should be avoided if possible.

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IV. Existing Conditions (Continued)

Existing Site (Continued)

Storm Drainage and Stormwater Management:

The existing site is currently draining all runoff to the public stormdrain system located to the north of the property.

It is anticipated that site improvements will be required to include ESD to the maximum extent practicable in order to treat all areas inside the limits of disturbance. After all ESD efforts are exhausted and the site still has not been able to reach a hydrologic state of "woods in good condition," then structural practices may be permitted as determined by Montgomery County Department of Permitting Services.

Potential ESD stormwater management practices for the site include both micro - scale practices and alternative surfaces. Micro - scale facilities could include the utilization of bio - swales and micro - bioretention facilities around the parking areas.

Site Soils (Geotechnical):

Per the Soil Survey of Montgomery County, Maryland the predominant soils on the site are in the Glenelg, and Urban Land series. According to the USDA, the depth to bedrock is generally greater than 6 - feet in these soils. However, it should be noted that these estimated depths are based upon virgin soils. Because the site has been previously disturbed, bedrock could be encountered at shallower depths. It will be necessary to perform site-specific borings to establish the actual depths to bedrock.

In terms of hydrology, the majority of soils are in the Glenelg Series. These soils have a 'B' hydrologic soil group classification and are known for good infiltration.

Flood Plains, Stream Valley Buffers and Non-Tidal Wetlands:

Initial investigations reveal that the site is located outside of a floodplain in a zone "X" on FEMA Flood Insurance Rate Map number 24031C0455D. Furthermore, according to the U.S. Fish and Wildlife Mapping services there are no wetlands or associated buffers located on or around the site.

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IV. Existing Conditions(Continued)

Existing Building

MECHANICAL

General

Bethesda-Chevy Chase High School was originally constructed in 1934, with subsequent building additions constructed between 1936 and 2002. A modernization of the entire school was performed in 2002, that provided a comprehensive replacement of the facilities' mechanical system. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

Heating Systems

Two scotch - marine boilers and one copper - fin boiler produce heating water for the building. Located within the ground floor boiler room, this equipment was installed during the 2002 modernization and is currently functioning. The scotch-marine boilers support a majority of the facilities heating water demands, with the copper-fin boiler producing heating water during summer operation. Wall-mounted combustion air openings are currently provided for each boiler, with openings positioned high and low for compliance with current International Mechanical Code (IMC) requirements for combustion air. The gas service for the building is located outdoors, adjacent to the boiler room area.

Manufactured by Burnham Boilers (Model 3PW-250-50-GO-GP), each scotch - marine boiler has a gross output rating of 8,369 MBH. While the existing boilers are functioning adequately to satisfy the existing school, there does not appear to be surplus capacity to support the overall size of the planned addition without losing standby capacity in the event that one boiler fails. Individual 24 - inch flues extend from each boiler and are ducted separately to the roof. Each boiler is provided with a dual - fuel type burner (Model F14-GO-50), with natural gas currently supplied to each burner. Each burner is rated for a 10,461 cubic feet per hour (CFH) natural gas consumption and a 75 gallon per hour (GPH) number two fuel oil consumption. Gas trains are provided with a pressure reducing valve and two shut - off valves for CSD - 1 compliance.

Manufactured by Lochinvar (Model PBN-1000), the copper-fin boiler has a gross output rating of 880 MBH, with a single 14 - inch flue extending to the roof. The boiler’s gas - fired burner is rated for a 1,000 CFH natural gas consumption. Similar to the scotch - marine boiler, the gas train is equipped with a pressure reducing valve and two shut-off valves for CSD - 1 compliance.

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IV. Existing Conditions(Continued)

Existing Building (Continued)

MECHANICAL (Continued)

Heating Systems (Continued)

The facility is provided with a four-pipe distribution system with a pair of dedicated chilled and heating water piping mains routed throughout the building. Heating water is circulated through each boiler through a vertical inline pump, with one pump dedicated to each boiler. Two base-mounted end-suction constant speed pumps inject heating water into the building's heating water distribution loop. Once injected into the distribution loop, heating water is dispersed to the building's mechanical system components through another pair of base-mounted end-suction variable speed pumps. All heating water pumping systems are located within the boiler room and manufactured by Taco, with base-mounted pumps arranged in a lead/lag setup with only one pump operating at anytime. The heating water distribution system is equipped with an air separator, shot feeder, and horizontal expansion tank located on a skid assembly.

Cooling Systems

Production of chilled water is accomplished through an air-cooled and water-cooled chiller, located within the third-floor mechanical room. Equipment associated with the chilled water plant, including pumps, chillers, rooftop cooling tower, and miscellaneous piping components were installed during the 2002 modernization and is currently functioning. Similar to the facilities heating water systems, the additive capacity of both chillers does not appear to have surplus capacity to support the existing building and the overall size of the planned addition.

The air-cooled chiller (Trane Model RTAA-200) has an output capacity of 190-tons and is provided with a remote evaporator. This chiller is positioned at the rooftop level, with the remote evaporator located within the third floor mechanical room. This chiller utilizes R-22 refrigerant with refrigerant piping extending between the remote evaporator and air-cooled chiller. The water-cooled centrifugal chiller (Trane Model CVHF-640) also is located within the third floor mechanical room, with an output capacity of approximately 550-tons. This equipment utilizes R-123a for refrigeration. For safety purposes, a refrigerant monitoring system is provided within the mechanical room for detection of refrigerant leaks.

A two-cell induced-draft cooling tower manufactured by Evapco is located at the rooftop level, positioned adjacent to the air-cooled chiller. This tower is mounted on structural steel dunnage, with vibration isolation provided between the tower base and dunnage. Outdoor condenser water piping is constructed from PVC and is provided without heat trace. A three-way condenser water control valve and associated cooling tower chemical treatment systems are located within the third floor mechanical room.

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IV. Existing Conditions(Continued)

Existing Building (Continued)

MECHANICAL (Continued)

Cooling Systems (Continued)

A primary - secondary chilled water distribution arrangement is provided for the facility. A dedicated constant speed primary chilled water pump is provided for each chiller, circulating chilled water flow through each piece of equipment when energized. The water-cooled chiller also is provided with a constant speed condenser water pump, circulating water flow between the chiller and rooftop cooling tower. A variable speed secondary chilled water distribution pump distributes chilled water to the building's mechanical system components. All chilled and condenser water pumps are base - mounted end - suction type, located within the third floor mechanical room, and manufactured by Taco. The chilled water distribution system is equipped with an air separator, shot feeder, and expansion tank.

In addition to chilled water, direct expansion type cooling is provided for ductless split systems serving data and information technology spaces located throughout the school. Spaces served by direct expansion space conditioning typically require cooling operation at times when chilled water is not available.

HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems vary slightly throughout the school. These systems were installed as part of the 2002 modernization and is currently functioning. The following is a breakdown of the various spaces and their associated HVAC system:

•Weight Room: The weight room area is served by an indoor constant volume heating - only air - handling unit, located within the boiler room. A hydronic heating coil within this unit provides heating for the areas served. Manufactured by Trane (Model MCCA003), this unit was installed as part of the 2002 modernization and is currently functioning.

•Locker Room Areas: The locker room areas are served by an indoor constant volume heating - only energy recovery unit, located within the boiler room. A hydronic heating coil and plate-and-frame heat exchanger within the unit provides heating for the areas served. Manufactured by Heatex (Model E-5000-113-12-4000-HW), this unit was installed as part of the 2002 modernization and is currently functioning.

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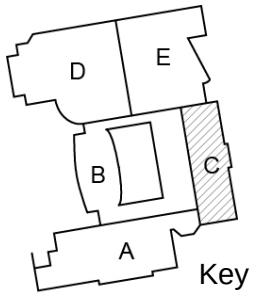
IV. Existing Conditions(Continued)



Key Plan

Existing Building (Continued)

MECHANICAL (Continued)

HVAC Systems (Continued)

•Team Rooms and Locker Room Support Areas: The team room and locker room support areas are served by an indoor variable - air volume air - handling unit, located at the basement level. The unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Single-duct non fan-powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. Manufactured by Trane (Model MCCA006), this unit was installed as part of the 2002 modernization and is currently functioning.

•Wrestling / Dance: The wrestling and dance room is served by an indoor constant volume air - handling unit, located within the boiler room. The unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Manufactured by Trane (Model MCCA006), this unit was installed as part of the 2002 modernization and is currently functioning.

•Building "C" Classroom Areas: The first, second, and third floor classroom areas within the original building (Building "C") are supported by two indoor variable - air volume air - handling units, located within the basement mechanical room. One air - handling unit supports the northern classroom area, while the other air - handling unit supports the southern classroom areas. Each air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Fan - powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. A plenum - type return air arrangement is utilized for return air to both the air - handling unit and terminal unit systems. Manufactured by Trane (Model MCCA035), these air - handling units were installed as part of the 2002 modernization and is currently functioning.

•Cafeteria, Serving Line, and Kitchen Areas: The first floor cafeteria, serving line, and kitchen are supported by an indoor variable - air volume air - handling unit, located within the first floor storage area adjacent to the kitchen. The air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Fan - powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. A plenum - type return air arrangement is utilized for return air to both the air - handling unit and terminal unit systems. Manufactured by Trane (Model MCCA025), this unit was installed as part of the 2002 modernization and is currently functioning. In addition to the space conditioning air - handling unit, the kitchen area is equipped with a commercial type I hood, complete with dedicated exhaust fan and gas-fired rooftop unit. All components associated with the kitchen are currently functioning.

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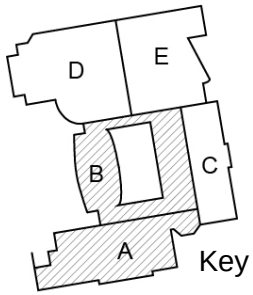
IV. Existing Conditions (Continued)

Existing Building (Continued)



Key Plan

MECHANICAL (Continued)

HVAC Systems (Continued)

•Building “B” Classroom Areas: The first, second, and third floor classroom areas within the Building “B” area are supported by two indoor variable - air volume air - handling units, located within the third floor mechanical room. One air - handling unit supports the third floor classroom areas, while the other air - handling unit supports the first and second floor classroom areas. Each air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Fan - powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. A plenum - type return air arrangement is utilized for return air to both the air - handling unit and terminal unit systems. Manufactured by Trane (Model MCCA035), these air - handling units were installed as part of the 2002 modernization and is currently functioning.

•Building “A” Classroom Areas: The second, third, and fourth floor classroom areas within the Building “A” area are supported by two indoor variable - air volume air - handling units, located within two fourth floor mechanical rooms. One air - handling unit supports the second floor classroom areas, while the other air - handling unit supports the third and fourth floor classroom areas. Each air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Fan - powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. A plenum - type return air arrangement is utilized for return air to both the air - handling unit and terminal unit systems. Manufactured by Trane (Model MCCA030 and MCCA035), these air - handling units were installed as part of the 2002 modernization and is currently functioning.

•Administration and Media Center Areas: The first floor administration area and second floor media center are supported from an indoor variable - air volume air - handling unit, located within the third floor mechanical room. This air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Fan - powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. A plenum-type return air arrangement is utilized for return air to both the air - handling unit and terminal unit systems. Manufactured by Trane (Model MCCA035), this air - handling unit was installed as part of the 2002 modernization and is currently functioning.

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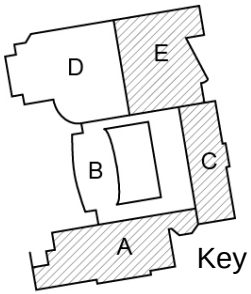
IV. Existing Conditions (Continued)



Key Plan

Existing Building (Continued)

MECHANICAL (Continued)

HVAC Systems (Continued)

•Auditorium Area: The auditorium area is supported from an indoor constant volume energy recovery air - handling unit, located within the third floor mechanical room. This air - handling unit is equipped with a chilled water cooling coil, hot water heating coil, and plate - and - frame heat exchanger installed within the unit for providing space conditioning for the area served. All supply and return ductwork extending from this unit is provided with acoustical lining for sound control measures. Manufactured by Heatex (Model E-LASER-2-33-16000–CW/HW), this unit was installed as part of the 2002 modernization and is currently functioning.

•Stage Area: The auditorium's stage area is supported from an indoor constant volume air - handling unit, located within the third floor mechanical room. This air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the area served. Similar to the auditorium, all supply and return ductwork extending from this unit is provided with acoustical lining for sound control measures. Manufactured by Trane (MCCA025), this unit was installed as part of the 2002 modernization and is currently functioning.

•Music and Instrument Room Areas: The basement music and instrument room areas are supported from an indoor variable - air volume air - handling unit, located within the third floor mechanical room. This air - handling unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Fan - powered variable - air volume terminal units, equipped with hot water heating coils, provide room temperature control for the areas served. Supply ductwork extending from these terminal units is provided with acoustical lining for sound control measures. A plenum - type return air arrangement is utilized for return air to both the air - handling unit and terminal unit systems. Manufactured by Trane (Model MCCA025), this air - handling unit was installed as part of the 2002 modernization and is currently functioning.

•Second Floor Corridor and Skylight Areas: The second floor corridor and skylight areas within the "A" and "B" Buildings are supported by an indoor constant volume air - handling unit, located within the fourth floor mechanical room. This unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the areas served. Supply air is distributed to sidewall air devices, located at the second floor level. A plenum - type return air arrangement is utilized for return air back to the air - handling unit. Manufactured by Trane (Model MCCA030), this air - handling unit was installed as part of the 2002 modernization and is currently functioning.

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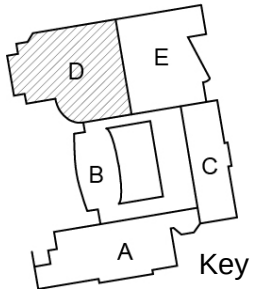
IV. Existing Conditions (Continued)



Key Plan

Existing Building (Continued)

MECHANICAL (Continued)

HVAC Systems (Continued)

•Auxiliary Gymnasium Areas: The north and south auxiliary gymnasium areas are served by two indoor constant volume heating - only energy recovery units, located within the third floor mechanical room. One energy recovery unit supports the northern auxiliary gymnasium area, while the other energy recovery unit serves the southern auxiliary gymnasium area. A hydronic heating coil and plate-and-frame heat exchanger installed within each unit provides heating for the areas served. Manufactured by Heatex (Model E-5000-1B-12-4000-HW/2SP), these units were installed as part of the 2002 modernization and is currently functioning. Supply air ductwork is routed near the perimeter of the auxiliary gymnasium and distributed through a slotted ductwork main located tight to the underside of the roof trusses. A rooftop outdoor air intake and exhaust fan also provides ventilation during the summer months.

•Main Gymnasium Area: The main gymnasium area is served by two indoor constant volume heating - only energy recovery units, located within the third floor mechanical room. One energy recovery unit serves to support the northern portion of the gymnasium, while the other energy recovery unit serves the southern portion of the gymnasium. A hydronic heating coil and plate-and-frame heat exchanger installed within each unit provides heating for the areas served. Manufactured by Heatex (Model E-5000-1C-13-6000-HW/2SP), these units were installed as part of the 2002 modernization and is currently functioning. Supply air ductwork is routed near the perimeter of the gymnasium and distributed through a slotted ductwork main located tight to the underside of the roof trusses. A rooftop outdoor air intake and exhaust fan also provides ventilation during the summer months.

•Pressbox: The pressbox area adjacent to the main gymnasium is supported by an indoor belt-driven fan coil unit, located within a storage room adjacent to the pressbox. This unit is equipped with a chilled water cooling coil and hot water heating coil for providing space conditioning for the area served. This unit was installed as part of the 2002 modernization and and is currently functioning.

•Building Exhaust Systems: A combination of roof-mounted and inline fans remove exhaust air throughout the building. These fans were installed as part of the 2002 modernization and is currently functioning.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

TEMPERATURE

Control System

The existing control system for the school is a combination of direct digital control and pneumatic control system. Major valve and damper components are provided with pneumatic operation; while other system components are electronic operation and Andover digital controllers. Building control components are interfaced with the central Montgomery County Public Schools energy management system for occupied/unoccupied settings. A duplex type air compressor, completes with a horizontal storage tank, is located within the third floor mechanical room and serves the building's pneumatic control components. Air supplied from this compressor is fed through a refrigerated dryer system. Both the air compressor and refrigerated dryer is currently functioning.

PLUMBING

Plumbing System

The building is served from the county water system through an 8 - inch combination fire and water service, entering the building within a small pump room (Room 114) adjacent to the loading dock area. A 4 - inch domestic water main extends from this service to support the building's domestic water requirements. Currently, no backflow preventer is provided at the domestic water service entrance. While this may have been acceptable at the time this system was installed, it does not meet current plumbing code requirements. It is anticipated that surplus capacity exists for the existing 4 - inch domestic cold water main.
Domestic hot water is generated through two gas - fired copper finned water heaters, located within the boiler room. Manufactured by A.O. Smith (Genesis Model GW-400-200), each water heater is equipped with a 399 MBH gas burner. A remote 500 - gallon hot water storage tank, also manufactured by A.O. Smith, stores the hot water generated by these heaters. This equipment was installed as part of the 2002 modernization and is currently functioning. A domestic hot water circulation pump maintains a continuous hot water flow throughout the building. The system is not equipped with an expansion tank or mixing valve, which is typically provided on today's new systems. It is anticipated that minimal surplus capacity exists for the hot water heater. Depending on the final plumbing requirements of the planned addition, an additional hot water heater will be required. Plumbing fixtures are currently functioning and were installed as part of the 2002 modernization. The water closets are floor-mounted, urinals are wall-hung, and the lavatories are individual wall - hung type. The school is equipped with plumbing fixtures that meet the Americans with Disabilities Act requirements.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

PLUMBING (Continued)

Fire Protection System

The building is currently provided with sprinkler coverage throughout. An electric 20 - horsepower fire pump is located within Pump Room 114, located adjacent to the loading dock area. This existing fire pump is manufactured by Aurora (Type 3-481-10) and rated for 500 GPM at 60 PSI. A double - check backflow preventer is provided at the suction of this pump, separating the fire service from the domestic water service. A fire line extends from the discharge of this pump to a series of zone valve assemblies, located throughout the school. Sprinkler mains extend from each zone valve assembly and serve sprinkler heads located throughout their respective zone. Sprinkler system components appear to be in good condition. The existing fire pump and fire service also appears adequately sized to support any planned additions to the school.

ELECTRICAL

General

The electrical equipment that currently exists within Bethesda - Chevy Chase High School was upgraded during the modernization of the entire school in 2002 and is currently functioning. The following is a detailed description of the existing electrical, communications, and security systems.

Power Distribution

The school's electrical service is fed from an existing pad-mounted Pepco utility transformer located outside on the northeast corner of the school adjacent to the auditorium. Secondary service feeders then run in an underground ductbank from the secondary of the Pepco utility transformer to the CT cabinet of the main distribution switchboard located in the main electrical room.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

ELECTRICAL (Continued)

Power Distribution (Continued)

The main distribution switchboard is a Cutler - Hammer Pow - R - Line C switchboard, rated at 277/480 volts, 3 - phase, 4 - wire, with a 4000 - ampere bus, and is dated 02/18/00. The switchboard consists of five sections. The first section contains the power company CT cabinet. The second section is a transition section. The third section is a main section with four main circuit breakers (serving the water - cooled chiller, Panel MDH, Panel MDP, and Panel MDPA respectively). The third section has space to accommodate an additional main circuit breaker. The fourth section contains the fifth main circuit breaker (3 - pole, 2500 amperes) that serves the fifth section, which is the distribution section of the switchboard. The Pepco meter is adjacent to the switchboard.

The main electrical room also has a separate service and Pepco meter (TED350885970) for the 20 - horsepower fire pump, located in the fire pump room on the southwest corner of the school. Type MI cable is run from the fire pump service to the fire pump room.

Other electrical equipment in the main electrical room consists of a distribution panelboard, branch circuit panelboards, transformers, and automatic transfer switch. There is an open adjacent room with the generator.
The electrical equipment (switchboard, panelboards, transformers, disconnects) in the building are manufactured by Cutler - Hammer, with the exception of combination starters for mechanical equipment that are manufactured by Square D and variable frequency drives by Magnetek (Model GPD 506).There are several electrical closets throughout the school with panelboards and transformers. Receptacles are black, brown, or gray in color with ivory faceplates. There are firefighter's receptacles (NEMA L6-20R) in the stairwells.

Generator Power

There is a 60-kW, 277/480-volt, natural gas indoor generator in an open room connected to the main electrical room. The generator has a unit mounted 3 - pole, 100 ampere circuit breaker, which serves generator panelboards via automatic transfer switch (ATS) in the main electrical room. The generator is by Generac Power Systems, Model Number 20A00249-S, dated 2/25/2000. The ATS is by ASCO/Emerson Network Power. The generator does not serve the kitchen coolers and freezers.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

ELECTRICAL (Continued)

Lighting

Fluorescent lighting is primarily used throughout the school. Classrooms and other instructional spaces utilize 2'x4' recessed prismatic lens troffer linear fluorescent lighting fixtures and 2'x4' recessed 18 - cell parabolic linear fluorescent lighting fixtures. Corridors on the lower level use 2'x4' recessed prismatic lens troffer linear fluorescent lighting fixtures. Corridors on the other floors and lobby areas utilize 1'x4' recessed 8 - cell parabolic lighting fixtures, surface round fluorescent fixtures with decorative round dropped lens, and recessed downlights with similar decorative round dropped lens. Key switches are used in corridors to control corridor lighting. The media center uses 1'x4' recessed 8 - cell parabolic lighting fixtures. The kitchen area uses 2'x4' recessed prismatic lens troffer linear fluorescent lighting fixtures with gasketed doors. The serving area uses recessed fluorescent downlights with an 8 - inch aperture. The cafeteria uses a recessed downlight with decorative round dropped lens with selected downlights having gold accents. Stairwells have wall - mounted round sconces with a round diffused smooth acrylic white lens. The main electrical room and mechanical rooms have pendant suspended linear fluorescent fixtures with wraparound clear prismatic lens.

The linear fluorescent lamps used throughout the building are 25 - watt T8 energy saving fluorescent lamps by Philips (F32T8/ADV835/XEW Energy Advantage 25-watt ALTO Collection). Downlights, where used, have compact fluorescent lamps.

The main gym uses 28 high - bay fixtures with 400 - watt metal halide lamps in a 5 by 6 grid pattern (minus 2 over the main backboards). The auxiliary gym uses 18 high-bay fixtures with 400-watt metal halide lamps in a 3 by 6 grid pattern.

Exit signs have red lettering. There are no wire guards over the exit signs in the gym.

Site lighting consists of green decorative post - mounted lights and green pole - mounted lights with twin heads. The decorative post-mounted lights are used at the west main entrance, the south sidewalks and pathways, and along the north side of the building near the football field. The green pole - mounted lights are used in the parking lot and along the roadways on school property.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

ELECTRICAL (Continued)

Data System

The main data frame is located in the main telecom room (B211). There is a fiber optic distribution enclosure/light interface unit on the main data frame rack with Type SC connectors. Fiber optic cable connects the main data frame to each IDF rack in a star configuration.

A Category 5e wiring system is installed throughout the school. This system provides connectivity for computer labs, media center, offices, and classrooms. Each typical classroom has both student and teacher outlets.

Data racks are by Chatsworth Products, Inc. (CPI). Rack-mounted data fiber optic distribution enclosures/light interface units and data patch panels are by Superior Modular Products. Category 5e data cables are blue and voice cables are white in color.

Wireless access points (Cisco routers) are mounted on the corridor ceilings.

Telephone System

The telephone system is a separate key system for telephones in the school offices. The telephone company demarcation point is in the main telecom room (B211) adjacent to the TV Studio. The telephone switches are by Bell Atlantic and are also located in the main telecom room. 110 and 66 connecting blocks are wall-mounted on telephone plywood backboards adjacent to the telephone switch.

Video and Audio/Visual Systems

Cable television (TV) outlets (with F-connectors) are located in rooms throughout the school. The head - end equipment is rack-mounted and located in the main telecom room (B211) adjacent to the TV Studio. Distribution amplifiers (by Blonder Tongue) and splitters are wall mounted behind the head - end rack - mounted equipment.

Promethean smart boards are located in some classrooms, while ceiling-mounted projectors are located in other classrooms.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

ELECTRICAL (Continued)

Intercom and Sound Systems

The school intercom system is by Dukane. The system has the capability to perform select local calls to classrooms or paging throughout the school. Each classroom has a recessed ceiling speaker and a wall - mounted call switch. Ceiling speakers are located throughout the corridors.

The auditorium has a dedicated performance sound system.

The sound system in the main gym consists of four loudspeakers and four microphone XLR jacks. The sound system in the auxiliary gym consists of two spherical speakers and four microphone XLR jacks.

The cafeteria does not have a permanent sound system installed.

Security System

The security system consists of an intrusion detection system by Napco (Magnum Alert) and video surveillance cameras located in the main lobby, corridors, and building exterior. The intrusion detection system includes security panels in selected telecom rooms and electrical closets, five Napco keypads located together in the southwest portion of the school, and motion sensors/detectors in the corridors, classroom and the main gym. The battery backup power supplies for the security control panels are by Altronix.

Fire Alarm System

The fire alarm system is by Edwards Systems Technology. The fire alarm control panel with voice evacuation (EST2) and fire alarm communicator are located in the main electrical room. The fire alarm graphic annunciator panel (with key switches for "trouble silence", "system reset", "lamp test" and "drill switch") is located in the vestibule of the main lobby. Fire alarm devices include manual pull stations (with tamperproof false alarm protectors by Safety Technology International or STI), smoke detectors, duct-type smoke detectors, associated remote indicating and test stations (that are wall-mounted at 48 inches above finished floor in mechanical rooms), heat detectors, monitoring modules for flow and valve tamper switches, and audible and visual notification devices.

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IV. Existing Conditions (Continued)

Existing Building (Continued)

ELECTRICAL (Continued)

Fire Alarm System (Continued)

Fire alarm ceiling - mounted combination speaker/strobes are located in the classrooms. Fire alarm wall - mounted speaker/strobes are located in the corridors. Door holders are located at stairwell double doors with smoke detectors on each side of the stairwell double doors.

There are no wire guards over the speaker/strobes in the gym.

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IV. Existing Conditions (Continued)

ARCHITECTURAL

Bethesda - Chevy Chase High School is located on a 16 acre site at 4301 East - West Highway in Bethesda. The existing facility is 321,800 square feet. The original building was constructed in 1935 and has historical significance. It is protected under Maryland Historical Trust and follows all requirements, including preserving views and original construction of the building. A modernization was completed in 2002, which added a new auditorium, gymnasium, two new academic wings, as well as a new administration core to the existing building. As apart of the modernization, Bethesda - Chevy Chase High School's main entrance was shifted from the historical building to the north-eastern section of the addition.

The original four story structure of Bethesda - Chevy Chase High School is composed of non - combustible construction (and is fully protected by a sprinkler system). The walls throughout the building are of masonry, with brick veneer on exterior walls. The structural system consists of masonry load - bearing walls, which are constructed on continuous concrete footings. The floors throughout the building are concrete and exist as either concrete slabs - on - grade or framed slabs supported by steel joists. The roof is built - up roofing on corrugated metal deck, supported by steel joists. As part of the modernization213,499 sf was added that consists of masonry and steel construction.

Vehicular access to the school is provided through two driveways located off of East - West Highway. One driveway serves as the main entry to the bus-loop and on-site parking. The second driveway, located along Chelton Road, provides access to the parent drop - off loop. Additional staff and visitor parking spaces are located along the access way. There are 234 parking spaces currently on - site. Sidewalks link the pedestrian circulation routes of the facility to the public sidewalks along Pearl Street and Chelton Road.

The current capacity of Bethesda - Chevy Chase High School is 1,665, with an official enrollment of 1,835 students. Enrollment is projected to grow to almost 2200 students by the 2018-2019 school year.

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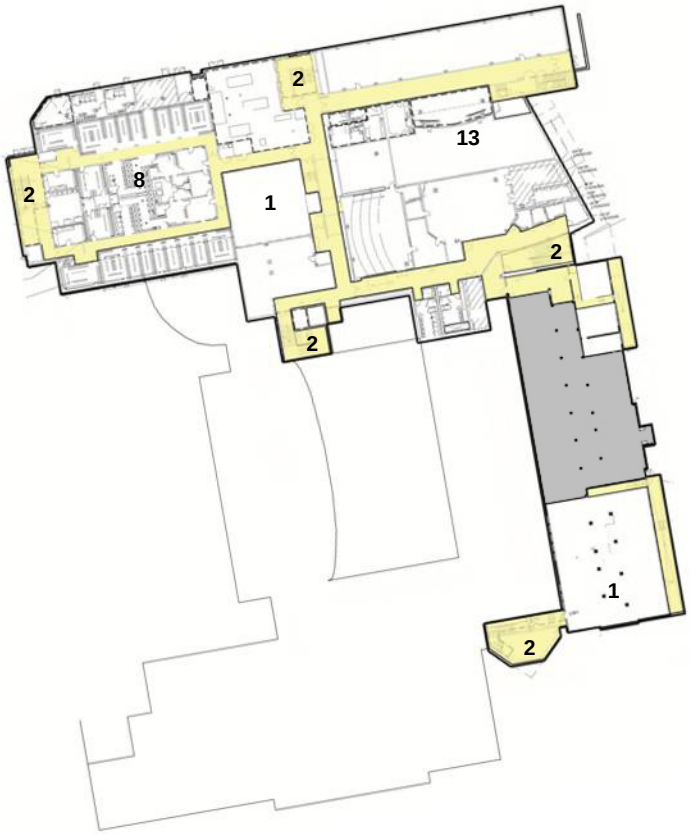
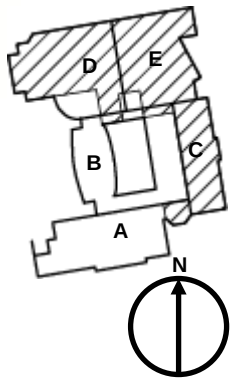
IV. Existing Conditions (Continued)

Existing Lower Floor Plan



KEY:

1. SUPPORT AREA
2. EXISTING STAIR
3. CLASSROOMS
4. MEDIA CENTER
5. SCIENCE LABS
6. AUDITORIUM
7. TECH EDUCATION LABS
8. PHYSICAL EDUCATION AREA
9. COURTYARD
10. CAFETERIA
11. KITCHEN
12. ADMINISTRATION
13. MUSIC AREA



0' 20' 40' 80'

GRAPHIC SCALE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE

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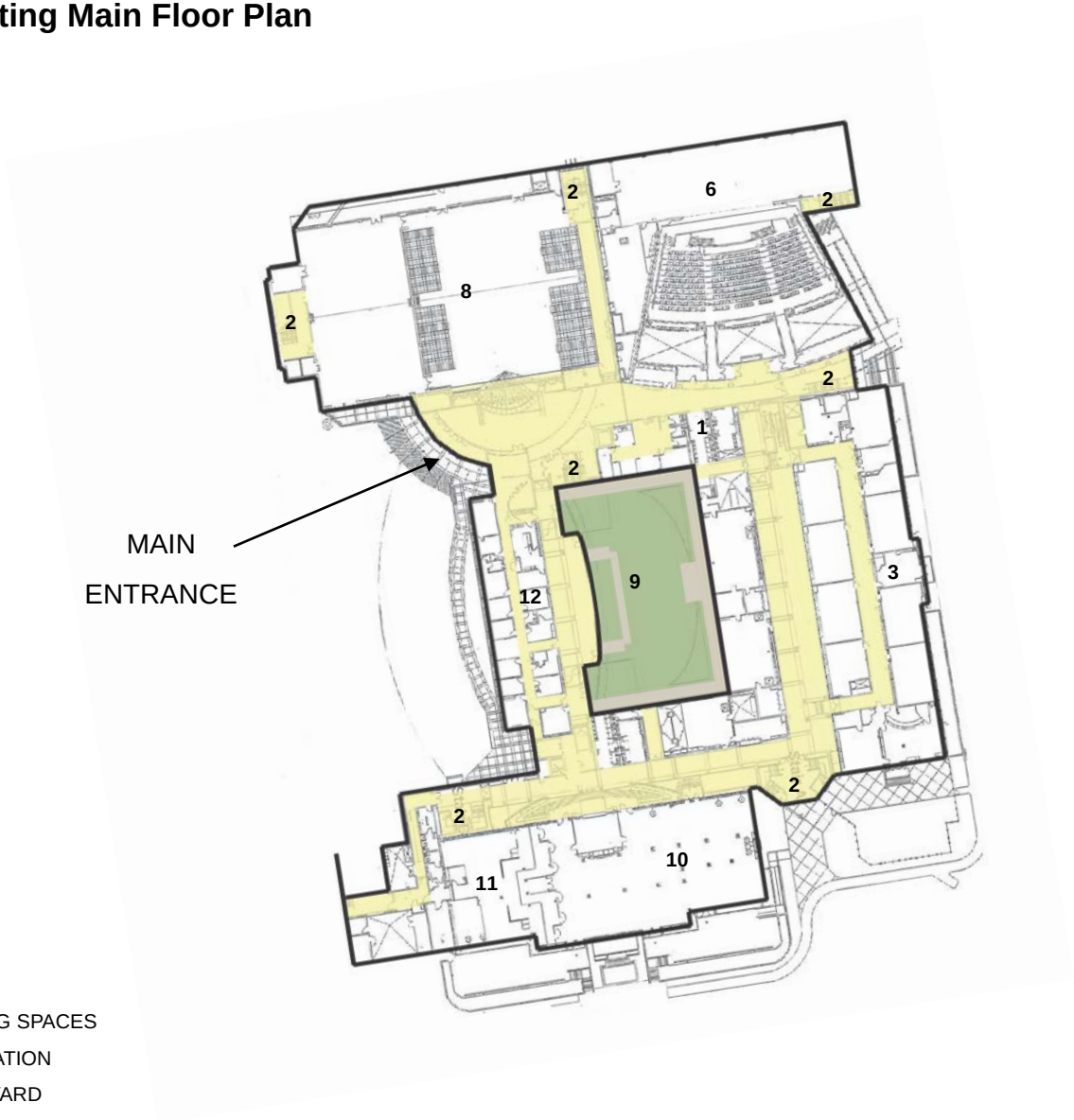
IV. Existing Conditions (Continued)

Existing Main Floor Plan

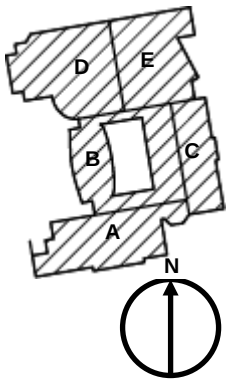


KEY:

1. SUPPORT AREA
2. EXISTING STAIR
3. CLASSROOMS
4. MEDIA CENTER
5. SCIENCE LABS
6. AUDITORIUM
7. TECH EDUCATION LABS
8. PHYSICAL EDUCATION AREA
9. COURTYARD
10. CAFETERIA
11. KITCHEN
12. ADMINISTRATION
13. MUSIC AREA

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE



0' 20' 40' 80'

GRAPHIC SCALE

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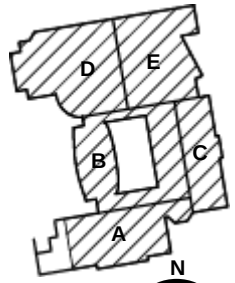
IV. Existing Conditions (Continued)

Existing Second Floor Plan

KEY:

1. SUPPORT AREA
2. EXISTING STAIR
3. CLASSROOMS
4. MEDIA CENTER
5. SCIENCE LABS
6. AUDITORIUM
7. TECH EDUCATION LABS
8. PHYSICAL EDUCATION AREA
9. COURTYARD
10. CAFETERIA
11. KITCHEN
12. ADMINISTRATION
13. MUSIC AREA



0' 20' 40' 80'

GRAPHIC SCALE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE

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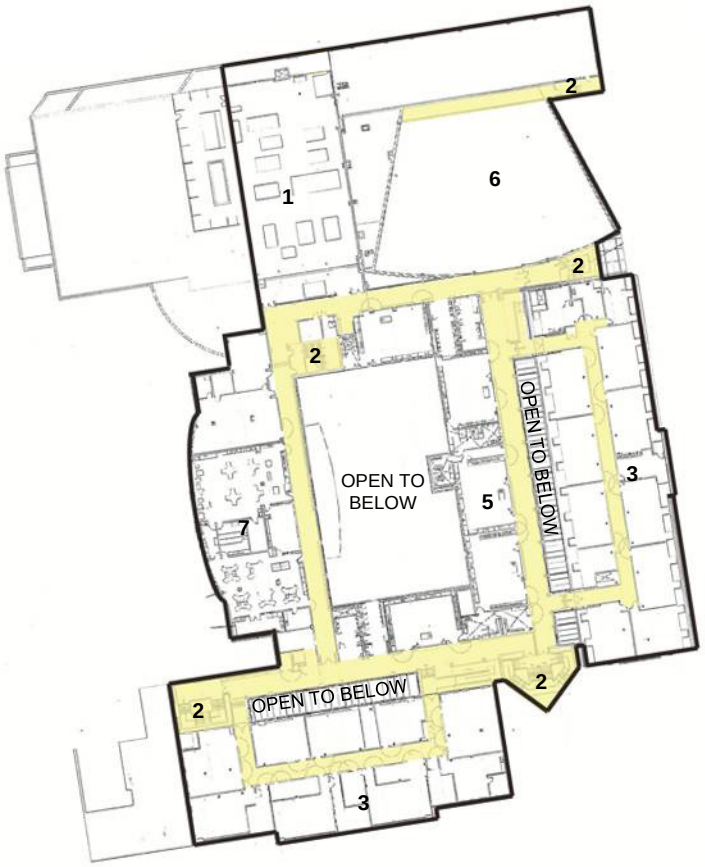
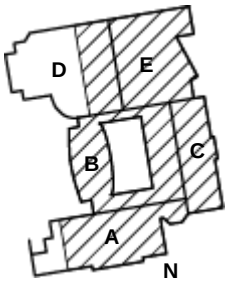
IV. Existing Conditions (Continued)

Existing Third Floor Plan



KEY:

1. SUPPORT AREA
2. EXISTING STAIR
3. CLASSROOMS
4. MEDIA CENTER
5. SCIENCE LABS
6. AUDITORIUM
7. TECH EDUCATION LABS
8. PHYSICAL EDUCATION AREA
9. COURTYARD
10. CAFETERIA
11. KITCHEN
12. ADMINISTRATION
13. MUSIC AREA



0' 20' 40' 80'

GRAPHIC SCALE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE

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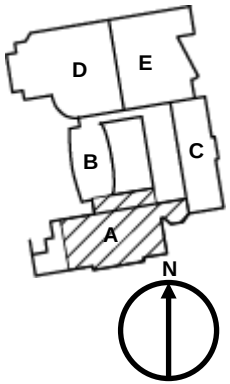
IV. Existing Conditions (Continued)

Existing Fourth Floor Plan

KEY:

1. SUPPORT AREA
2. EXISTING STAIR
3. CLASSROOMS
4. MEDIA CENTER
5. SCIENCE LABS
6. AUDITORIUM
7. TECH EDUCATION LABS
8. PHYSICAL EDUCATION AREA
9. COURTYARD
10. CAFETERIA
11. KITCHEN
12. ADMINISTRATION
13. MUSIC AREA



0' 20' 40' 80'

GRAPHIC SCALE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE

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V. Description of Proposed Options

Option 1

Description

The proposed option consists of a two - story addition and partial three story addition and is located along the northwestern side of the site. The main level of the addition provides loop circulation to the existing school. The raised, two - story single loaded corridor covers the existing bleachers, but maintains the existing fire lane and provides fire truck access through Pearl Street. The stadium field and tennis courts will be required for contractor staging during construction. This option provides 90 additional parking spaces to the site.

Proposed Addition

Option 1 achieves the program requirements by connecting two separate parts of the school through a series of loop circulation corridors.

Part of the addition is located on two of the existing tennis courts and includes a lower level, a main level, and an upper level. The lower level is comprised of four classrooms, a technology education suite, and an auxiliary gymnasium located in proximity to the existing locker rooms and the stadium field. The existing stair serving the gymnasium will provide vertical access to the new auxiliary gymnasium. The main level consist of five classrooms, an administration suite, an art room, two special education support rooms, and provides connection to the existing building. The second floor includes six classrooms, a multipurpose laboratory, and a science laboratory.

The part of the addition that is raised over the existing bleachers and overlook the stadium field, consists of a single loaded corridor on two levels. Columns are used to elevate the structure and maintain the existing fire lane from Pearl Street to Chelton Road. On each floor of this part of the addition there are five classrooms and support spaces. On both the second and main floors, connections to front of the existing building entrance are provided.

Additionally, mechanical areas such as building heating, ventilation, and air conditioning, are provided at every floor within this option.

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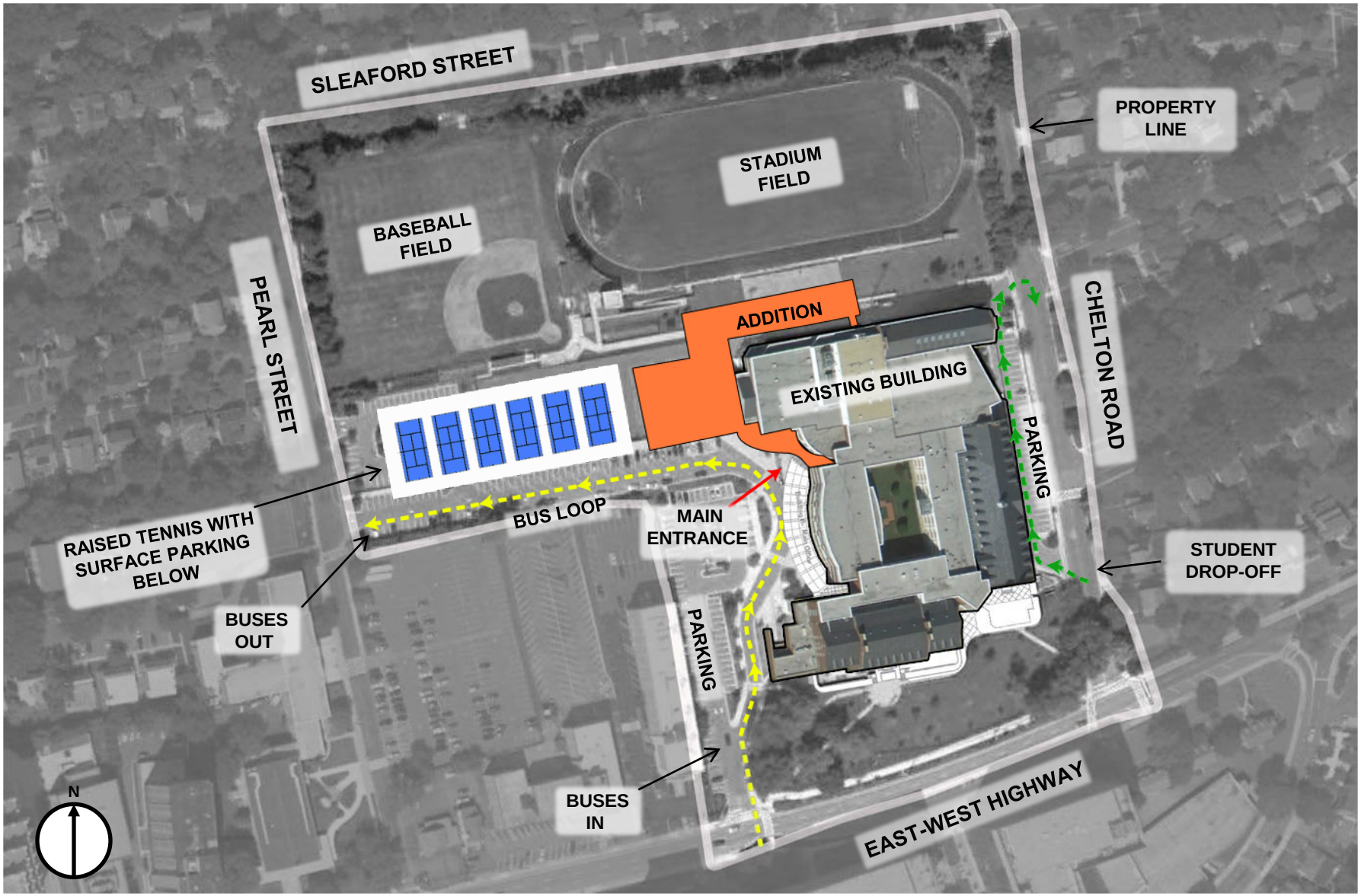
V. Description of Proposed Options (Continued)

Option 1 Proposed Site Plan



0' 40' 80' 160'

GRAPHIC SCALE

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V. Description of Proposed Options (Continued)

Option 1 Proposed Lower Floor Plan

KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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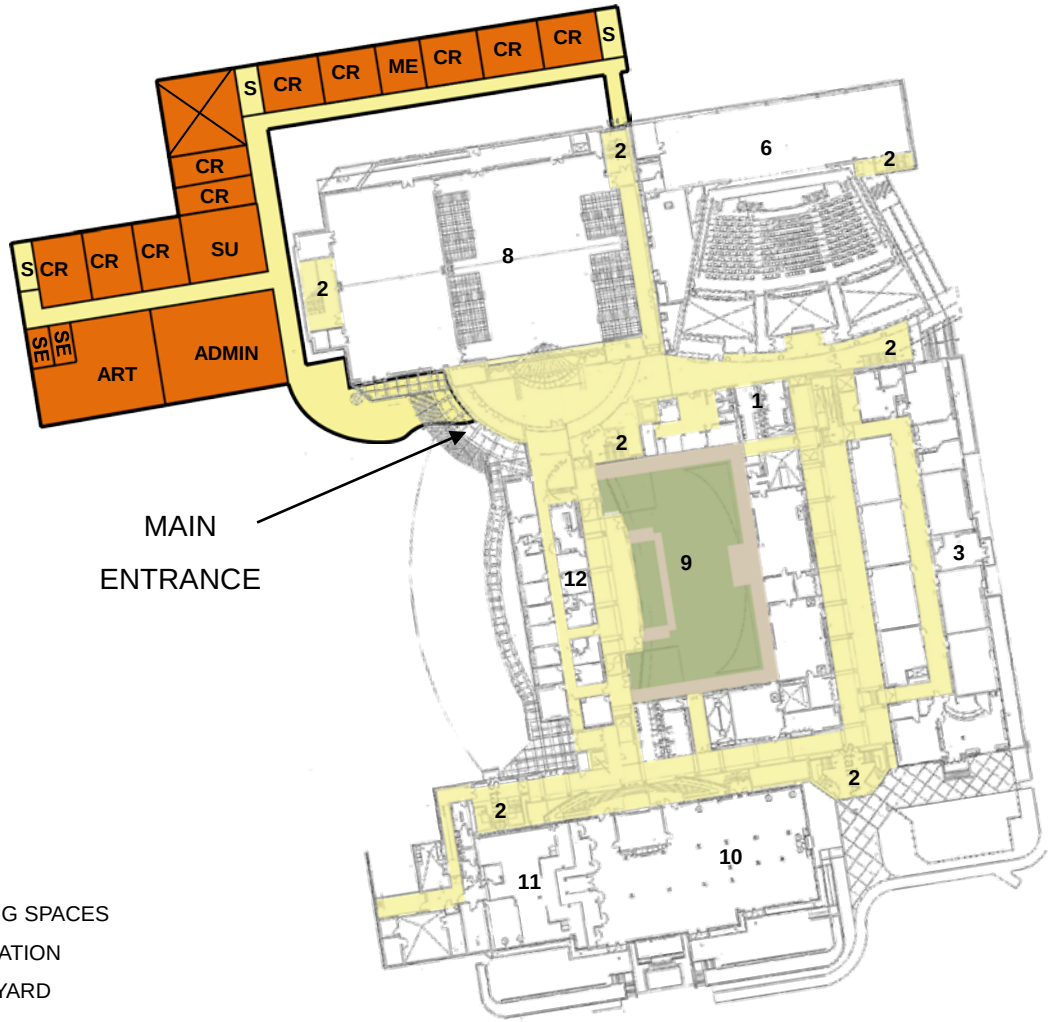
V. Description of Proposed Options (Continued)

Option 1 Proposed Main Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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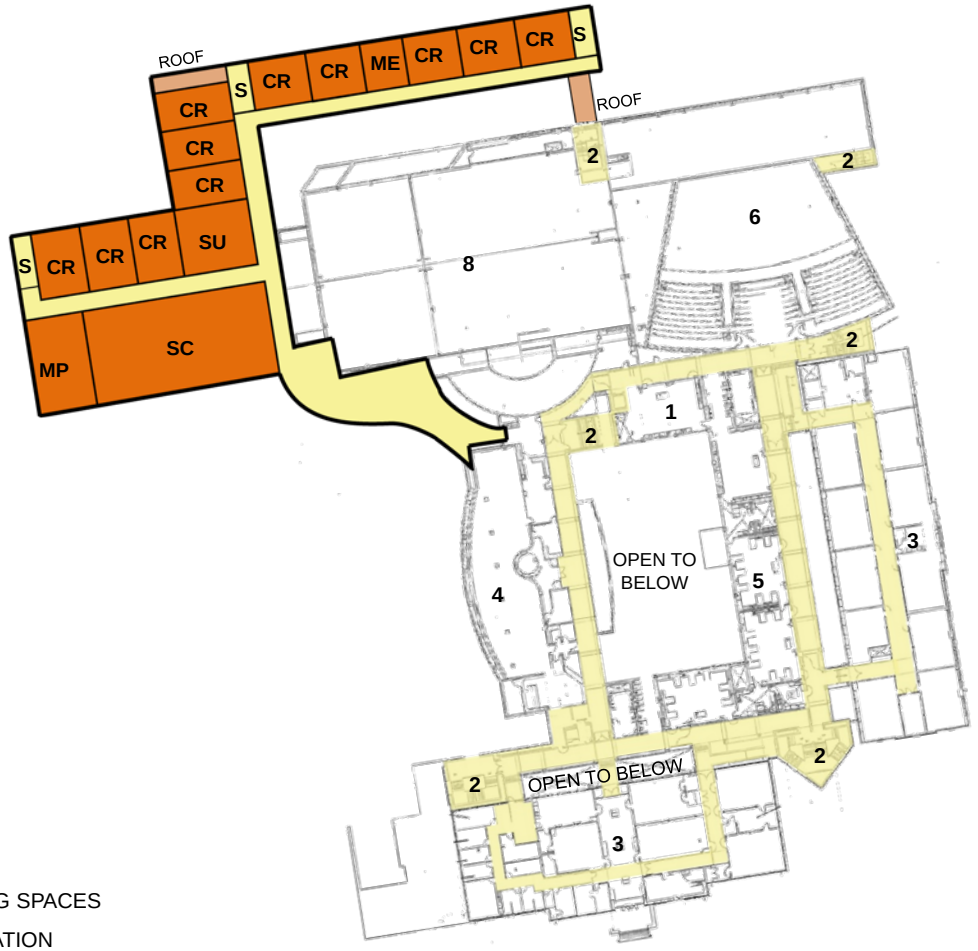
V. Description of Proposed Options (Continued)

Option 1 Proposed Second Floor Plan



KEY:

1.	SUPPORT AREA
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3.	CLASSROOMS
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9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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V. Description of Proposed Options (Continued)

Option 1 (Continued)

Structural

This option consists of an 78,000 SF addition to the northwest portion of the existing school. The lower level is located between the parking area and the school while the main level and second floor extend over the existing stadium. Minimal columns around the existing stadium maximize the sightlines while providing additional cover afforded by the new space. A concrete slab on grade supports the grade level spaces while floor framing consists of a 5 - inch concrete and composite metal deck supported by composite steel beams and girders. The roof consists of 1.5 - inch metal roof deck supported by steel joists and steel girders. The structure is supported by steel columns. It is anticipated that spread footings can be utilized to support the columns and strip footings under load bearing and exterior walls. Lateral support is provided by a combination of shear walls along the ends of the new space and steel moment frames.

Concrete basement walls at the lower level provide soil retention in areas of varying grade elevation around the new building addition. Existing retaining walls near the football field will be checked for loading from the new addition.

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V. Description of Proposed Options (Continued)

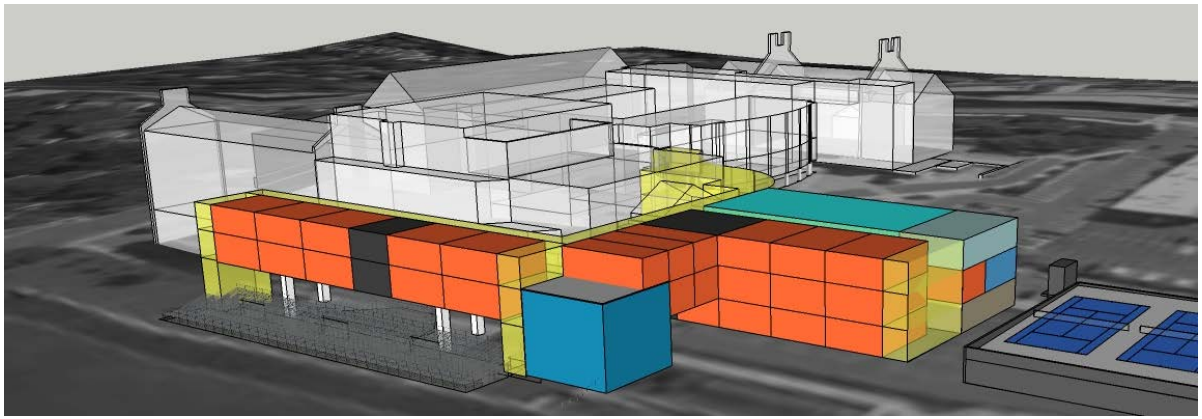
Option 1 (Continued)

Advantages

- Loop circulation on main level; connection to front of existing building entrance on two levels.
- Minimum disturbance during construction to curriculum.
- Smallest overall GSF.
- Minimal impact on existing façade.
- Frames entrance.
- New classrooms provide views over the stadium field.

Disadvantages

- Stadium field disturbance during construction.
- Concern of building over stadium bleachers expressed. Columns supporting the single loaded corridor will obstruct views to the field. Additional bleachers will be provided to compensate for the seats with obstructed views.
- Travel distance from existing educational core is longer compared to Option 3.



Option 1 Three - Dimensional Model - View From Field Side

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V. Description of Proposed Options (Continued)

Option 2

Description

The proposed option consists of a three - story addition and partial four story addition and is located along the northwestern side of the site. The main level of the addition provides loop circulation to the existing school. The raised three - story single loaded corridor covers the existing bleachers, but maintains the existing fire-lane and provides fire-truck access through Pearl Street. The stadium field and tennis courts will be required for staging during the construction phase. This option provides 110 additional parking spaces to the site.

Proposed Addition

Option 2 achieves the program requirements by connecting two separate areas of the school through a series of loop circulation corridors.

Part of the addition is located on one of the existing tennis courts and includes a main level, two upper levels and a lower level. The lower level is comprised of two classrooms, art rooms, a multipurpose laboratory, and an auxiliary gymnasium located in proximity to the existing locker rooms and the stadium field. The existing stair serving the gymnasium will provide vertical access to the new auxiliary gymnasium. The main level consist of three classrooms and an administration suite and provides loop circulation to the existing building. The second floor includes two classrooms and science laboratory located on the same level as the existing building. The third level has the same spatial organization as the floor below with a technology education laboratory and classrooms.

The addition raised over the existing bleachers and overlook the stadium field, consists of a single loaded corridor on three levels. Columns are used to elevate the structure and maintain the existing fire lane from Pearl Street to Chelton Road. On each floor of the addition there are five classrooms and support spaces. On both the third, second and main floors, connections to front of the existing building entrance occur. These new spaces can be used during lunch periods to accommodate a large number of the student population.

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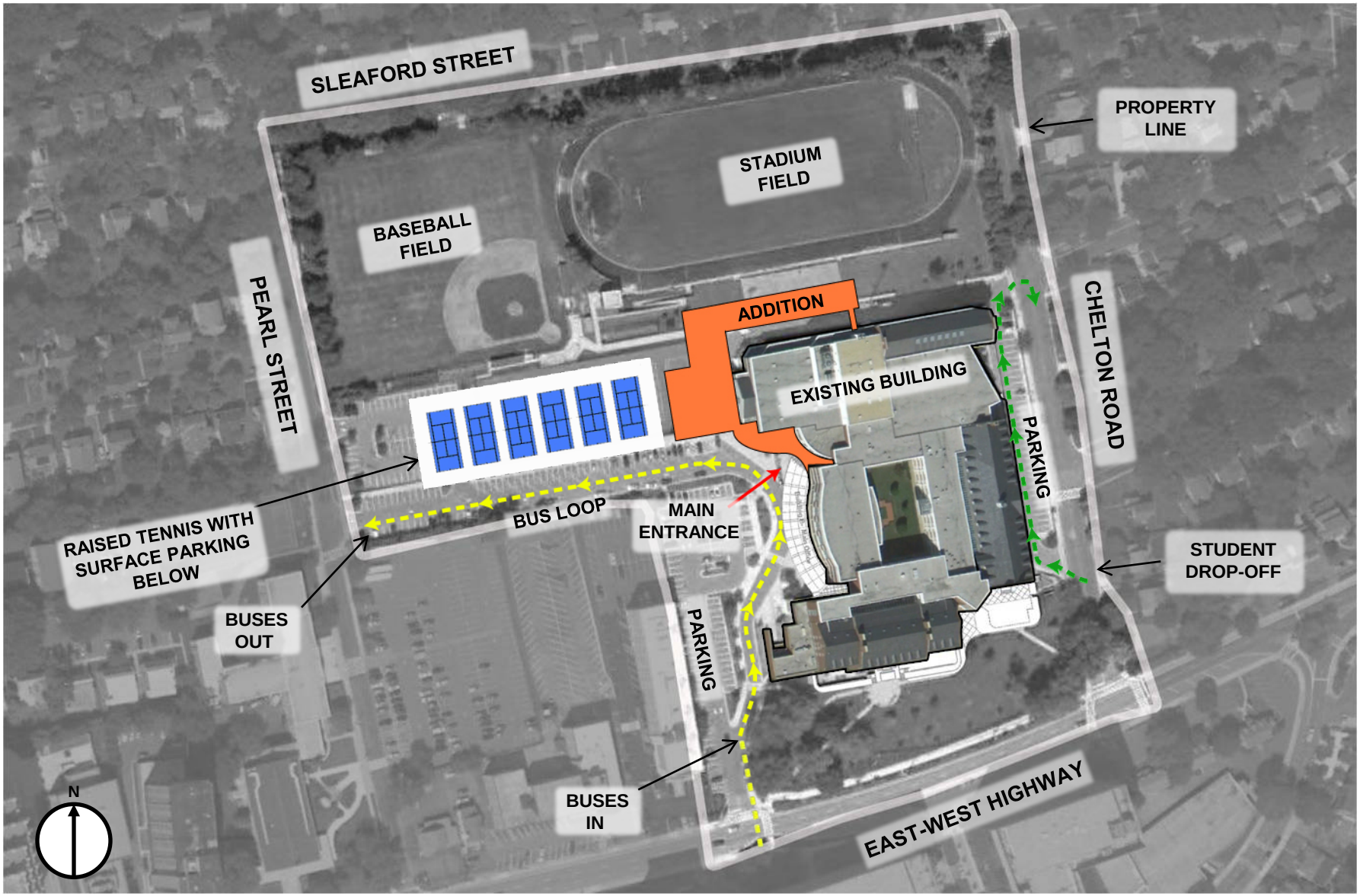
V. Description of Proposed Options (Continued)

Option 2 Proposed Site Plan



0' 40' 80' 160'

GRAPHIC SCALE

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V. Description of Proposed Options (Continued)

Option 2 Proposed Lower Floor Plan

KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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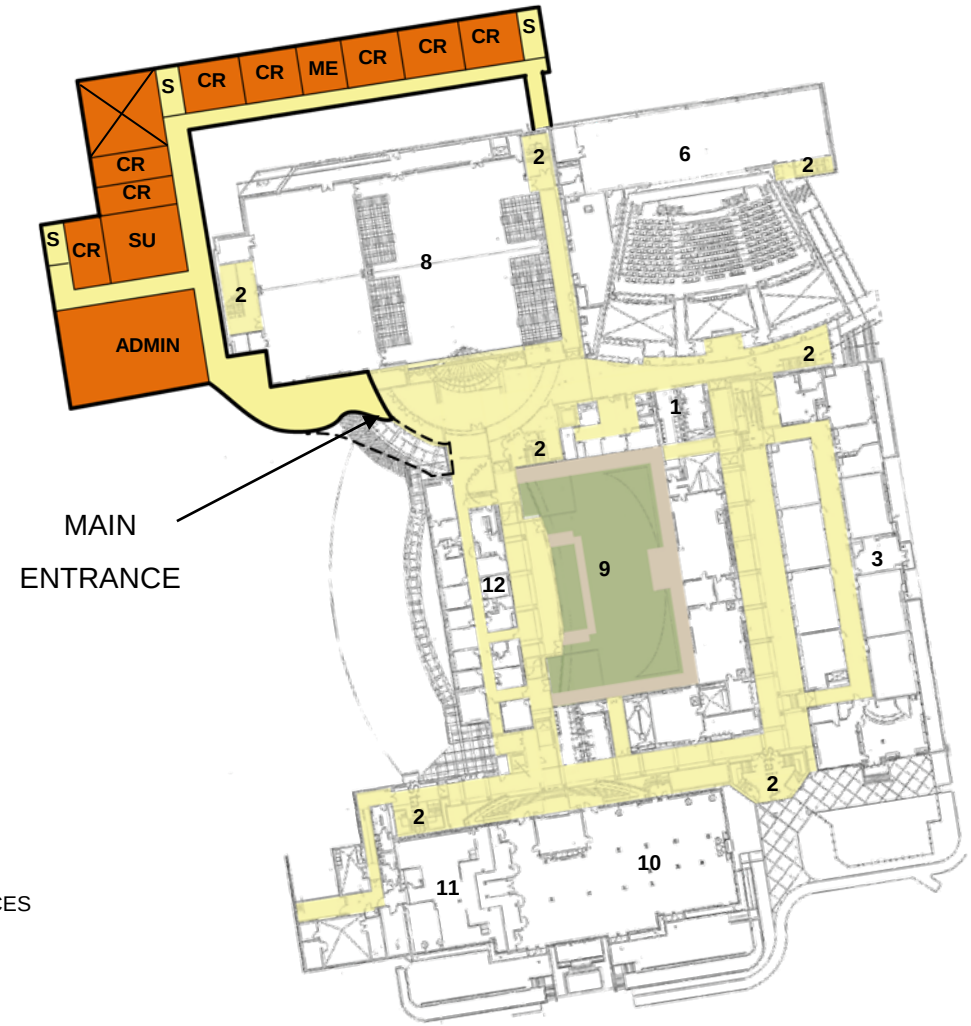
V. Description of Proposed Options (Continued)

Option 2 Proposed Main Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
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ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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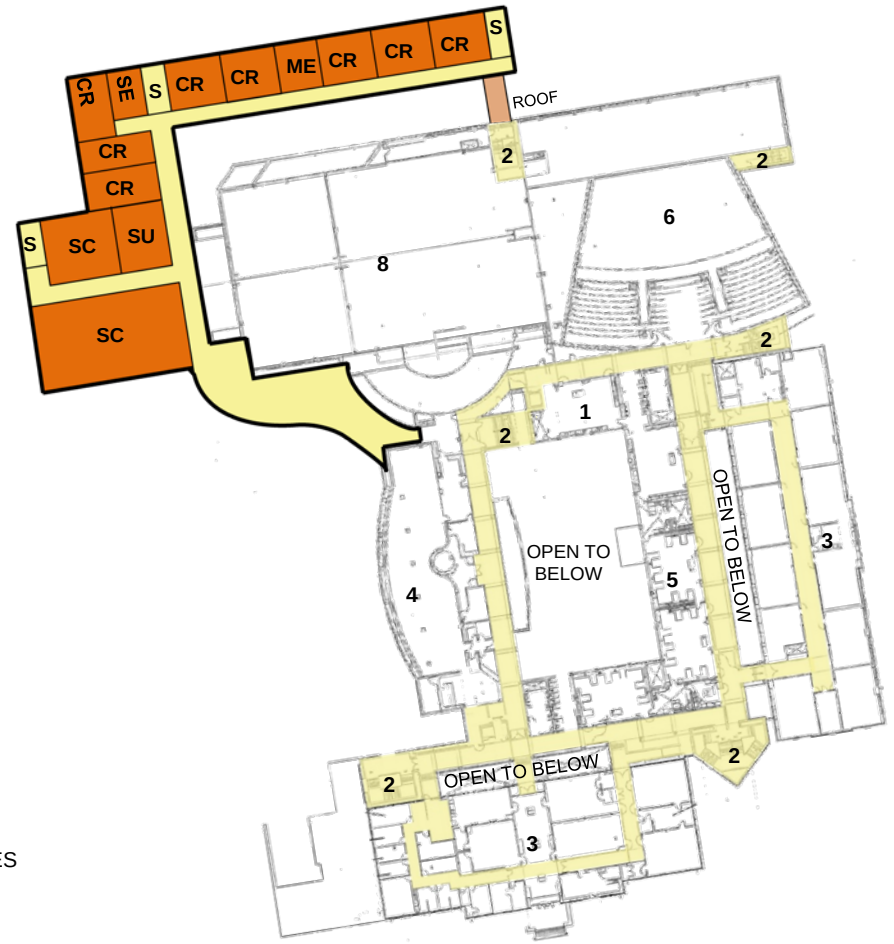
V. Description of Proposed Options (Continued)

Option 2 Proposed Second Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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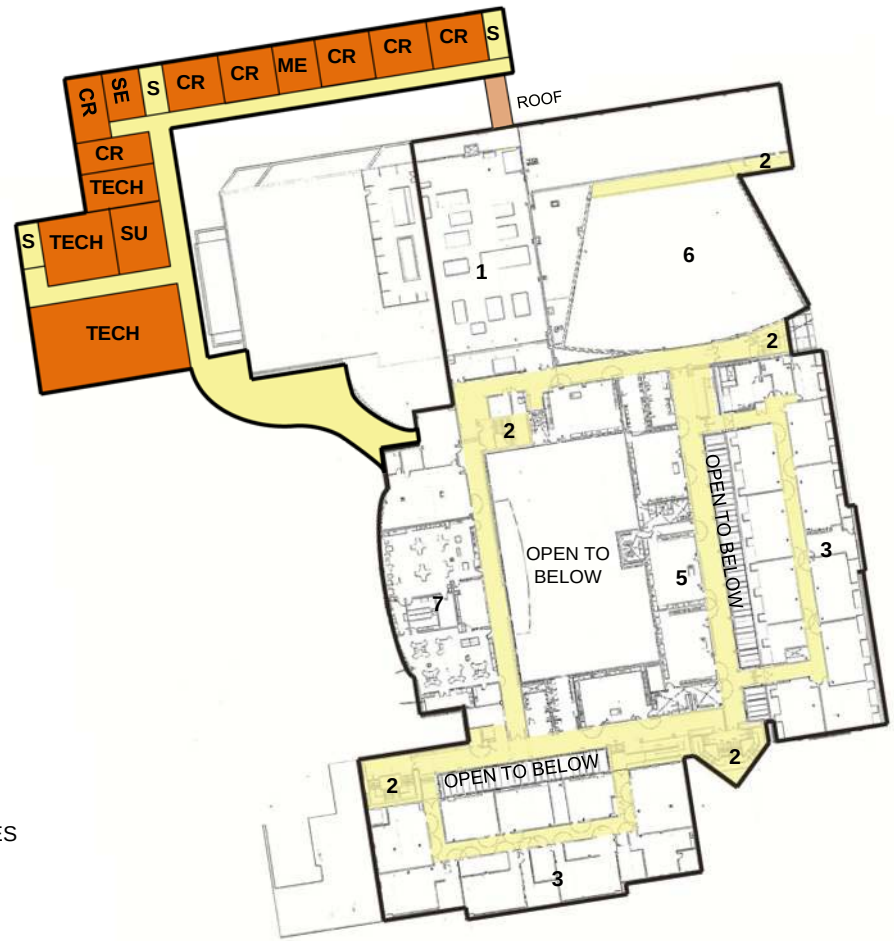
V. Description of Proposed Options (Continued)

Option 2 Proposed Third Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
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S	NEW STAIR
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ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0' 20' 40' 80'

GRAPHIC SCALE

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V. Description of Proposed Options (Continued)

Option 2 (Continued)

Structural

This option consists of an 80,000 SF addition to the northwest portion of the existing school. This option places most of the new classroom space over the existing stadium. Utilizing double loaded corridors to service the classrooms at the main and second floor levels. More columns are required to support the increased area over the stadium compared to option 1. While the columns extend closer to the field, minimal columns attempt to lessen the impact of sight lines around the stadium area. A concrete slab on grade supports the grade level spaces while floor framing consists of a 5 - inch concrete and composite metal deck supported by composite steel beams and girders. The roof consists of 1.5 - inch metal roof deck supported by steel joists and steel girders. The structure is supported by steel columns. It is anticipated that spread footings can be utilized to support the columns and strip footings under load bearing and exterior walls. Lateral support is provided by a combination of shear walls along the ends of the new space and steel moment frames.

Alternatively, steel floor - floor trusses located at the exterior and corridor walls with strategically placed vertical and sloped members to account for door and window openings could provide a framing option to reduce the number of columns while providing framing that can either be showcased or hidden within the structure. The result is greater spans, less columns, and more efficient framing.

Concrete basement walls at the lower level provide soil retention in areas of varying grade elevation around the new building addition. Existing retaining walls near the football field may need to be checked for loading from the new addition.

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V. Description of Proposed Options (Continued)

Option 2 (Continued)

Advantages

- Most amount of parking.
- Loop circulation on main level; bridge connection to existing building.
- Connection to front of existing building entrance on three levels.
- Minimum disturbance during construction to curriculum.
- Minimal overall site footprint.
- Frames main entrance.

Disadvantages

- Four story option requires more vertical circulation than option 1.
- Longest travel distance to existing educational core.
- Stadium field disturbance during construction.

Option 2 Three - Dimensional Model - View From Field Side

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V. Description of Proposed Options (Continued)

Option 3

Description

Option 3 is located in front of the existing main entrance on the northwestern side of the site. The Option investigates raising the proposed addition to accommodate the existing bus loop. The option provides two - stories of loop circulation for a connection to the existing fourth floor. An exterior courtyard separates the existing building from the new addition allowing for natural light to the existing facility. The raised addition provides a new main entrance, including an interior stepped plaza while providing cover over the existing bus loop. Option 3 provides 76 additional parking spaces. The main parking lot and tennis courts will be required for contractor staging. During construction, the secondary parking lot along Pearl Street will be temporarily used as bus drop - off and pick - up.

Proposed Addition

Option 3 achieves the program requirements by connecting two separate areas of the building through a new core space. This creates a new main entrance to the school connecting academic program on either side. These new spaces can be used during lunch periods to accommodate a large number of the student population.

The first cluster is located on one of the existing tennis courts and includes a lower level, main level, and an upper level. The lower level is comprised of one classroom, support program, and an auxiliary gymnasium located in proximity to the existing locker rooms and the stadium field. The existing stair serving the gymnasium will provide vertical access to the new auxiliary gymnasium. The main level has a new administrative area which would offer good views to the new parking structure and rest of site. The second floor includes four classrooms.

The second cluster consists of an addition that utilizes columns to elevate a double loaded corridor on three levels above the existing bus loop and maintain the existing fire lane from Chelton Road. Within the first floor of the elevated addition includes five classrooms, two special education support areas, a multipurpose laboratory, and a science laboratory. The second level includes six classrooms and a technology education laboratory. The top level includes ten classrooms, an art laboratory and connects to the existing school’s fourth floor to create a more viable education core.

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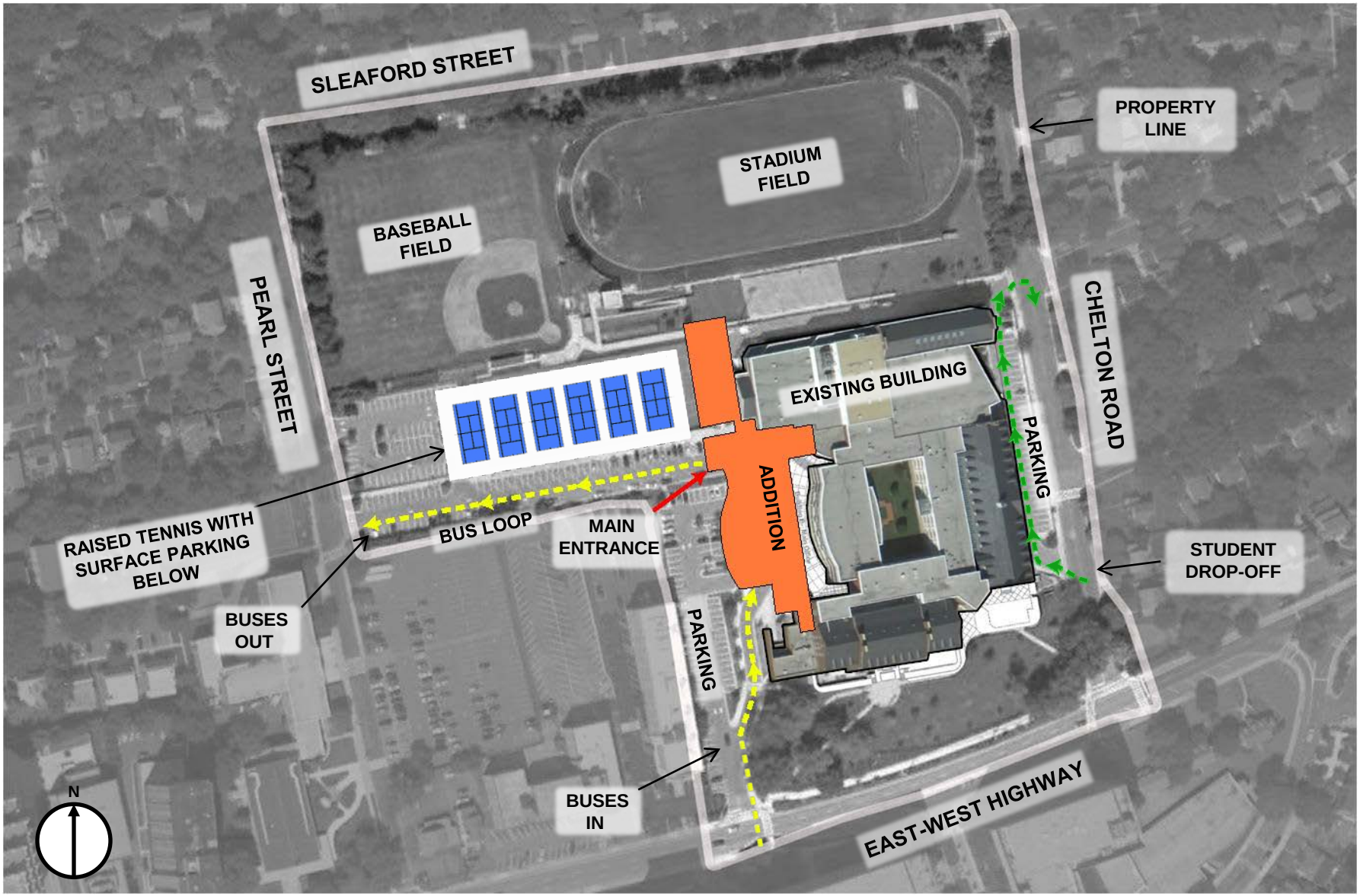
V. Description of Proposed Options (Continued)

Option 3 Proposed Site Plan



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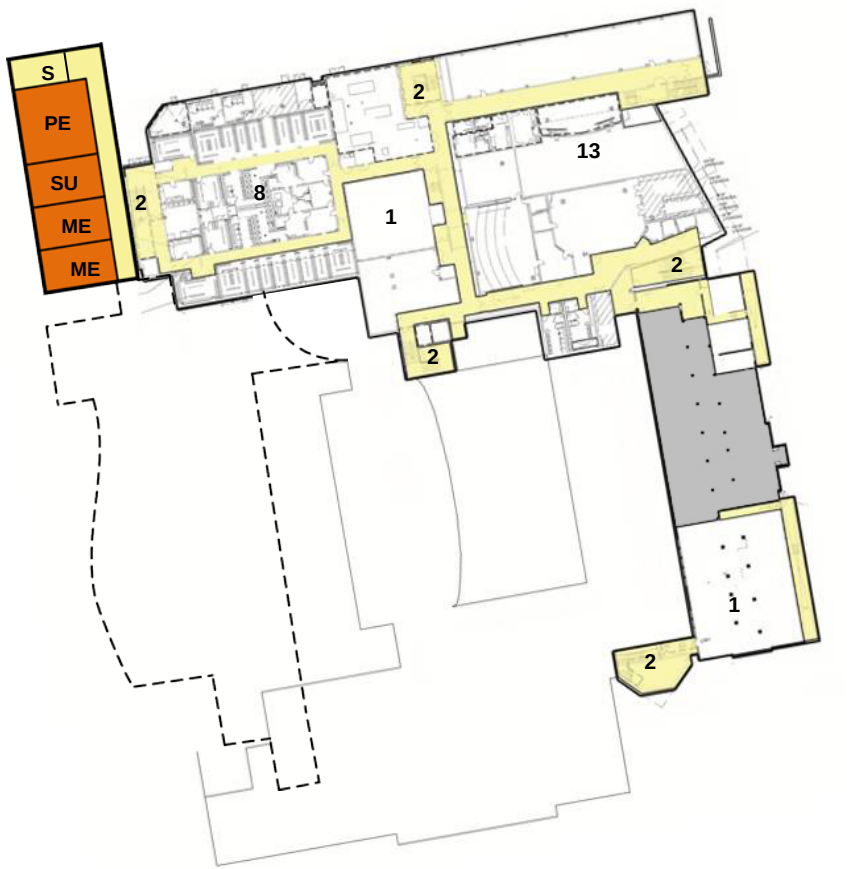
V. Description of Proposed Options (Continued)

Option 3 Proposed Lower Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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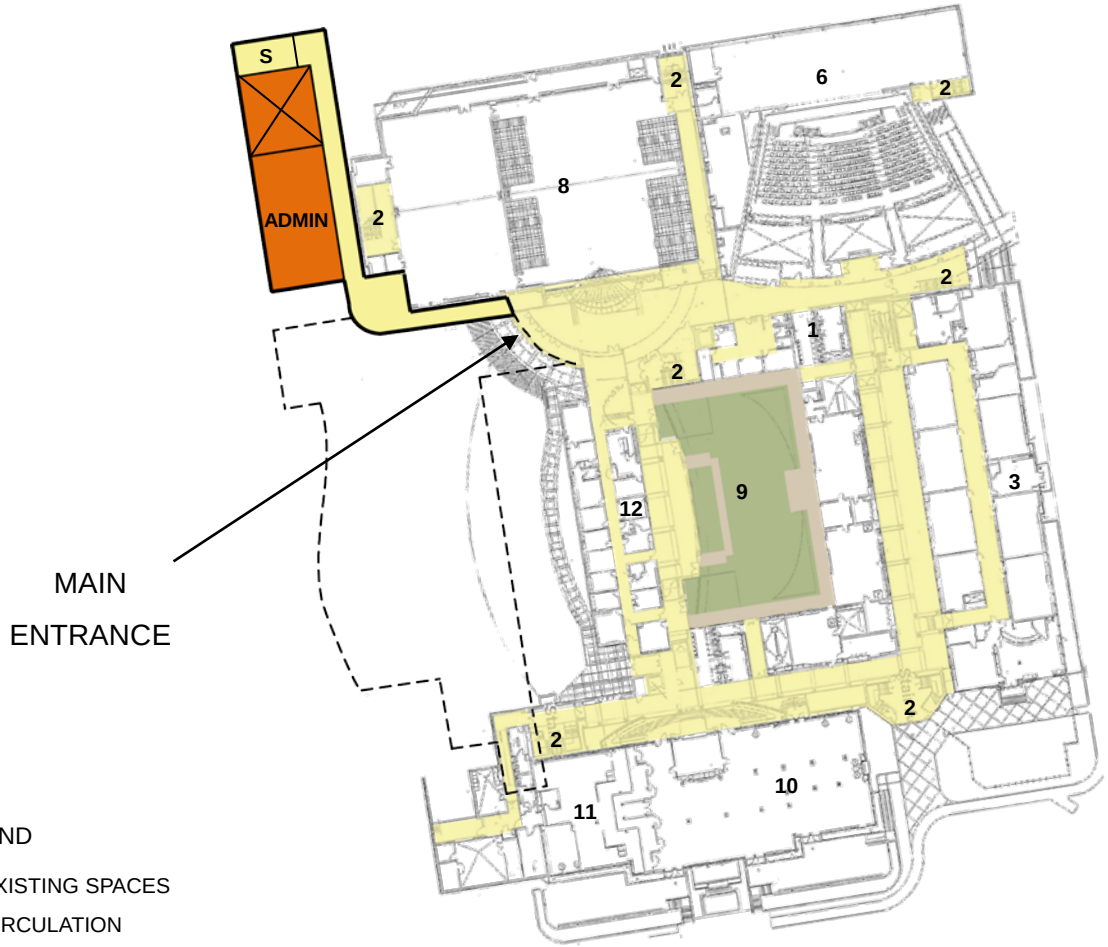
V. Description of Proposed Options (Continued)

Option 3 Proposed Main Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
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MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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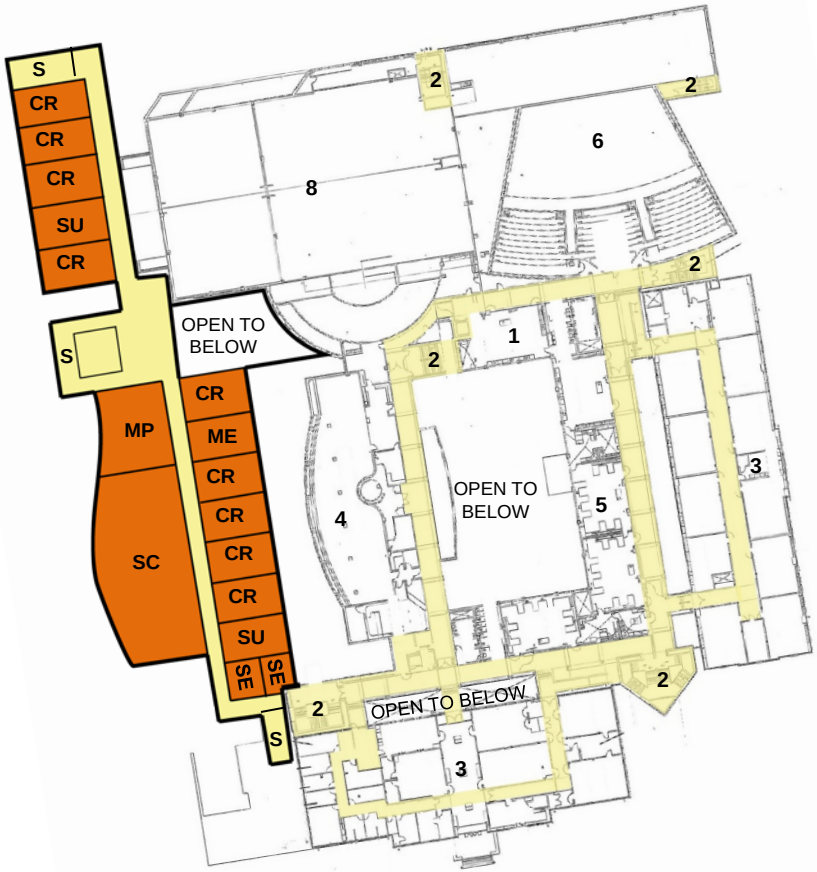
V. Description of Proposed Options (Continued)

Option 3 Proposed Second Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
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12.	ADMINISTRATION
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S	NEW STAIR
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ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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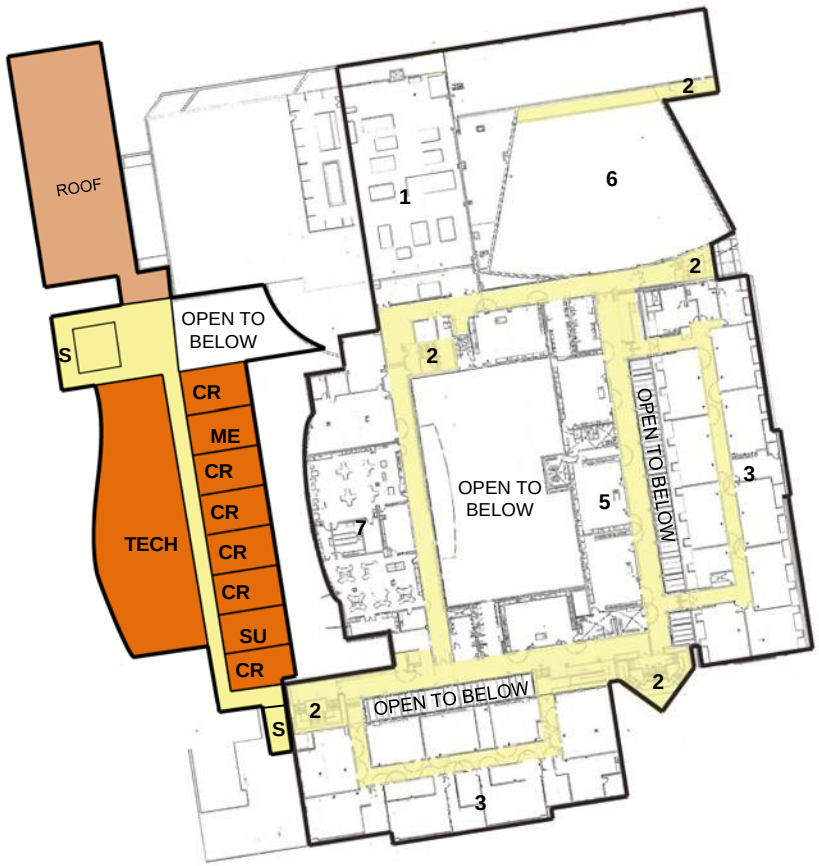
V. Description of Proposed Options (Continued)

Option 3 Proposed Third Floor Plan



KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0' 20' 40' 80'

GRAPHIC SCALE

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V. Description of Proposed Options (Continued)

Option 3 Proposed Fourth Floor Plan

KEY:

1.	SUPPORT AREA
2.	EXISTING STAIR
3.	CLASSROOMS
4.	MEDIA CENTER
5.	SCIENCE LABS
6.	AUDITORIUM
7.	TECH EDUCATION LABS
8.	PHYSICAL EDUCATION AREA
9.	COURTYARD
10.	CAFETERIA
11.	KITCHEN
12.	ADMINISTRATION
13.	MUSIC AREA
S	NEW STAIR
CR	CLASSROOM / TEACHING SPACE
ADMIN	ADMINISTRATION
ART	ART SUITE
PE	PHYSICAL EDUCATION
SC	SCIENCE SUITE
ME	MECHANICAL AREA
MP	MULTI-PURPOSE LAB
TECH	TECHNOLOGY EDUCATION
SU	SUPPORT
SE	SPECIAL EDUCATION SUITE

LEGEND

- EXISTING SPACES
- CIRCULATION
- COURTYARD
- CRAWL SPACE
- ADDITION

N

0’ 20’ 40’ 80’

GRAPHIC SCALE

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V. Description of Proposed Options (Continued)

Option 3 (Continued)

Structural

This 85,000 SF addition introduces classrooms at northwest corner of the lower level and main level while most of the addition occupies the second, third, and fourth floors located over the bus loading area. Strategically placed steel columns allow for bus access to the loading area. The floor framing consists of a 5 - inch concrete and composite metal deck supported by composite steel beams and girders. The roof consists of 1.5 - inch metal roof deck supported by steel joists and steel girders. The structure is supported by steel columns. It is anticipated that spread footings can be utilized to support the columns and strip footings under load bearing and exterior walls.

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V. Description of Proposed Options (Continued)

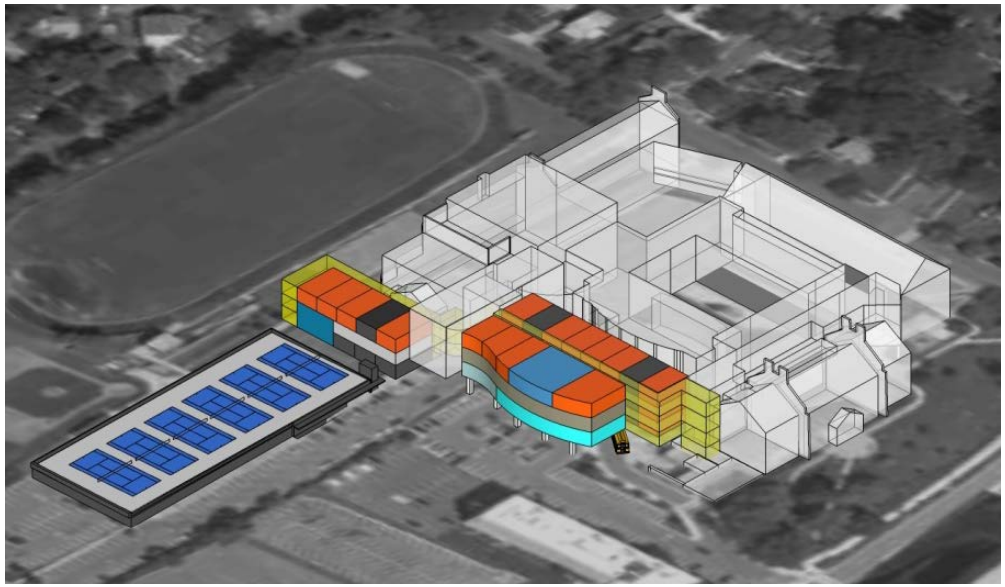
Option 3 (Continued)

Advantages

- Loop circulation is tight to core of the existing building.
- Provides additional classrooms on 4th floor allowing for a more viable classroom core on the existing 4th floor.
- Minimal disturbance to stadium field and physical education program (daily classes) during construction.
- Potential to create continuous new façade.

Disadvantages

- Colonnade at bus loop obscures view to the entrance, creates security concerns, and reduces visual access from the administration to parking area.
- Most difficult option to phase.
- Most difficult constructability option.
- Courtyard between existing building and addition will be indirect sunlight.
- Greatest disturbance of curriculum during construction.
- Temporarily relocates bus traffic and main entrance onto Chelton Street.
- Most amount of parking lost during construction.
- Exhaust from buses (air quality concerns).
- Athletic program would not be able to hold events due to the lack of parking during construction.



Option 3 Three - Dimensional Model - From Front

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V. Description of Proposed Options

General

Three design options for expanding Bethesda - Chevy Chase High School have been developed in response to the Montgomery County Public Schools educational specifications. Each option provides a different design approach in addressing the requirements of the educational specifications and construction impacts to the existing facility.

All three options propose a lower level addition to the northwest side, connecting the proposed gymnasium program to the existing locker rooms on the lower level. All three options include a main level and second level additions in varying locations. The proposed options require minimal disturbance to the existing facility and academic program.

It is anticipated that the proposed scope of work will take 18 to 24 months of construction with anticipated completion by the 2017-2018 school year.

Common Design Elements

Building

The following proposed additions are common to all three options.

- Conform to current building standards and will be Americans with Disabilities Act accessible.
- Increase the current capacity from 1665 to the maximum capacity of 2400.
- The existing school will be occupied during construction in all options.
- Minimal disturbance of the existing building and academic curriculum.
- Improve circulation in the existing building by allowing students to use corridors in the existing building that are currently under-utilized.
- Provide the same amount of classrooms.
- When possible all options, provide program relationship between new and existing teaching spaces by strategically locating new program in close proximity and at the same floor elevation to the existing space.
- Earliest start of construction is summer 2015 with completion expected by August 2017.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

Site Modifications

Due to an increasing student enrollment, Bethesda - Chevy Chase High School is currently planning on adding relocatable classrooms on site. It is recommended that the relocatable classrooms be located away from the proposed construction staging zones, so that they will not need to be moved at the start of construction. The parking lot adjacent to the existing tennis courts is recommended as the desired location for any relocatable classrooms placed on site. It is anticipated that up to 16 relocatable classrooms will be in place prior to the start of construction. A new raised tennis court structure with surface parking below will also be added to the site.

Parking and Site Circulation

The current bus loop has been verified to be adequate in functionality and is visibly accessible from the administrative area. The student drop - off is off of Chelton Road and provides additional Americans with Disabilities Act staff parking spaces. Current parking is adequate for staff only; student parking on site is limited. All options provide Americans with Disabilities Act access on site to a raised tennis court structure to accommodate six tennis courts and provide additional surface parking below. Access to athletic fields is provided between the raised tennis courts and new addition.

Elevated Tennis Courts

Raised tennis courts provide additional parking spaces below and are supported by cast - in - place concrete slab and beams and concrete columns. This maximizes column spacing while providing adequate anchorage for fences, nets, and equipment required for the tennis court area. The use of cast - in - place concrete minimizes the effects of vibrations, which are typically a concern with such spaces that are lightly loaded and subjected to athletic activities. It is estimated that columns spaced 25’ to 30’ on center would adequately support the concrete framed structure consisting of concrete girders, approximately 36 to 48 inches deep, concrete beams 24 - inches to 36 - inches deep, and an elevated concrete slab 6 to 8 - inches thick. The structure is supported by spread footings and the lateral system consists of concrete beam/column moment frames. The existing retaining wall along the south side of the tennis courts may need to be modified or replaced to account for space and loading requirements of the new structure.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

The site circulation will be generally modified for all options as follows:

- Provide additional spaces to accommodate for the increase of students and staff projected enrollment.
- Renovation of vegetation in parking lot to increase visibility of pedestrians.
- Fire truck access will be maintained via the existing fire lane and extend through to Pearl Street.

By expanding the current parking lot and by increasing visibility, drop - off traffic congestion will be reduced and overall site safety for all users is improved.

Stadium and Baseball Field

The existing stadium and baseball field are in adequate condition. The location of the fields remains the same in all options. If the stadium field is disturbed during construction, it is Montgomery County Public Schools' responsibility to bring it back to current condition.

- A new Americans with Disabilities Act access ramp linking the existing stadium field to the rest of the site.
- In options 1 and 2, additional stadium seating will be provided to make up for lost seats, and, seats with obstructed views.
- In order to increase use of the existing stadium field, an astro-turf field was proposed as an add-alternate.

Water and Sewerage

Within options 1 and 2 portion of the existing sanitary main that is under the new addition will be replaced to meet the plumbing code. All new sanitary connections from the new addition will connect to the new main internally under the new addition. An on - site sewer connection for the sewer line displaced by the building addition will be provided.

Similarly, option 3 requires that the existing sanitary main on the west side of the building that is under the new addition will be replaced to meet the plumbing code. All new sanitary connections from the new addition will connect to the main internally under the new addition. An on - site sewer connection for the sewer line displaced by the building addition will be provided.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

Building structural system

Bethesda Chevy - Chase High School is comprised of the original building constructed in 1934, with 11 additions and renovations occurring over the past 79 years. The facility has several construction types which include steel framed structure with an exterior masonry façade as well as masonry bearing wall construction. The northern portion of the building is four stories tall and contains a basement level. The bus loading entrance and portions east and south are three stories tall and share the same floor elevations with the northern portion. This area also surrounds a courtyard. Spread footings support the columns throughout the building with strap footings along the south side. At-grade levels contain a concrete slab on grade and the elevated floors are composite beam systems framing to steel columns. The roof is mainly framed with low slope steel joists with some roof features containing sloped joists.

Exterior concrete stairs and ramp lead upward from the bus loop to the first floor level. Numerous exterior concrete stairs and ramps provide access to the east and south side of the building.

The proposed building additions located along the north and west sides of the building are expected to minimally impact the existing structure. Some new door openings are anticipated while renovation of the existing façade will be minimized as much as feasible in the areas directly impacted by the building additions. Some underpinning may be required, depending on the locations and elevations of the existing footings relative to new footings.

Mechanical

HVAC System

All options present a significant increase in the overall size, capacity, and square footage of the existing school. As discussed in the existing conditions section of this study, the existing heating water plant does not appear to have surplus capacity to support the overall size of the planned addition without losing standby capacity in the event one boiler fails. In addition, the additive capacity of both chillers does not appear to have surplus capacity to support the existing school and overall size of the existing school planned addition. Therefore, utilizing the existing chilled and heating water systems to support proposed addition is not feasible.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

MECHANICAL (Continued)

To support the proposed addition, two solutions are available:

•Option A: Replace the existing boilers (both scotch-marine and copper fin types), water-cooled chiller, and cooling tower with larger capacity equipment sized to support both the existing school and building addition. Higher efficiency equipment, such as condensing boilers, a variable frequency drive centrifugal chiller with magnetic bearing compressors, and a cooling tower system with variable frequency drive fans, is recommended. Existing pumping systems would be supplemented or replaced as required to support the facilities increased chilled and heating water demands. Equipment would need replaced or modified in phased manner, minimizing the disruption to the existing school. This approach centralizes the chilled and heating water plants, eliminating the need to provide a support area within the addition for new heating and chilled water infrastructure. In addition, the location of the existing ground floor boiler room and third floor mechanical room align well with the placement of the planned addition(s), allowing for pipe routing between the mechanical rooms and the addition area without significant disruption to the existing facility. The potential drawback to this approach is the current age of the existing central heating and cooling plant equipment, which were replaced as part of the 2002 modernization.

•Option B: Utilize a stand - alone central heating and cooling plant to support only the building addition. A series of high - efficiency condensing boilers and new air - cooled chiller would be utilized. The use of an air - cooled chiller in lieu of a water - cooled chiller is recommended due to the anticipated capacity of this equipment. Utilizing a ground - source geothermal system to support the proposed addition does not appear to be a feasible due to site limitations and the anticipated size of the geothermal borefield. This approach minimizes the disruption to the existing chilled and heating water systems. However, it does require additional square footage within the building to accommodate the new heating and chilled water equipment. In addition, it does not provide improved overall energy efficiency of the existing chilled and heating water systems supporting the existing building.

Based on the two mechanical options described above, Option A is the recommended approach for the addition. This option minimizes the addition's square footage requirements for supporting the chilled and heating water infrastructure. In addition, it centralizes this infrastructure for the entire facility, rather than having independent plants for both the existing building and addition. Finally, it provides a solution that helps to improve the energy efficiency of the entire facility.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

MECHANICAL (Continued)

Space conditioning for classroom, science, technology, and multi-purpose areas within the building addition would be accomplished through a series of four - pipe vertical fan coil units with a minimum of one fan coil unit provided for supporting each space. These units would be positioned within support closet areas adjacent to the classroom served. Doors for support closets would be from the corridor for maintenance access. New chilled and heating water distribution piping would be provided for supporting the new fan coil unit systems, with these piping systems extending from the new chilled and heating water infrastructure described previously.

The administration and counseling offices would utilize a variable refrigerant flow system with an energy recovery type air - cooled condensing unit for space conditioning. Indoor units would consist of cassette - type units installed at the ceiling level. Individual branch controllers would be provided at each indoor unit, allowing for independent heating or cooling operation within each zone, as well as simultaneous heating and cooling system operation for the system.

Conditioned outdoor air for the classroom and administration areas would be supplied though multiple rooftop dedicated outdoor air systems, each complete with a chilled water cooling coil, hot water heating coil, enthalpy type energy recovery wheel for pre - conditioning of the outdoor air, and a plate - and - frame heat exchanger for tempering and pre - conditioning supply air. Airflow supplied from these units will be dehumidified, conditioned, and delivered directly to each space at a room neutral temperature.

Space conditioning for other stand - alone areas within the addition, such as the wrestling room, would be accomplished through a dedicated single - zone variable - air volume rooftop air - handling unit. Air - handling unit systems would be provided with a chilled water cooling coil and hot water heating coil for space conditioning. Each science laboratory and storage area would be provided with exhaust though a series of rooftop exhaust fans. Toilet rooms, storage rooms, and other heating - only areas will utilize hot water unit heaters connected to the facilities central heating plant.

Building automation system controls for the proposed addition will be direct digital type, manufactured by Andover Controls, and complete with electric and electronic actuation. All new control components will be networked to the central Montgomery County Public Schools energy management system for occupied/unoccupied settings and other energy management routines.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

MECHANICAL (Continued)

This type of system provides the most sustainable and energy efficient solution and delivers the most flexibility at the lowest cost for both current and future needs.

PLUMBING

Plumbing Systems

To support the building addition's cold and hot water requirements, new piping systems would need to be extended from the existing piping mains located within the ground floor boiler and locker room areas to support the addition. These piping systems would extend to new plumbing fixtures provided located throughout the addition.

New plumbing fixtures would be designed to meet the Americans with Disabilities Act and utilize water conservation features. Floor - mounted water closets should utilize dual - flush type valves, capable of providing either 1.6 or 1.0 gallons per flush. Urinals should be wall - hung and provided with pint flush valves. Wall - hung cast - iron lavatories should utilize self - closing faucets that supply 0.35 gallons per minute. The water consumption figures noted are equal to or less than what is required by both current plumbing code and LEED water conservation requirements.

Fire Protection System

The existing fire protection system and associated fire pump for the existing school building would be extended to handle the building addition. It is anticipated that these systems have sufficient capacity for the additional building area. New zone valves would be extended from the existing fire main; with sprinkler piping extending from the zone valves provided at each floor level to support the addition. New air - handling units and dedicated outdoor air system supplying 2,000 cubic feet per minute or more of airflow would be equipped with smoke detectors in both the supply and return air ductwork.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

ELECTRICAL

Power Distribution

It is proposed that a new main circuit breaker be installed in the existing 4000A main distribution switchboard to serve electrical equipment in the proposed building addition.

The new addition will have a 277/480-volt distribution panel and will be sized to serve the mechanical, lighting, and plug loads in the addition.

The electrical room in the proposed building addition will have electrical equipment to serve the addition. This will consists of new 277/480-volt panelboards for mechanical and lighting loads, step-down dry - type transformers, and 120/208-volt panelboards for general receptacle and computer loads.

The new receptacle panelboard will be fed from a standard dry - type transformer and will serve general receptacles and plug loads in the addition. The new computer panelboard will be fed from a K - rated dry - type transformer and will serve designated receptacles in the classrooms of the addition.

Generator Power

The existing generator can be utilized to serve the life - safety emergency lighting for the proposed building addition.

The current Montgomery County Public Schools standard is to provide emergency power for both life safety systems and standby power for the heating system in order to keep the building from freezing. It needs to be determined if the existing generator has the capacity and can be used to serve both life safety systems and standby power for the heating system in the addition. A larger or additional generator may be required to accommodate both the standby and heating loads of the addition. In turn, an additional automatic transfer switch (and associated generator panelboards and transformer) will be required in either the existing main electrical room or the electrical room of the addition to serve the standby and heating loads in the addition.

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V. Description of Proposed Options (Continued)

Common Design Elements (Continued)

ELECTRICAL (Continued)

Lighting

Montgomery County Public Schools standard classroom lighting will be provided in the classrooms of the proposed building addition. This will consist of energy - efficient fluorescent pendant fixtures. Lighting controls will include occupancy sensors and multiple levels of lighting per Montgomery County Public Schools standards.

Lighting controls will also meet the requirements of ASHRAE Standard 90.1-2010, Section 9.4.1.4, which includes automatic daylight controls (photocontrol with dimming ballasts) for daylight harvesting, where required.

Fire Alarm System

The existing fire alarm control panel will remain and be reused to serve fire alarm devices in the proposed building addition. Initiation devices and notification devices will be located to meet code requirements.

Intercom and Sound Systems

Intercommunications devices will be provided throughout the proposed building addition. This will include speakers and call switches in the classrooms and speakers in the corridors. The existing intercom head - end console may need to be upgraded to increase the capacity for the new spaces.

Voice and Data Systems

The existing voice and data systems will be expanded to the proposed building addition. The outdated video system will not be expanded in the addition. A telecommunications closet will be required in the addition to serve the classrooms in the addition. The number of outlets in each room will comply with Montgomery County Public Schools and Maryland State requirements.

Security System

The existing security system will be expanded for the proposed building addition. Intrusion detection will include motion detectors/sensors and door contacts. Video surveillance will include dome cameras in the corridors and building exterior.

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V. Description of Proposed Options (Continued)

Summary Table and Cost Comparison

SQUARE FOOTAGE:	OPTION 1 (PREFERRED)	OPTION 2	OPTION 3
Existing	367,000	367,000	367,000
New Construction	78,000	80,000	85,000
Modernization	0	0	0
Renovation	0	0	0
Demolition (total)	0	0	0
Total Gross Square Feet	445,000	447,000	452,000
Total Construction Cost	**$29,547,000**	**$30,305,000**	**$32,199,000**

Project Description Fund Feasibility Study Cost Outline (000's) - OPTION 1 (PREFERRED)

Construction Cost Estimate	$23,975
Planning Costs	$2,808
Contingency and Related Costs	$2,764
Totals	**$29,547**

This cost estimate in this feasibility study is based on current construction market conditions for both building and site.

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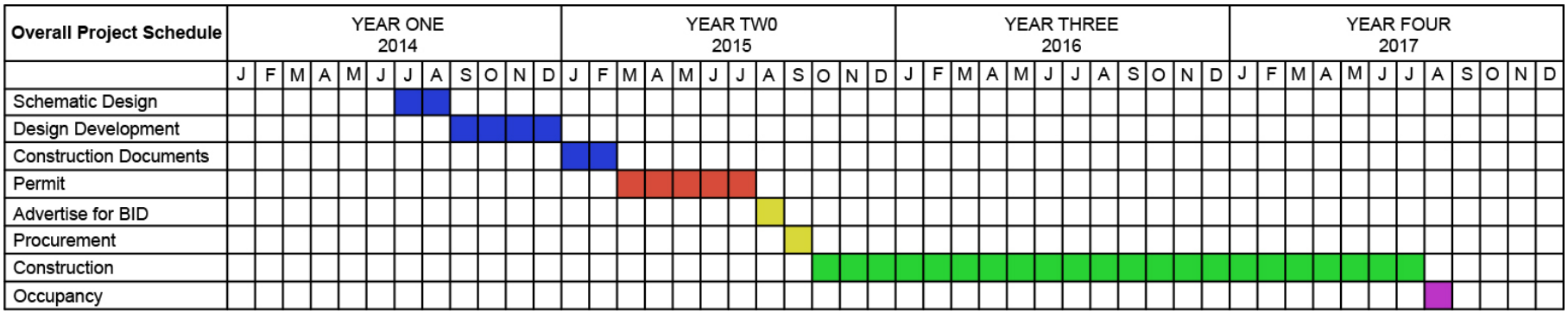
VI. Proposed Project Implementation Schedule



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VII. Appendix

(A) Space Allocation Summary

When this project is complete, the following spaces are to be provided:
The capacity will be 2400.

FACILITY	# NEEDED	SQ. FT./ FACILITY	TOTAL NET SQ. FT.	TOTAL DEPT. SQ. FT.
Standard Spaces				21,750
Standard Classroom	23	900	20,700	
Seminar Room	1	550	550	
Workrooms	1	500	500	
Special and Alternative Education				500
Speech & Language	1	250	250	
Conference Room	1	250	250	
Science				5,900
Science Laboratories (Island layout)	3	1,500	4,500	
Preparation/Project Room	2	400	800	
Storage Rooms	2	300	600	
Art Suite				2,600
Studio Arts	1	1,300	1,300	
Storage	1	250	250	
Digital Art Laboratory	1	950	950	
Storage	1	100	100	
Music Suite				900
Small Ensemble/Keyboard Laboratory	1	900	900	
Technology Education				7,970
Foundations of Technology Lab	2	1,800	3,600	
Instructional Space	2	625	1,250	
Student Storage Space	2	150	300	
Material Storage Space	2	200	400	
Supplies Storage	2	200	400	
POE Laboratory	1	1,500	1,500	
Student Storage Space	1	150	150	
Material Storage Space	1	150	150	
Office	1	220	220	

FACILITY	# NEEDED	SQ. FT./ FACILITY	TOTAL NET SQ. FT.	TOTAL DEPT. SQ. FT.
Multipurpose Laboratory				1,700
Laboratory	1	1,350	1,350	
Office	1	150	150	
Storage	1	200	200	
Physical Education/Athletics				1,909
Wrestling Room	1	1,849	1,849	
Storage Closet	1	60	60	
Staff Offices				2,600
Signature Coordinator Office	1	150	150	
Staff Development Office	1	250	250	
IB Coordinator Office	1	150	150	
IB Secretary Office	1	100	100	
Staff Support Offices	2	150	300	
Administrative School Assistant	1	150	150	
Large Team/Testing Room	1	1,500	1,500	
Counseling Suite				450
Counselors' Office	3	150	450	
Security Suite				450
School Security Office	1	450	450	
Storage				500
Storage Room	2	250	500	
New Construction	**33**		**47,229**	**47,229**

VII. Appendix

(B) Site Photos

1. Student Drop - Off Entrance at Lynbrooke Drive - Looking South on Chelton Drive

2. Bus Loop

3. Student Drop - off Loop Exit

4. Loading Zone

VII. Appendix

(B) Site Photos

5. Slope Between Building and Football Field

VII. Appendix

(C) Educational Specifications

Bethesda-Chevy Chase High School Addition

Educational Specifications

Feasibility Study

Montgomery County Public Schools
Rockville, Maryland 20850
December 9, 2011

Table of Contents

Bethesda High School Addition Space Summary
(2400 Capacity)

When this project is complete, the following spaces are to be provided:
The capacity will be 2400.

Updated 9/21/12

FACILITY	# NEEDED	SQ. FT./ FACILITY	TOTAL NET SQ. FT.	TOTAL DEPT. SQ. FT.
Standard Spaces				21,750
Standard Classroom	**23**	900	20,700	
Seminar Room	1	550	550	
Workrooms	1	500	500	
Special and Alternative Education				500
Speech & Language	1	250	250	
Conference Room	1	250	250	
Science				5,900
Science Laboratories (Island layout)	**3**	1,500	4,500	
Preparation/Project Room	2	400	800	
Storage Rooms	2	300	600	
Art Suite				2,600
Studio Arts	**1**	1,300	1,300	
Storage	1	250	250	
Digital Art Laboratory	**1**	950	950	
Storage	1	100	100	
Music Suite				900
Small Ensemble/Keyboard Laboratory	1	900	900	
Technology Education				7,970
Foundations of Technology Lab	**2**	1,800	3,600	
Instructional Space	2	625	1,250	
Student Storage Space	2	150	300	
Material Storage Space	2	200	400	
Supplies Storage	2	200	400	
POE Laboratory	**1**	1,500	1,500	
Student Storage Space	1	150	150	
Material Storage Space	1	150	150	
Office	1	220	220	

Note: Numbers in bold indicate the teaching stations that are used to calculate the capacity of the school.

FACILITY	# NEEDED	SQ. FT./ FACILITY	TOTAL NET SQ. FT.	TOTAL DEPT. SQ. FT.
Multipurpose Laboratory				1,700
Laboratory	**1**	1,350	1,350	
Office	1	150	150	
Storage	1	200	200	
Physical Education/Athletics				1,909
Wrestling Room	**1**	1,849	1,849	
Storage Closet	1	60	60	
Staff Offices				2,600
Signature Coordinator Office	1	150	150	
Staff Development Office	1	250	250	
IB Coordinator Office	1	150	150	
IB Secretary Office	1	100	100	
Staff Support Offices	2	150	300	
Administrative School Assistant	1	150	150	
Large Team/Testing Room	1	1,500	1,500	
Counseling Suite				450
Counselors' Office	3	150	450	
Security Suite				450
School Security Office	1	450	450	
Storage				500
Storage Room	2	250	500	
New Construction	**33**		**47,229**	**47,229**

Note: Numbers in bold indicate the teaching stations that are used to calculate the capacity of the school.

Introduction

☐ In this document, facilities are described for the replacement facility for Bethesda-Chevy Chase High School Addition educational program. The descriptions are to provide the architect with useful guidelines and to be used by staff representatives when reviewing drawings and specifications for the facility improvements.

☐ This school is to be designed with a capacity of 2205. If possible, an eight-classroom addition should be master planned.

☐ The educational specifications are divided into three sections.

- The first section, the space summary, lists the type of spaces and square footage required when the project is complete.
- The second section describes the general design, location, and specific requirements for each type of space in accordance with Montgomery County Public Schools (MCPS) standards.
- The third section identifies additional program needs that were identified during the review of the educational specifications.

☐ The architect will provide a space summary comparison between the programmed space requirements and the proposed after each phase of the project including but not limited to the feasibility study, schematic design, design development, and final design phase.

☐ The architect should show the location for relocatable classrooms, should they be required in the future. These units should be sited in a location where it will not cause conflict with the constructability of a future addition. The necessary utility connections, i.e. electrical power, fire alarm, public address, and data should be provided near the future location of relocatable classrooms.

☐ For all new schools and modernizations, the project will be designed for LEED Silver certification by the United States Green Building Council (USBGC) under the LEED for Schools guidelines. If this project is a classroom addition, the certification requirement applies only if the addition doubles the existing building footprint. If this project is a building renovation, the certification requirement applies only if the renovation alters more than fifty percent of the existing building gross floor area.

General Planning Considerations

In the general planning of this building and development of the site, special consideration is to be given to the following comments and instructions.

☐ The architect is expected to become thoroughly familiar with all national, state and local fire safety, life safety, and health code regulations and to follow applicable rules of the State Interagency Committee on School Construction.

☐ The building is to be accessible to the disabled within the meaning of the latest edition of the Americans with Disabilities Act and to conform to all the latest requirements of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board. (The regulation can be found at http://www.access-board.gov/adaag/html/adaag.htm). In addition to the ADAAG, the *Maryland Accessibility Code* (COMAR.05.02.02) revised in 2002 also is required for public schools. (The regulation can be found at http://mdcodes.umbc.edu/dhcd2/Title05.pdf)

☐ The facility is to reflect an appealing visual, acoustic, and thermal environment and is to be properly furnished and equipped. Well chosen colors and textures are to be used. Lighting must meet current standards and provide adequate levels.

☐ High quality materials are to be used in the construction. The architect should refer to the MCPS Design Guidelines.

☐ The first impression of a building is important. The main entrance to the school should have a clear and inviting identity, and the entrance area should be designed and landscaped to emphasize its importance. A covered walkway from the bus loading area to the front door is desirable. The design of the main lobby area needs to convey a feeling of warmth and welcome. The inclusion of a lighted showcase in which student work can be displayed is recommended.

☐ The foyer should have a large overhead-animated electronic display board for messages and videos.

☐ The inclusion of lighted showcases to display student work should be provided in the corridors of the main entrance, art, technology education, gymnasium, and in each grade level area. They should be recessed into the wall with access from within a room and have an electric outlet.

☐ The classrooms should be designed to accommodate various size groups. Each classroom should be readily adaptable for group work, various presentation formats, and should have maximum connectivity to outside resources.

☐ Staff work areas should be arranged to encourage interdisciplinary interaction.

- ☐ Every teaching station, support space, and core area must be wired for computer, CCTV, and telephone, along with adequate electrical supply in compliance with Maryland Sate design guidelines for Technology in Schools and the MCPS Office of the Chief Technology Office (OCTO) guidelines. Facilities must be adaptable to accommodate rapid development in high technology and its equipment since educational program and organization in this field are dynamic. Space and power supply must be flexible to meet these changing needs.

- ☐ Special consideration should be given to energy conservation including total life-cycle costs. The current Department of General Service (DGS) requirements shall be applied as design criteria. Life-cycle cost accounting in accordance with DGS criteria is required. A statement on energy conservation must be a part of the preliminary plans submission. Additional details on energy conservation will be provided under separate cover.

- ☐ Core spaces such as the cafeteria, gymnasiums, and instructional media center should be easily accessible for community use and secure from the rest of the building after school hours.

- ☐ The school is to be air-conditioned except for the main gymnasium, locker rooms, and kitchen where exhaust fans are to be used.

- ☐ Noise and distracting sounds are to be minimized. In areas such as the multipurpose room and classrooms, which may be used for meetings and adult education, the sound of operating fans for ventilation should not interfere with instruction.

- ☐ An MCPS designed alarm system will provide security for this facility. The architect will provide for this system in consultation with the Division of Construction staff.

- ☐ Some windows must be operable in each space in the building. Transmission of radiation through windows into various portions of the plant is to be considered in relation to heating and ventilating and in relation to planning the building for air conditioning. All instructional spaces should have windows, preferably exterior windows. If the design does not permit exterior windows, windows onto corridors should be provided.

- ☐ Careful placement of glass is required to avoid excess heat gain in occupied areas.

- ☐ Some windows should be operable in each space in the building.

- ☐ All windows should be equipped with window blinds. The specification for the window blinds will be provided by DOC. Screens on operable windows should be installed in all food related areas.

- ☐ Special attention should be given to security measures within the building including location of security barriers in corridors, lockable doors to secure various sections of the building for after-hour use, and public telephone locations being in full view of either the administrative offices or other public areas.

- ☐ Spaces that serve no real educational function, such as corridors, should be limited while at the same time assuring an easy to supervise and smooth flow of pupil traffic to and from the instructional media center, multipurpose room, gymnasium, specialized centers, and support rooms.

- ☐ The design of the building and grounds must provide for a secure environment for students and staff. Isolated areas should be minimized and natural surveillance encourage by eliminating visual barriers.

- ☐ For security purposes, all doors into classrooms, conference rooms, offices, etc. must be designed with a sidelight window with shades.

- ☐ Zoning the plant for heating and air conditioning should be related to after-hours use of various areas such as offices, gymnasium, cafeteria, and the instructional media center. Appropriate location of parking, corridor barriers, and toilet rooms is necessary for after-hours use. Some classrooms nearby the multipurpose room should be zoned for after hour use as well.

- ☐ The architect should refer to MSDE 2006 *Classroom Acoustic Guidelines* to address the acoustical qualities for classrooms. In addition, the architect should refer to *American National Standard, Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools* (ANSI S12.60-2002) for additional information.

- ☐ Noise and distracting sounds are to be minimized. In areas such as the multipurpose room and classrooms, which may be used for meetings and adult education, the sound of operating fans for ventilation should not interfere with instruction.

- ☐ Some toilet rooms should be located so that they may be used during after-hour use.

- ☐ Bathrooms for staff and students should be located throughout the building. Some student bathrooms must be located near the cafeteria.

- ☐ Water coolers should be provided throughout the school.

- ☐ Corridors where lockers are installed must be a minimum of 10' in width.

- ☐ The number of lockers in the corridor should be equal to the core capacity plus 10% of the core capacity.

- ☐ The location of the elevator(s) must consider use by the student population, IMC staff, and after-hours users.

- ☐ A public address system is required in the facility. The architect and engineers should refer to the Division of Construction guidelines for additional information.

☐ Exterior lighting is to be shaded from neighboring properties and is to be operable as appropriate from both time and key switches. For major entrances, a doorbell should be installed.

☐ Separate controls on a time clock for illumination of walkways and parking lots, including parking areas for the stadium area are required.

☐ A building services call system is required.

☐ A room numbering system which is logical and understandable and which lends itself to electronic scheduling of room assignments for students is required.

☐ Electric water coolers should be strategically located throughout the building and close to the restrooms.

☐ Landscaping and provision for outdoor watering are to be included. Planting is to include screen planting and those that may be needed for erosion control. Other landscaping to support energy conservation and to relate the building to the site with aesthetic appeal must be included.

Technology Framework

The latest technology should be integrated into every aspect of building. The architect should consult with the Office of the Chief Technology Officer (OCTO) and the Division of Construction (DOC) for the latest technology requirements. The architect must at a minimum plan for the following elements.

☐ Through the use of local area and wide area computer and video networks, students should have access to each other, to schools throughout the county with similar capabilities, and to universities and government institutions throughout the world.

☐ Each classroom is to have a dedicated 20 amp electrical circuit serving five electrical outlets for computers located 3' apart along the back or side wall.

☐ Computer network outlets (CNOs) consisting of a flush mounted standard electrical box with 1 1/2" conduit to the ceiling space overhead should be located in all classrooms, offices, and other work locations according to the following general rules:

- ☐ one CNO in the front of each classroom for the teacher’s workstation and promethean board
- ☐ a second CNO should be located in the back side of each classroom adjacent to the five computer electrical outlets connected to the dedicated circuit
- ☐ one CNO per office, department office, planning room, etc. adjacent to telephone outlet

- ☐ Multiple CNOs in media center at circulation desk, reference areas, etc.
- ☐ one CNO at each science lab workstation
- ☐ All other areas such as the stage, bookstore, dining room, etc., where computers might be used.

☐ The number and location of telecommunication closets required to support the building-wide computer network is dependent on the size and geometry of the building. The layout of the telecommunication closets will be determined during the design phase of the project.

☐ Provisions for high-resolution fiber optic cable for television must be included in the design of all teaching stations.

☐ Specific classrooms for interactive television should be identified at the time of schematic design. Designs should include location and access to a satellite dish.

Description of Facilities

Please refer to the summary of spaces for the actual number and size for each space described below. Some deviations will be allowed to provide the best program and design solutions consistent with capital considerations.

Standard Classrooms

- ☐ Standard classrooms will be distributed throughout the school and must provide for a combination of large and small group activities.
- ☐ The teacher's closet needs to be lockable for general supplies and personal belongings and should include an enclosure for a four-drawer letter-size file cabinet.
- ☐ Book storage should be located along the window wall with half of the cabinets equipped with hinged, lockable doors. A minimum of 60 linear ft should be provided for book storage. The tops of these cabinets should serve as counter space and should be worktop height.
- ☐ The main teaching wall layout needs to be in accordance with DOC construction standards. The main teaching wall will be designed to accommodate a Promethean Board.
- ☐ A minimum of 36 ft of whiteboard and at least 10 ft of tackboard are to be installed.
- ☐ Map rails and tack rails are to be placed above all white boards. One flag holder attachment is to be placed on a map rail and 4–6 map holders placed on all map rails.
- ☐ Classrooms must have access to computer networks, the school's administrative database; media center information systems, telecommunications options, and PA system. Computer/technology wiring must be in accordance with DOC, MSDE, and OCTO standards.

Seminar Room

- ☐ Seminar rooms should be located adjacent to classrooms with interior glass and a door into an adjacent classroom as well as a door to the corridor.
- ☐ Teachers should be able to easily supervise this space from the adjacent classrooms.
- ☐ The seminar rooms should have 6 ft of magnetic whiteboard and tackboard, electrical outlets, and should include the same technology requirements as the standard classrooms.

Workroom

- ☐ The workroom should be centrally located and convenient to each floor where there are general academic classrooms.
- ☐ Cabinetry appropriate for storing a variety of office and school supplies should be designed along one wall of the workroom.
- ☐ A portion of countertop is to be more than 30 inch wide to accommodate a large paper cutter.
- ☐ Space adequate for a large copying machine with necessary electric service and ventilation is required.

Special Education

Spatial needs
Speech and Language Room
Conference Room

Speech Language Room

- ☐ This room requires a whiteboard, tack board, open and closed lockable storage, open shelving, and a lockable teacher wardrobe.
- ☐ Room for a teacher's desk, lockable file cabinet, and table to work with small groups of students is required.
- ☐ The speech/language room should be wired for access to one computer workstation each.
- ☐ The speech room must be located on the first floor and be acoustically treated.
- ☐ The speech room needs a 4’ x 4’ mirror mounted to the wall.

Conference Room

- ☐ The conference room should be located close to the principal's and assistant principals' offices and be directly accessible to the corridor.
- ☐ Tack and whiteboard should be installed on one wall.
- ☐ A telephone is needed in this room.

Science Department

Spatial needs
Science Laboratories
Prep. Project Room
Storage

Laboratories

Each room will serve as a lecture/laboratory space. The laboratories should be designed as described below.

- ☐ One master key for all the science laboratories is required.
- ☐ The laboratories should be ideally 30' x 50' or as squared as possible.
- ☐ Only 28 student workstations may be designed in each laboratory.
- ☐ All science laboratories should be designed with island workstations unless otherwise noted in the final section of this document.
- ☐ Permanently installed wall cabinets with glass and adjustable shelving above lab work surfaces, but not above the gas outlets, are needed. About half of the casework should be lockable.
- ☐ One flat file cabinet for E-size chart storage with narrow drawers is required.
- ☐ A 3 ' x 5' demonstration table needs to be located at the front of the room.
- ☐ The demonstration table should have gas and a sink with hot and cold water and a venture aspirator tube.
- ☐ The demonstration desk needs one 220-volt outlet and two 120-volts.
- ☐ Half of the non-chemistry labs require a rigid non-moving 300 lb. hook.
- ☐ Twenty-four ft of whiteboard and 16 ft of tackboard are needed.
- ☐ A six-ft project cabinet and a six-ft storage cabinet with adjustable shelves that is lockable should be permanently installed in each laboratory with windows on the doors.
- ☐ Cabinets are needed for goggle storage and sterilization with adequate ventilation. One dedicated outlet is needed for the goggle sterilization cabinet for 36 goggles.
- ☐ Darkening capabilities are needed in the labs.
- ☐ One installed fume hood with full utilities (water, sink, gas, and light) is needed in each laboratory that fits in a standard cabinet (24" x 36").

- ☐ A safety station is to be installed, with shower, automatic shut-off eyewash, and drain with a sloped floor, and should accommodate persons with disabilities. The shower and eyewash should have a spring loaded mechanism.
- ☐ The safety station should be located fifteen to twenty feet away from the fume hood.
- ☐ Master cutoff for gas, water, and electricity needs to be easily accessible to the teacher and located so that students can't get to it. The emergency cut-off key should be removable in the "on" position.
- ☐ The emergency cut-off switch in each classroom for all utilities should be wall mounted high enough not to be accidentally activated and should be placed in at least two locations.
- ☐ The cut-off switch should not be located near the exit door. The reset circuit for science classrooms should be readily available to science staff.
- ☐ The electrical panel box should be easily accessible by science staff.
- ☐ Electric outlets should be wall mounted or face-of-cabinet mounted.
- ☐ One wash-up stone sink, 18" x 18" x 20" deep with hot and cold water should be provided for student use.
- ☐ The student workstation sinks require cold water only.
- ☐ Student workstations should be made of moisture and chemical resistant material.
- ☐ A chemical drain trap is needed in the demonstration and wash-up sink only in all laboratories.
- ☐ Glass display cabinets in the hallway at door entrances should be installed to several of the science laboratories.
- ☐ A map railing installed high to display permanent wall charts should not be located over the whiteboard.
- ☐ Wall drying racks (pegboard) for test tubes, etc. are needed adjacent to the stone sink.
- ☐ A teacher wardrobe is required in each laboratory.
- ☐ A fixed location for a television is required in each laboratory to support the teaching wall so that students are facing it.
- ☐ Two ceiling mounted electrical cord reels are required in each laboratory.

Project/Preparation Rooms

- ☐ These rooms should be located between every two laboratories.

- ☐ The project rooms are needed for students to store projects and to hold seminars.
- ☐ Two lab stations with water and electric and computer capabilities should be installed in each project room.
- ☐ Interior glass from project rooms to science laboratories must be installed for visual supervision of spaces.
- ☐ Wall cabinets and under counter cabinets are required.
- ☐ Counter space made of moisture and chemical resistant is required.
- ☐ A wash-up sink, 18" x 18" x 20" deep with hot and cold water, with drain board and drying rack is required.
- ☐ Heat, chemical, and water resistant work surfaces suitable for an autoclaving/drying oven are required.
- ☐ Variable sized storage cabinets are needed.
- ☐ Laboratory glassware washer and a full-size refrigerator/freezer for flammable materials are required in each prep room.
- ☐ These rooms must have an exhaust fan and air conditioning in compliance with latest ASHRAE standards.
- ☐ An equipment repair bench with multiple outlets and good lighting are required.
- ☐ The chemistry preparation room requires a 3-gallon Barnstead still with 4-liter-per-hour output and reservoir. Separate water and electric sources are needed for the Barnstead still.
- ☐ All prep rooms should have an emergency cut-off switch to all utilities.
- ☐ A telephone is required in all the prep rooms.

Storage Rooms

- ☐ The storage rooms should be located adjacent or grouped with the preparation rooms.
- ☐ A storage room is required between every two laboratories.
- ☐ Adjustable steel shelving is required and should be anchored to the wall.

Art Department

Spatial needs
Ceramic/Sculpture Room
Kiln/Glaze/Clay Prep Room
Digital Photography Room
Photography Room and Storage Room
Dark Room
Digital Art Laboratory
Studio Art Room and Storage Room
Office

Five art rooms are described below. If a school requires less than five art classrooms, than the school may choose among these five classrooms.

- ☐ Each art room should have adequate and appropriate north natural lighting in addition to a visual reference to the outdoors for the purpose of study.
- ☐ Direct or easy access to the outdoors for bringing in large supplies and materials from each room is desirable. Electric outlets and water should be available in the outdoor space.
- ☐ Entrance doors must clear 36 inches.
- ☐ All sinks are to have moveable faucet lever controlled hot and cold water.
- ☐ Six extension outlets should be provided in the ceiling of all art rooms over the tables.
- ☐ One sink in each art classroom should have eyewash with automatic shut-off mechanism.
- ☐ Storage is to be provided for both two- and three- dimensional art projects, for student books, and for reference books and magazines.
- ☐ Blackout facilities are to be included in each classroom on all windows.
- ☐ Extensive electric outlets, approximately 4’ apart, are to be provided in each room.
- ☐ On the teaching wall, a 6’ x 8’ whiteboard and projection screen is to be installed.
- ☐ All available walls are to have tack board from floor to ceiling with picture molding at the top.
- ☐ Ceiling track lights are to be provided and six to ten spotlights are needed per room.
- ☐ One lighted display case lockable from within one of the art rooms, with viewing from the corridor is to be provided near the art suite and another near the main entrance to the building.
- ☐ Good artificial lighting is to be provided.

- ☐ All installed cabinets should be lockable.
- ☐ Classroom supply and project storage should be keyed to the same key.
- ☐ Individual student storage units, both flat and 3-D should have the capacity to be padlocked.
- ☐ Proper ventilation for clay, chalk dust, with an additional switch control is required in the art rooms.
- ☐ At least five computer drops with electrical outlets on one wall should be designed.

Digital Art Room

- ☐ Lockable cabinet storage for printing supplies, cameras, tablets, external hard drives, computer software, CD's, promethean materials, etc.
- ☐ Space for a promethean board is required and all computer plugs need to be within proximity to the teaching wall.
- ☐ Easy access to the photography art room and studio art room is necessary.
- ☐ The room needs accommodate up to 36 computer stations and other equipment used by students such as printers and scanners.
- ☐ Track lighting for still-life work is needed along one wall.
- ☐ At least 2 large whiteboards and 2 tack boards should be provided, more if wall space permits.
- ☐ Large counter work surface for computer stations should be provided with one small sink.
- ☐ Perimeter countertop space with electrical and data drops for printers and scanners.
- ☐ Space for 4 studio tables.

Studio Art Room

- ☐ Three (18" x 40" x 16" deep) single basin stainless steel sinks with plaster traps are to be provided in two of the rooms Extensive tackboards for visuals and critiques
- ☐ A vertical canvas printing storage rack is required.
- ☐ Floor outlets in the center for still life arrangements (recessed or pull-down) are required.
- ☐ Extensive outlets, approximately 4' apart, around the walls and along the countertops

- ☐ Computer plugs need to be within proximity to the teaching wall.
- ☐ This room should have extra space, if possible, to accommodate changing interior, still life, and figure model setups and the constant moving and shifting of tables that should be modular and light weight, stools, and easels.
- ☐ Storage needs in the classroom include flat drawer storage, open vertical racks for wet canvases, and dry canvas storage in a variety of sizes, racks for 25 easels, and open shelves for 3-D student work or still life materials.
- ☐ A separate, locking storage room is needed in the studio art room for art equipment and supplies.
- ☐ At least one countertop and cabinet should be extra deep to allow for a 36" x 36"countertop paper-cutter, rotary trimmer, or Logan mat cutting system, with cabinet shelves for 22"x28" mat board.
- ☐ Storage area for 30 easels (easel dimensions approximately 75”H x 23”W x 25”D)

Storage Room

- ☐ Each room needs their own storage space/room. These rooms need to be attached to the art rooms.
- ☐ The number of these rooms will be determined in consultation with the staff depending on the design of the suite.
- ☐ The office must provide visual control of adjacent classrooms and include lockable storage, file cabinets, flat drawers, bookshelves, and a telephone.
- ☐ The area requires open steel shelving throughout with one 36"section with 24" depth minimum.
- ☐ All walls in the storage room should be filled with shelving.

Music Department

Spatial needs
Small Ensemble/keyboard Laboratory

- ☐ Consistent heating, cooling, and humidity control are required.
- ☐ Storage cabinet facilities with locking door for storage of music folios are needed.
- ☐ Dead storage—considerable space for boxes of materials, costumes, etc., which are used only occasionally is required.
- ☐ These rooms must be acoustically treated for reverberation and isolation.
- ☐ All doors must be at least 4' wide with no center post to accommodate the movement of a grand piano and other large instruments from within the suite and to the auditorium stage.
- ☐ Maximum-security locks must be provided for each room in this suite.
- ☐ Toilet rooms for boys and girls are to be located near the suite so that they might be used as dressing rooms. Each toilet room should have one stall plus dressing space.

Small Ensemble/Keyboard Laboratory

- ☐ This room needs windows to allow for supervision.
- ☐ This room needs to accommodate small ensemble rehearsals, piano laboratory, computer laboratory, music theory and composition classes, electronic music laboratory, and guitar classes.
- ☐ Storage is needed for guitars.
- ☐ A chalk/whiteboard is to run along the long axis of the room.
- ☐ A large tackboard is to be located on either side with bookcases beneath.
- ☐ Adequate ventilation is required.

Technology Education Suite

Spatial needs
Foundations of Technology Laboratory
Instructional Area
Student Storage
Materials Storage
Supplies Storage
Principles of Engineering (POE) Laboratory
Student Storage Space
Material Storage Space
Office

- ☐ These labs should be located at on the ground level with direct access to the outdoors and where the creation of loud noises and occasional vibrations will not affect the instruction going on elsewhere in the building.
- ☐ Access to the building and laboratories through double doors for equipment and supply delivery is required.
- ☐ Sufficient lighting to have work surfaces without shadows is needed.
- ☐ Acoustical treatment to walls ceiling and floors is needed. Ceilings should be drop/suspended to cover all structural and air-handling devices.
- ☐ All labs should have a wash-up sink.
- ☐ The main teaching wall layout needs to be in accordance with DOC construction standards.
- ☐ Ample electrical service and receptacles to accommodate computers, machines and portable electric tools is needed.
- ☐ Sufficient service shall be provided to accommodate flexibility within the lab with tabletop machinery.
- ☐ Extensive electric outlets, approximately 4’ apart, are to be provided in each room.
- ☐ All floor receptacles need to be flush and include data outlets.
- ☐ All doors should have windows, including entrance from the hall, teacher's office, instructional spaces, telecommunications room, and audio room.
- ☐ The storage rooms should have solid doors.
- ☐ Technology education laboratories and centers need to be protected by alarm with a keypad.
- ☐ All labs should be wired to share computers and research resources.

- ☐ Darkening shades or blinds for all windows are needed.
- ☐ One large or two smaller lighted and lockable display cases should be provided in the corridor outside of the technology education suite.
- ☐ Casework should include storage cabinets with locking doors and drawers for storage of various sized items.
- ☐ Storage is to be provided for both two- and three-dimensional engineering projects, for student books, and for reference books and magazines.
- ☐ Classroom supply and project storage should be keyed to the same key.
- ☐ Teachers should be able to easily supervise the labs from adjacent classrooms.
- ☐ Computer network outlets (CNOs) consisting of a flush-mounted standard electrical box with 1 1/2" conduit to the ceiling space overhead should be located in all classrooms, offices, and other work locations according to the following rule:

    - ☐ One CNO in along the teaching wall of the 2-dimensional lab
    - ☐ One CNO should be located in the rear of each classroom
    - ☐ One CNO in the office adjacent to the telephone outlet
    - ☐ One CNO at each engineering lab workstation
    - ☐ All other areas where computers might be used.

Foundations of Technology Laboratory

- ☐ This lab serves the ninth grade program that integrates the concepts with the hands on applications in technology education. In schools where all students will meet the technology education graduation requirement with the Foundations of Technology Education class, two laboratories will be needed to accommodate all of the students.
- ☐ Activities will include those dealing with simple machines, harnessing natural resources and the environment, waves and impulses, and invention and innovation.
- ☐ The center/laboratory must be designed with two distinct areas. One area should be equipped with student workstations, while the second area should accommodate lectures, discussions, and demonstrations.
- ☐ The instructional area should accommodate 32 students.

- ☐ The laboratory should include 4-student workbenches with 2.25 inch laminated maple polyurethane tops. Each workstation should include locker base cabinets with 6 or 12 with master keyed locks. No 6 or 8 workbenches will be allowed without prior approval from CTE staff.
- ☐ The floor covering needs to be non-slip tile.
- ☐ Ample electrical service should be provided to workbenches through overhead pull-down receptacles for machines and portable electric hand tools.
- ☐ Small tabletop machinery should be installed and permanently mounted to tables. Traditional processing equipment including a table saw, a jointer, and band saw shall be permanently affixed.
- ☐ Three emergency control switches are needed—one switch in the lab, one just outside the lab, and the third located in the teacher's office with a key to restore power.
- ☐ Walls facing the laboratory need windows with mini-blinds beginning 36" from the floor.
- ☐ Because of the types of materials and substances handled in these labs, built-in ventilation systems shall be installed and connected that adequately maintain air quality and will not be shut down prior to the end of the school day.

Principles of Engineering Laboratory

- ☐ The engineering, laboratory is designed to accommodate individualized and team instruction for up to 32 students who will work together to apply engineering concepts using the tools of mathematics and science.
- ☐ The student workstations must be designed to accommodate a computer on one side of the area and a work area on behind the computer.
- ☐ Small tabletop industrial machines and processing equipment should be permanently mounted to wall tables.
- ☐ One flat file cabinet for E-size chart storage with narrow drawers is required.

Multipurpose Laboratory

Spatial needs
Laboratory
Office
Storage

- ☐ The multipurpose laboratory should be located near an exit door for easy unloading of food or other deliveries.
- ☐ If possible the laboratory also should be located in the same area with other science; however, it is not imperative.
- ☐ The laboratory must be designed with perimeter counters around two or three side of the laboratory.
- ☐ Floor space for long tables to seat 32 students in front of the demonstration desk is needed. Tables should be able to seat 2-3 students.
- ☐ The teaching wall should be designed to the standards in DOC guidelines.
- ☐ A safety station is to be installed, with shower, automatic shut-off eyewash, and drain with a sloped floor, and should accommodate persons with disabilities. The shower and eyewash should have a spring loaded mechanism.
- ☐ Keyed master cutoff for gas and electricity to the demonstration science station is needed.
- ☐ Electric outlets should be wall-mounted or face-of-cabinet mounted.
- ☐ The fire emergency cut-off switches for kitchen units should be wall mounted high enough not to be accidentally activated.
- ☐ Re-set circuit should be readily available to the teaching staff.
- ☐ The laboratory should have access to all technology in the building so that computers can be moved around the laboratory.

Kitchen Units

- ☐ Three or four kitchen units are needed along the perimeter counters.
- ☐ The units should include a sink and wall oven. No range or stovetops are required. One of the student kitchen units should be designed with a garbage disposal.
- ☐ Electric outlets should be located above the counter tops.
- ☐ Base and wall cabinets that are lockable should be designed along the perimeter workstations

☐ Two residential refrigerators should be provided in the kitchen area.

Storage

☐ The storage area should include space for a washer/dryer, a compact mini-refrigerator for chemical storage, and a residential-size refrigerator.

☐ Open wire shelving (such as baker's shelving) around the perimeter of the room is needed.

☐ The dryer needs to be properly ventilated.

Office

☐ The office must have access to the teaching station.

☐ Doors and walls will have windows, 42" from the floor for visibility into the teaching station.

☐ Computer and telephone service with telecommunication capabilities should be provided.

☐ The space should be designed for conventional office furniture, wardrobe, file cabinet, and books and instructional materials storage.

Physical Education/Athletic Facilities

Spatial needs
Wrestling Room
Wrestling Room Storage Closet

☐ The physical education facilities must conform to all national, state, and local safety regulations. The Architect is to refer to the "Mid-Level/High School Physical Education and Athletic Facilities Construction" Checklist, available from the DOC.

☐ There must be audible and visual signals for emergency egress.

☐ Six keys should be tooled for the physical education/athletics area. These keys include:

- ☐ Key #1 should open all indoor physical education offices, closets, and storage areas.
- ☐ Key #2 should open the gymnasiums, wrestling, weight, and dance rooms, locker rooms, and storage areas inside of these areas.
- ☐ Key #3 should open indoor athletic directors and coaches' offices, team rooms, and athletic storage areas.
- ☐ Key #4 should open all school outside doors related to physical education and athletics.
- ☐ Key #5 should open all outside storage areas and the press box/concession complex.
- ☐ Key #6 should open all the CUPF storage closets.

☐ All outside doors related to the physical education/athletic program areas should be keyed for reentry.

☐ The major entrance doors to the gymnasiums and lockers should be double doors with no center post. Non-glazed doors are preferred. If design allows, electronically controlled operable windows should be provided.

☐ All clocks, exit signs, and emergency signs should be caged for protection from sporting events.

☐ An alarm pad should be installed and zoned for the physical education/athletic area.

Wrestling Room

- ☐ This room must be 43' x 43'.
- ☐ The room should be adjacent to the main/second gymnasium.
- ☐ The ceiling height should be a minimum of 16' high.
- ☐ The room must be able to accommodate a 42'x42' wrestling mat, after wall padding is secured to the walls. Generally, wall padding begins a few inches above the floor.
- ☐ All four walls must have padding from the floor to a height of 6'.
- ☐ Colored acoustical panels should be provided from the ceiling.
- ☐ An electric deodorizer system and an excellent ventilation system must be provided.
- ☐ Electrical outlets should be provided around the room.
- ☐ MCPS staff will provide paint colors and graphic layout.
- ☐ A small storage closet is needed to secure a computer and stereo equipment.
- ☐ A sound system with the control panel should be installed in the storage closet.
- ☐ A small white board (4' x 6') and tackboard (4' x 6') should be installed.
- ☐ Cable television and computer hook-up must be provided.
- ☐ A keyed electric hoist system must be installed to move and store wrestling mats.
- ☐ A water cooler must be located in the hallway near this room.

Staff Offices

Spatial needs
Administrative School Assistant
Signature Coordinator Office
Staff Development Office
IB Coordinator Office
IB Secretary Office
Staff Support Office

- ☐ Voice, data, and video connections are needed for all offices.
- ☐ The space should be designed for conventional office furniture including office desk and chair, file cabinet and book shelf.
- ☐ The support staff offices should be designed for two desks and computers.

Counseling Suite

Spatial needs
Counselor's Office

☐ These offices require voice, data, and video connections.

Security

Spatial needs
School Security Office

School Security Office

- ☐ This office should accommodate up the security personnel.
- ☐ Space is needed for a table and chairs to meet with students.
- ☐ This office must have lockers and secure storage.
- ☐ This office suite must accommodate the cameras and accompanying communication equipment for a visual monitoring system.

Command Center

- ☐ An interior room in the school needs to be designated as the command center for Code Red/Code Blue emergencies. In many schools, the workroom in the administration suite may serve this purpose. The room cannot be on an outside wall.
- ☐ The room designated as the command center must have all data and communication equipment including data, cable, phone, and public address (PA) system.
- ☐ The PA console should be located in the room that is designated as the command center.
- ☐ Window coverings such as mini blinds or roller shades must be provided for all windows and doors to the command center.
- ☐ In secondary schools, the security camera monitors should be located in this area.
- ☐ The space designated as the Command Center must be large enough to accommodate up to six staff persons.
- ☐ Storage space is needed for the Code Red/Code Blue emergency kit.

Building Service Facilities

Spatial needs
General Storage
Building Service Closets

General Storage

- ☐ Flexible shelving to accommodate books, teaching aids, large size (24" x 36") paper, and other instructional supplies is required.
- ☐ Good lighting and easy access to materials being stored are required.
- ☐ Electrical outlets, upgraded lighting and ventilation must be provided in all large storage rooms for future flexibility.

Building Service Closets

- ☐ At a minimum, there should be a building service closet for each 19,000 gross square of the facility. In addition, there should be a building service closet on each floor and each wing of the facility.
- ☐ The closets should be a minimum of 25 sq. ft.
- ☐ The building service closet must accommodate a minimum of one utility cart.
- ☐ The closet requires shelving for cleaning supplies.
- ☐ The closet requires a floor mop sink with hot and cold running water and a floor drain.
- ☐ A mop/broom holder is required.

Site Requirements

The following information is provided for reference purposes. If the proposed addition impacts one of the site requirements, the architect is to restore the site element using the following the specifications.

- ☐ The architect should consider the architecture of the neighborhood in designing the building
- ☐ The site should be designed to provide a clear view of all play areas and to facilitate supervision from one location.
- ☐ Protective fencing may need to be provided near heavily wooded areas, busy streets, steep hills, parking lots and turnaround areas.
- ☐ Metal drains/grates should not be located in the playing fields, paved play areas and mulched playground equipment areas.
- ☐ Paved areas and fields must be as level as possible. Water should not collect on paved areas or in mulched areas. The architect should consider the architecture of the neighborhood in designing the building.
- ☐ The design should retain as many trees as possible in order to buffer the school and the playing fields.
- ☐ Pedestrian access must be provided from the surrounding neighborhoods.
- ☐ An unimproved area on-site should be designated to serve as an environmental study area in the future.
- ☐ A covered area for students in the bus loading area should be provided.
- ☐ Space for buses to load at one time is needed. The number of buses will be reviewed during the design phase in consultation with the Department of Transportation.
- ☐ Bike racks should be provided near the building.
- ☐ Playground equipment areas should not be located at the bottom of hills unless a provision is made to channel water away from the equipment areas.

Driveway and Service Drive

- ☐ The architect/engineer should refer to the MCPS Facilities Guide when designing the driveway, bus loop, service drives, etc.
- ☐ Bus traffic should be separated from car traffic at all times, when possible. Bus loading zones should be able to accommodate the entire student body.

- ☐ A student drop off area should be provided and must be separate from the bus loop area.
- ☐ All driveways must be arranged so that children do not cross them to get to the play areas.
- ☐ Care for safety of students must be exercised in developing the driveways including use of safety rails in the bus loading area.
- ☐ Pedestrian access to the school facilities should be designed to make the best use of community right-of-ways and avoid crossing of loading zone areas.
- ☐ The site must comply with the most current ADA or COMAR regulations, whichever is most stringent.
- ☐ Site access must be provided to comply with fire protection and storm water management.
- ☐ Driveway aprons are to be perpendicular to the centerline of the street; and if there is an intersecting street on the opposite side from the proposed driveways, the driveway apron should line up with the intersecting street.
- ☐ Driveways should be located so that vehicle headlights do not project into adjacent homes.
- ☐ A service drive is required to service the kitchen, boiler room, and general delivery area. The architect should refer to the MCPS Facilities Guide.
- ☐ Site access must be provided to comply with fire protection and storm water management regulations.

Parking

- ☐ Ideally, parking for 500 cars should be provided.
- ☐ The parking area should be designed to maximize safety and minimize speed.
- ☐ Adequate lighting should be provided.
- ☐ Parking area should have two exits.
- ☐ Guardrails or bollards are to be installed to protect fields and play areas.

Landscaping

- ☐ Planting should include screen planting and other planting needed for erosion control.
- ☐ Existing plant stock, if on site, is to be evaluated for reuse and protected accordingly.

- ☐ Landscaping to support energy conservation and to relate the building to the site with aesthetic appeal must be included.
- ☐ Consideration should be given to safety and security when selecting plant materials.
- ☐ Provision for outdoor watering must be included.
- ☐ The landscaping plan should include areas for outdoors environmental education programs.

Educational Site Requirements

Child Development Outdoor Play area

☐ Ideally, a 1000 sq ft outdoor play area for the child development classroom is required.

☐ The architect/engineer should refer to the Child Development section for a description of requirements.

Art Patio

☐ One 500 sq ft outdoor patio for the art department is required.

☐ Ideally, the art classrooms should have direct access to the outdoor patio with a northern orientation.

Physical Education Site Requirements

- ☐ All fields should be designed in accordance with MCPS Facilities Guidelines.
- ☐ Pedestrian access must be provided from the surrounding neighborhoods.
- ☐ All fields should be graded and sifted to remove rock and debris.
- ☐ A 3" water line for future irrigation of playing fields should be installed.
- ☐ All facilities should be designed to be ADA compliant.

Stadium Field

- ☐ The field should be properly crowned to provide adequate drainage. The location of the drains/covers must not interfere with the playing surface.
- ☐ The width and length of the field must accommodate soccer, field hockey, and football.
- ☐ The field should be surrounded by an 8-lane track with a 24-ft wide straightaway, backside, and curves.
- ☐ The straightaway must be located near the home side bleachers.
- ☐ If the track is separate from the stadium, than dedicated and permanent seating to accommodate spectators should be designed.
- ☐ A shot put, long jump and pole vault area is to be included.
- ☐ The discus area must have a required cage.
- ☐ The field should be situated to minimize the effect of afternoon sun glare on the players as they face diagonally, and from spectators in the main bleacher section.
- ☐ An underground water system with 9 zones, four heads each should be provided for natural turf fields only.
- ☐ Safe stadium seating to accommodate 2000 spectators on home side and 750 on the visitor side is required. .
- ☐ All risers must be of uniform height with handrails at aisles, all aluminum boards, wheelchair parking, paved runway from track gate to bleacher, and paved under the bleachers.
- ☐ Permanent soccer/football goals with pads should be installed.
- ☐ A scoreboard for football, soccer, field hockey, and track and field events should be included.

- ☐ Lights are to be provided to illuminate and provide security for peripheral areas of the stadium field for evening activities.
- ☐ An outdoor storage shed of approximately 23’ x 30’ should be provided.

Varsity Baseball Field

- ☐ The dimensions of the baseball field should be 325' down each foul line and 360’ for center field.
- ☐ Electrical service, water service, a stainless steel water fountain, hooded backstop, benches with safety fencing, and trash containers are to be provided.
- ☐ Equipment and fields must be in compliance with national, state, and local rules and safety standards.
- ☐ Seating for 50 spectators on each side should be provided including a paved area for accessible viewing.
- ☐ Field must be situated with a north-south orientation so that direct evening sun does not interfere directly with batter and fielders.
- ☐ The distance from the backstop to home place must at a minimum comply with NFHS rules and regulations.

Varsity Softball Field

- ☐ The softball field requires a 250' radius.
- ☐ Electrical service, water service, stainless steel water fountain, hooded backstops, safety fences and benches, and trash containers are to be provided.
- ☐ Equipment and field must be in compliance with national, state, and local rules and safety standards.
- ☐ Seating for 50 spectators on each side should be provided including a paved area for accessible viewing.
- ☐ Field must be situated with a north-south orientation so that direct evening sun does not interfere directly with batter and fielders.
- ☐ The distance from the backstop to home place must at a minimum comply with NFHS rules and regulations.
- ☐ An outdoor storage shed of approximately 20’ x 20’ should be provided near the baseball/softball fields.

Play Fields

- ☐ Three play fields, a minimum of 120,000 sq ft with 150’ width should be provided.
- ☐ Proper drainage should be assured for all of the fields.
- ☐ Two softball non-hooded backstops are to be provided in the corners of the fields if space allows.
- ☐ Two 15’ benches with safety fences on each field should be installed.
- ☐ Permanent trash containers are to be placed by the backstops.
- ☐ Two sets of multipurpose goal posts should be included on the fields—one should be permanent and the other moveable.
- ☐ Bermuda grass is best for all fields.
- ☐ The field hockey field should be should be 60 yards x 100 yards. Bermuda grass is required for this field. This field should not be crowned.
- ☐ Benches, goals, seating for 100 spectators, and permanent trash containers are needed at the field hockey field.

Paved Areas

- ☐ Four benches and permanent trash containers are to be provided beside the tennis/basketball courts.

Tennis Courts

- ☐ Eight full-sized tennis courts with cloth nets are required.
- ☐ Permanent posts and cranks are required.
- ☐ The baseline of the court should be perpendicular to the north-south axis.
- ☐ The playing surface color is green with red out-of-bounds.
- ☐ Appropriate tennis court markings should be provided.
- ☐ Fencing 10’ high should surround the courts.
- ☐ An electrical outlet should be installed on the outside of the fence.
- ☐ A minimum 60' long and 10' high rebound wall should be located outside the court area.
- ☐ The tennis courts and wall are to be located near the outside basketball courts.

- ☐ The tennis court construction should meet the United States Tennis Court and Track Builders Association Guidelines.
- ☐ If the tennis courts are not located near the outdoor storage area, provision must be made to store maintenance supplies (squeegees), ball machines, and other tennis equipment.

Basketball Courts

- ☐ Four paved play areas, 80' x 100' with appropriate court markings should be provided.
- ☐ Each basketball court should be 46’ x 80’.
- ☐ 8 basketball sets (post, backboard, rim, net) is required.
- ☐ The posts should be curved “goose neck” with fan-shaped aluminum backboards. Heavy duty double rims with polyethylene or strap nets must be provided.
- ☐ The basketball courts should be located next to the tennis courts.

Outdoor Concession Stand/Press Box

- ☐ This building needs to be in the stadium area.
- ☐ Restrooms adjacent to this area should include at least four fixtures in each of the male and female toilet rooms.
- ☐ The concession building should have adequate electrical service, drainage, stainless steel sink and tables, shelves and ice machine (cubed not shaved), freezer, garbage disposal, cabinets, plumbing, floor drain, and shelving are required.
- ☐ Permanent trash containers are required.
- ☐ Separate entrances should be provided for the press box and concession stand.
- ☐ An outdoor water fountain and one hose bib should be secured to the concession stand.
- ☐ The press box must provide space for a minimum of 10 people with complete line of sight to the field.
- ☐ The press box requires heat, sliding windows, electrical outlets, and counter space under the window for people to sit. The appropriate length for the press box is 20’ however if an upper and lower configuration is used, the press box may be 10’ long.
- ☐ One or two outdoor ticket-taking station/booth should be included. The exact site will be determined after fencing and traffic patterns are established.

- ☐ A storage closet (20’ x 20’) with garage type door should be provided in this building.
- ☐ The location should provide adequate security and orderly entrance to events

Outdoor Shed

- ☐ One outdoor storage shed, 20’ x 20’ should be attached to the school.
- ☐ This storage area should have a frost proof bib, concrete floors, and ventilation to accommodate gasoline/diesel equipment, and be secure.
- ☐ It requires a 10’ x 8’ rolling gate.
- ☐ An outside hose bib should be included.
- ☐ A ramp should go from ground level to the doorway for each access of heavy equipment.