POTOMAC ELEMENTARY SCHOOL
REVITALIZATION / EXPANSION FEASIBILITY STUDY

Prepared for
Montgomery County Public Schools

By

MOSELEY ARCHITECTS

OCTOBER, 2013

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Potomac Elementary School

Revitalization / Expansion

10311 River Road

Potomac MD 20854

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I. INTRODUCTION

This Revitalization / Expansion Feasibility Study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm of Moseley Architects. Potomac Elementary School is located at 10311 River Road, Potomac MD 20854 (Winston Churchill Cluster). The work was performed under the direction of the MCPS Department of Facilities Management's Division of Construction.

Feasibility Study Participants

The Feasibility Study Participants reviewed, revised, and approved the design concepts for the Potomac Elementary School Revitalization / Expansion . The meetings occurred on February 6, 2013, February 21, 2013, March 7, 2013, March 19, 2013, April 18, 2013, April 30, 2013, and May 15, 2013. The proposed design is a result of the participants' recommendations, suggestions, and guidance during the feasibility study process.

Feasibility Study Participants

Linda Goldberg	Principal, Potomac Elementary School
Kathleen Abramson	Parent
Gayalthis Aluuhai	Citizen
Diane Berinstein	Parent, Community
Joy Bishop	Staff
Chad Bolt	Council Member Berliner's Office
Ralph Buglass	Community
Kelly Callahan	Staff
Nancy Chaufournier	Resident
Lisa Chechile	Parent
Wes Chou	Parent
Diana Conway	Resident
Bruce Crispell	Division of Long-range Planning Director, MCPS
Peggy Dennis	Resident
Carol Dietzel	Resident
Sabine Dohrn	Resident
John A. Douglas	Resident
Dan Drumheller	Neighbor
Carol Embrey	Neighbor
Clayton Embry	Neighbor
Heather Epstein	Parent
Pam Foley	Staff
Munish Garg	Parent / Neighbor
Kendra Grams	Assoc. Pastor, Potomac Presbyterian Church
Colleen Greer	PTA, Parent, Neighbor
Edward J. Guss	Citizen
Peter Harvey	Resident
Vicki Harvey	Resident
Tina Heard	Resident
Sy Hershon	Parent
Suray Kanhowz	Citizen
Sarit Kaplan	Neighbor
Greg Keats	Citizen, Neighbor
William King	Potomac Presbyterian Church
Young Kim	Parent, Neighbor
Mary Kimm	Potomac Almanac
Alex Kovolchui	Neighbor
Zachary Larnard	Planner, Division of Long-range Planning, MCPS
Jacob Lebowitz	Resident
Lissa Levin	Parent, PTA
Sophia Maravell	Resident
Margaret Miller	Parent
Sean Miller	Pastor, Potomac Presbyterian Church
Ken Moore	Potomac Almanac
Kerri Morey	Parent
Julie Morris,	Planner, Division of Long-range Planning, MCPS
Juris Mossiak	Resident
Sasha Motym	Resident
Maureen O'Neill	Resident
Alci Ortiz	Parent

I. INTRODUCTION (CONTINUED)

Feasibility Study Participants (Continued)

Donna Petrocella	Parent, PTA
John Phillips	Parent, Neighbor
Matt Pilcher	Citizen
Pervaiz Rashid	Neighbor
Saba Rashid	Neighbor
Linda Rieger	Resident
Janis Sartucci	Resident
Karen Schneider	PTA
Annita Seckinger	Citizen
Angela Seckinger	Resident
Stacey Shenker	Parent, PTA Representative
Michael Shpur	Architect, Division of Construction, MCPS
Craig, Shuman	Director, Division of Construction, MCPS
Jillian Sotrms	MSDE Architect
Bob Stow	Potomac Presbyterian Church
Jennifer Till	Asst. Principal, Potomac Elementary School
Jim Tokar	Project Manager, Division of Construction, MCPS
Gus Triantis	Resident
Malisa Triantis	Resident
Jill Trone	AVP
Jill Welter	Staff
Marc Werthimer	Neighbor
Roni Werthimer	Neighbor
Kathleen Whiserhip	Parent
Bob Wormald	Resident
Myra Wormald	Resident
Lynn Zacharia	Parent
Michael Zacharia	Parent

II. EXECUTIVE SUMMARY

Purpose

The purpose of this feasibility study is to explore revitalization / expansion options that will accommodate the educational specification requirements for Potomac Elementary School. Furthermore, this study provides specific recommendations to Montgomery County Public Schools (MCPS) for implementation. When completed, the modernized facility will have an increased capacity of 548 students, with core spaces designed for 740 students.

History

Potomac Elementary School is located at 10311 River Road, Potomac MD 20854 (Winston Churchill Cluster). The original structure was built in 1949. Additions were constructed in 1954, 1960, 1964, and 1975. Presently, the school capacity is 424 students, and the enrollment is approximately 496 students in grades K thru 5. The existing structure is 57,713 gross square feet. The existing site is 9.6 acres.

Methodology

The existing school has been evaluated by a design team of architects and engineers to determine modifications required to modernize the school to comply with the Educational Specification Requirements, and the Summary of Space Requirements.

The study is based on the following:

- Consensus Workshops with the feasibility participants and MCPS Staff
    - There were seven meetings
    - There was consistent attendance from the core participants
    - There were 78 different attendees
    - There were 11 different concepts and option refinements
- Analysis of the existing physical plant
- Review of the existing construction documents provided by MCPS
- Review of the Educational Specifications and Summary of Space Requirements provided by MCPS
- Research conducted by the design team

II. EXECUTIVE SUMMARY (CONTINUED)

Overview

Four Options were developed with input from the feasibility study participants. All four options meet the site and programmatic requirements for the full revitalization / expansion of the building. All options share common site and building elements.

Options 1, 2 and 3 considered the re-use of the existing Potomac Elementary School Site on River Road. These options would require the use of the Radnor Center during the revitalization / expansion of the school. Option 4 explored the use of the Brickyard Road site, a School Board owned property designated for future school use. This Option would allow the school to remain at River Road while the construction takes place at the Brickyard Road site.

Options 1 and 2 achieve revitalization / expansion by replacing the existing building, and providing a new school building at the same location of the existing.

Option 3 fully renovates approximately half of the existing structure, and replaces the other half with new construction.

Option 4 is a new building on the Brickyard Road site. For the purposes of this study, the workshop attendees preferred option from the River Road site was used on the Brickyard Road site. Demolition and abatement costs of the existing Potomac Elementary School are not included with this Option.

Costs estimates were established for each option, and are presented in the Description of Options section of this report.

The Superintendent's recommendation was to build the revitalization / expansion project on the original River Road Site.

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II. EXECUTIVE SUMMARY (CONTINUED)

OPTION ONE

Option One achieves revitalization / expansion by demolishing the existing building, and providing a new school building at the same location of the existing. All of the site and building elements from the educational specifications are included in this option.

All new infrastructure and systems will be designed to meet MCPS standards. These include the HVAC, life safety, fire protection, electrical, lighting, data and communication systems. The modernized facility will comply with accessibility codes.

Total Cost = $28,860,000

II. EXECUTIVE SUMMARY (CONTINUED)

OPTION TWO

Option Two achieves revitalization / expansion by demolishing the existing building, and providing a new school building at the same location of the existing. All of the site and building elements from the educational specifications are included in this option.

All new infrastructure and systems will be designed to meet MCPS standards. These include the HVAC, life safety, fire protection, electrical, lighting, data and communication systems. The modernized facility will comply with accessibility codes.

Total Cost = $28,256,000

II. EXECUTIVE SUMMARY (CONTINUED)

OPTION THREE

Option Three achieves revitalization / expansion with the reuse of portions of the existing building and construction of a new educational wing. The reuse of the existing elements will be limited to reusing structural elements and some existing walls.

All new infrastructure and systems will be designed to meet MCPS standards. These include the HVAC, life safety, fire protection, electrical, lighting, data and communication systems. The modernized facility will comply with accessibility codes.

Total Cost = $29,370,000

II. EXECUTIVE SUMMARY (CONTINUED)

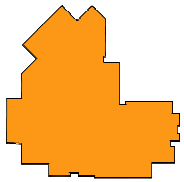
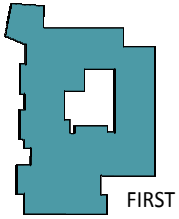
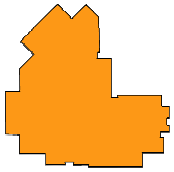
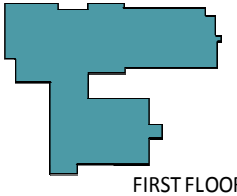
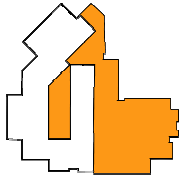
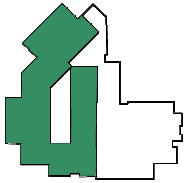
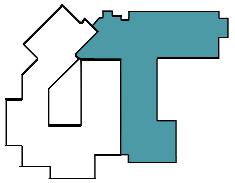
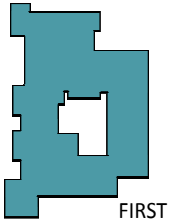
OPTION FOUR

Option Four achieves revitalization / expansion with the construction of a new building on the previously un-developed Brickyard Road Site. All of the site and building elements from the educational specifications are included in this option.

All new infrastructure and systems will be designed to meet MCPS standards. These include the HVAC, life safety, fire protection, electrical, lighting, data and communication systems. The modernized facility will comply with accessibility codes. Demolition and abatement costs of the existing Potomac Elementary School are not included with this Option.

Total Cost = $29,860,000

II. EXECUTIVE SUMMARY (CONTINUED)

OPTION		DEMOLITION	MODERNIZATION	NEW CONSTRUCTION
1	TOTAL BUILDING AFTER MODERNIZATION = 82,615 SF NET ASSIGNABLE SF = 52,452 SF EFFICIENCY = 63.5%	 TOTAL= 57,713 SF	TOTAL = 0 SF	 FIRST FLOOR = 58,519 SF SECOND FLOOR = 24,096 SF TOTAL = 82,615 SF
2	TOTAL BUILDING AFTER MODERNIZATION = 81,103 SF NET ASSIGNABLE SF = 52,452 SF EFFICIENCY = 64.8%	 TOTAL= 57,713 SF	TOTAL = 0 SF	 FIRST FLOOR = 59,452 SF SECOND FLOOR = 21,651 SF TOTAL = 81,103 SF
3	TOTAL BUILDING AFTER MODERNIZATION = 84,299 SF NET ASSIGNABLE SF = 52,452 SF EFFICIENCY = 62.3%	 TOTAL = 25,510 SF	 TOTAL = 32,203 SF	 FIRST FLOOR = 33,700 SF SECOND FLOOR =19,206 SF TOTAL = 52,906 SF
4	TOTAL BUILDING AFTER MODERNIZATION = 82,615 SF NET ASSIGNABLE SF = 52,452 SF EFFICIENCY = 63.5%	TOTAL = 0 SF	TOTAL = 0 SF	 FIRST FLOOR = 58,519 SF SECOND FLOOR = 24,096 SF TOTAL = 82,615 SF

II. EXECUTIVE SUMMARY (CONTINUED)

Square Footage

	Option 1 (Preferred)	Option 2	Option 3	Option 4
Existing	57,713	57,713	57,713	0
New Construction	82,615	81,103	52,906	82,615
Modernization	0	0	32,203	0
Renovation	0	0	0	0
Demolition (Total)	57,713	0	25,510	0
Existing to Remain	0	0	0	0
Total Gross Square Feet	82,615	81,103	84,299	82,615
Total Cost in FY 2014 Dollars	**$28,860,000**	**$28,256,000**	**$29,370,000**	**$29,860,000**

PDF Feasibility Study Cost Outline (000's) - Preferred Option 1

Construction Estimate (Option 1 Preferred)	$24,107
Planning Cost	$2,014
Contingency and Related Costs	$2,739
Total	**$28,860**

II. EXECUTIVE SUMMARY (CONTINUED)

CONCLUSIONS AND RECOMMENDATIONS

The Feasibility Study participants recommend the following course of action to meet the program requirements for the revitalization / expansion of Potomac Elementary School. The recommendations are consistent with MCPS standards, meet their program requirements, and address the interests and concerns of the Principal, school staff, the PTA, and the community as represented by the Feasibility Study participants.

In accordance with the opinions of the Feasibility Study participants, Option One as described in Section V and its associated site improvements was selected as the preferred option.

III. SCOPE, METHODOLOGY, AND GOALS

SCOPE AND INTENT

Montgomery County Public Schools (MCPS) plans to upgrade and modernize Potomac Elementary School to meet current specifications relative to educational programs, instructional philosophy, program space allocations, and current energy, ADA, and life safety codes. The intent of this feasibility study is to explore options for the revitalization / expansion of the existing facility to accommodate and meet the educational requirements of its student enrollment, satisfy the staff and community concerns, and provide a cost effective, energy efficient, and safe facility to meet the future needs of the school. When completed, the modernized facility will have an increased capacity of 548 students, with core spaces designed for 740 students.

The scope of work included a survey of the physical plant and evaluation of the existing mechanical, electrical, and plumbing systems. The A/E design team analyzed the educational specifications and developed 11 site and building concepts addressing the revitalization / expansion criteria. The feasibility study participants reviewed the progression of these concepts throughout the entire process. Their comments and suggestions were discussed, refined, and incorporated at each step during the process. The final concepts are presented as options in this report.

METHODOLOGY

The existing school has been evaluated by a design team of architects and engineers to determine modifications required to modernize the school to comply with the Educational Specification Requirements and the Summary of Space Requirements, dated February 11, 2013.

The study is based on the following:

- Consensus Workshops with the feasibility study participants and MCPS Staff
    - There were seven meetings
    - There were 78 different attendees
    - There were 11 different concepts and option refinements
- Analysis of the existing physical plant
- Review of the existing construction documents provided by MCPS
- Review of the educational specifications and summary of space requirements provided by MCPS
- Research conducted by the design team.

III. SCOPE, METHODOLOGY, AND GOALS (CONTINUED)

GENERAL GOALS

The initial Feasibility Study meeting was held on February 6, 2013. At that meeting, members of the community, PTA, and school staff brainstormed goals for the project. The following project guiding principles for the Potomac Elementary School Revitalization / Expansion were developed:

- Site is efficiently laid out to promote student safety, and addresses existing circulation issues.
- Building design is aesthetically pleasing, naturally lit, incorporates sustainable design, encourages collaboration, and can accommodate community use.
- Classroom spaces are state of the art, flexible and interactive learning spaces.

III. SCOPE, METHODOLOGY, AND GOALS (CONTINUED)

SITE GOALS AND OBJECTIVES

The modernized site shall:

- Improve vehicular circulation, and the student arrival and pick-up sequence
- Maximize visual control as students and faculty depart in buses and cars
- Provide ADA access to all areas of the site
- Endeavor to separate bus traffic, car traffic, student drop-off, and parking.
- Improve safety and functionality of site access points
- Provide site amenities to meet the educational program

BUILDING GOALS AND OBJECTIVES

The modernized building shall:

- Introduce controllable natural light throughout the building including a majority of the teaching spaces. Employ the use of courtyards to maximize natural light in teaching spaces.
- Provide the safest environment possible for the students and staff. Provide passive security through properly located supervisory areas.
- Improve circulation spaces, width of corridors, and capacity of stairways.
- Provide ADA access to all parts of the building.
- Have clear, easily supervised, circulation paths for intuitive and simple way-finding.
- Have an identifiable and obvious main entrance.
- Have enough space to accommodate the educational program requirements.
- Provide clear separation of quiet functions from noisy functions.

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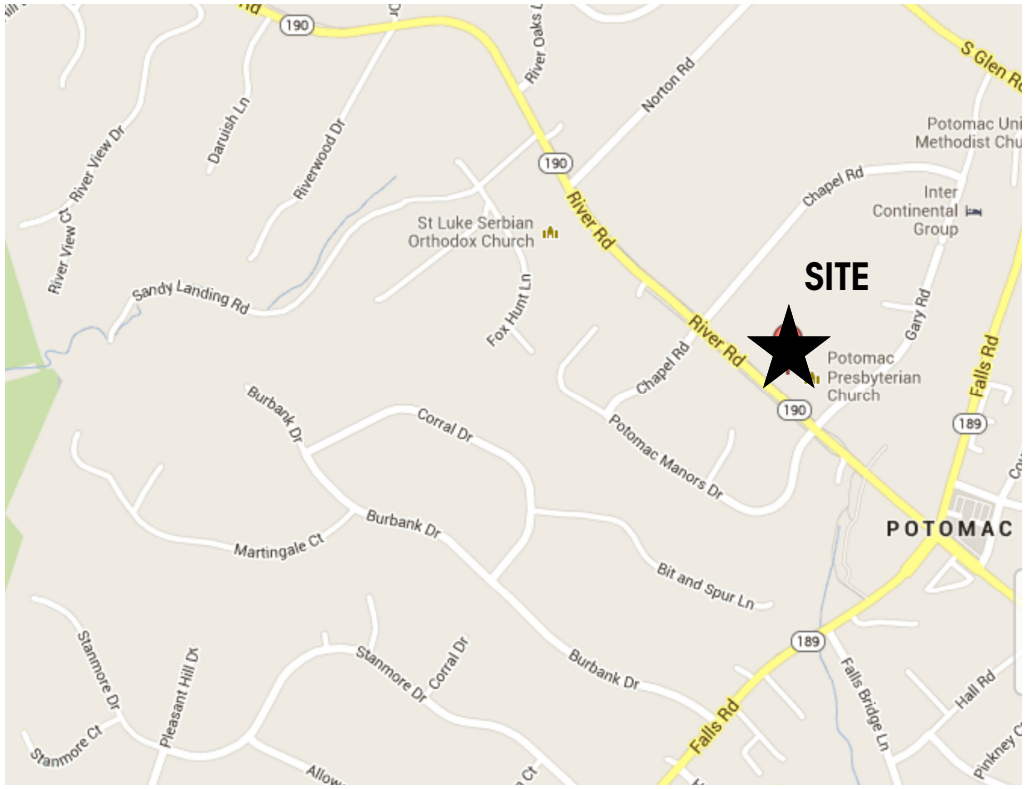
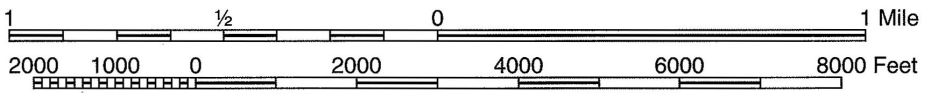
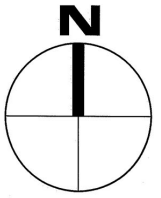
IV. EXISTING CONDITIONS

VICINITY MAP

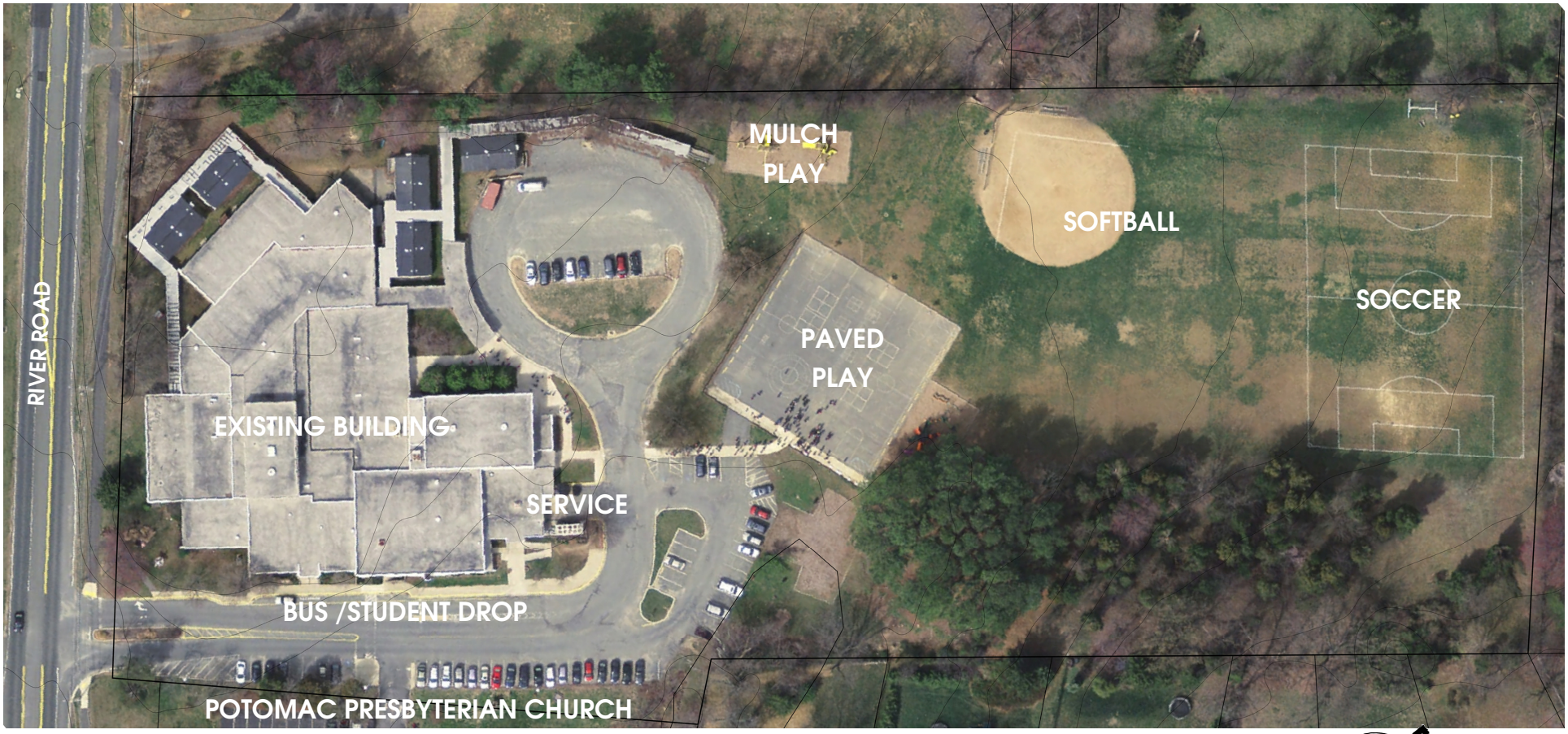






IV. EXISTING CONDITIONS (CONTINUED)

SITE PLAN



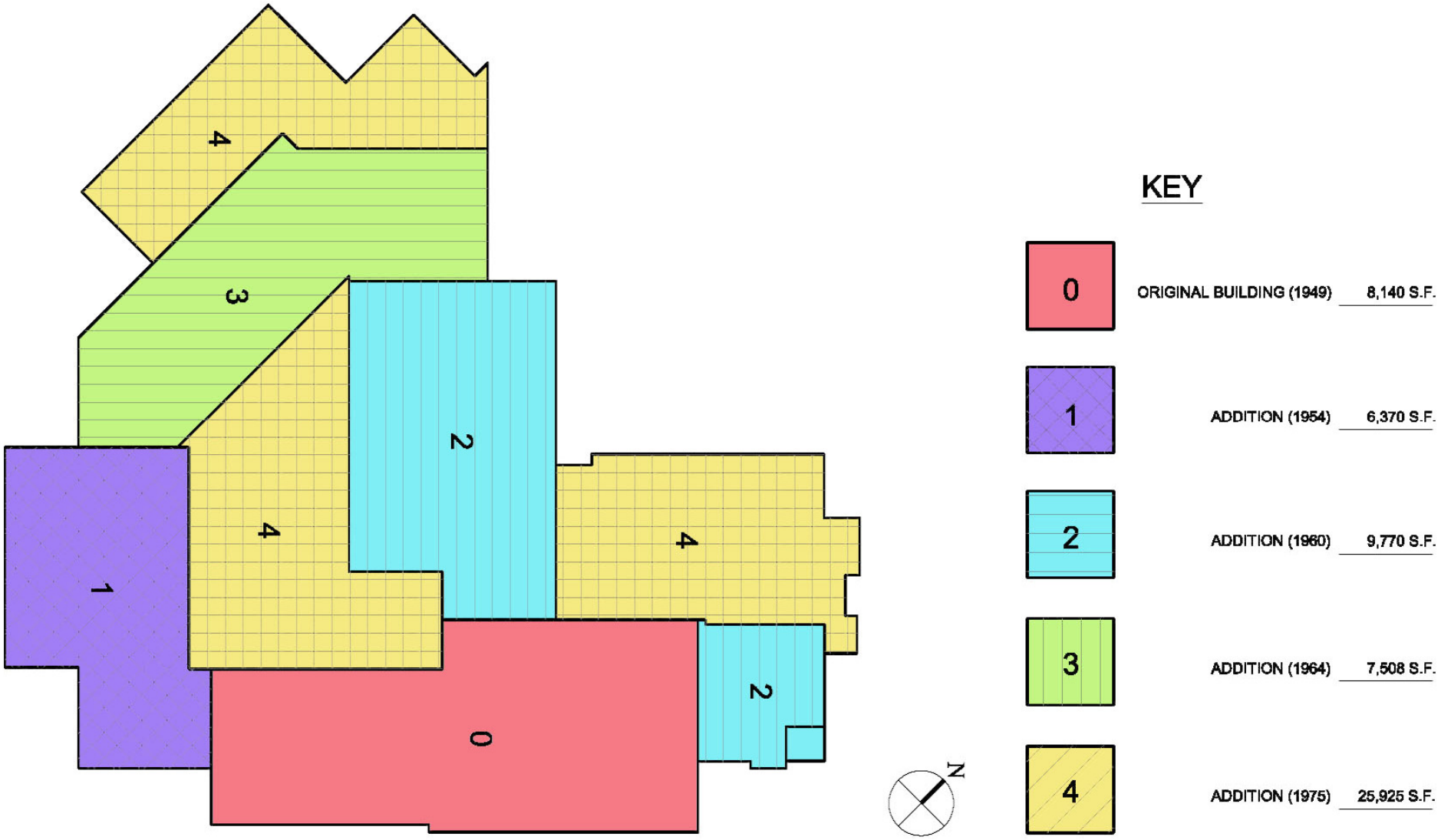
EXISTING SITE

IV. EXISTING CONDITIONS (CONTINUED)

FLOOR PLAN

IV. EXISTING CONDITIONS (CONTINUED)

BUILDING HISTORY DIAGRAM



IV. EXISTING CONDITIONS (CONTINUED)

EXISTING CONDITIONS SUMMARY

The original structure was built in 1949. Additions were constructed in 1954, 1960, 1964, and 1975. The existing Potomac Elementary School is primarily a one story structure, with multiple finished floor elevations with exits to grade. The existing structure is constructed of non-combustible materials. The exterior walls are primarily masonry with a face brick veneer, with some walls clad in an insulated panel system. The structural system has both masonry load bearing walls and steel framing, with slab on grade floors, and open web steel joists with metal deck at the roof. Interior partitions are variable, and include concrete masonry units and reconfigurable metal panels with the walls. The floor to roof elevation is limited compared to today's construction standards, with approximately 10'-0" between the floor slab and bottom of the roof joists in many areas. There are many floor level changes between the various additions, many of which do not meet current code requirements.

Potomac Elementary School is situated on a 9.61-acre property located at 10311 River Road in Potomac, Maryland. The site is bounded to the northwest and northeast by single-family homes, to the southeast by single family homes and Potomac Presbyterian Church, and to the southwest by River Road. The terrain is generally flat, with a slight grade change at the southwest border along River Road. The site is currently accessed by one entry off of River Road for parent drop-off , bus loop, and deliveries to the building.

Refer to Appendices C and D for a complete existing conditions survey.

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V. DESCRIPTION OF OPTIONS

GENERAL

Four Options were developed in response to the MCPS educational specifications for Potomac Elementary School. Each option addresses the physical and instructional revitalization / expansion of the school in a different manner.

Options 1, 2 and 3 considered the re-use of the existing Potomac Elementary School Site on River Road. These options would require the use of the Radnor Center during the revitalization / expansion of the school. At the request of one of the workshop attendees, Option 4 explored the use of the Brickyard Road site, a School Board owned property designated for future school use. This Option would allow the school to remain at River Road while the construction takes place at the Brickyard Road site.

Options 1 and 2 achieve revitalization / expansion by replacing the existing building, and providing a new school building at the same location of the existing.

Option 3 fully renovates approximately half of the existing structure, and replaces the other half with new construction.

Option 4 is a new building on the Brickyard Road site. For the purposes of this study, the workshop attendee's preferred option from the River Road site was used on the Brickyard Road site.

COMMON SITE DESIGN ELEMENTS FOR EACH OPTION

- All programmed site requirements are included in all options.
- A parent drop off lane and separate bus loop have been provided in each option.
- Parking for 80 automobiles and a 10 Bus Loop are included in the designs.
- The site is accessed from River Road for Options 1, 2, and 3. The site is accessed from Brickyard Road for Options 4.
- The Gymnasium and Multi-Purpose Rooms are located to the rear of the site, allowing for easy and safe access to the play fields, paved play areas, and playgrounds. Student circulation and vehicular circulation are isolated from each other.
- The River Road Options include a stream buffer which must be protected from all construction activities.
- The River Road Options include a stand of mature trees in the back north east corner of the site, which will not be disturbed.
- All site features will be ADA accessible.
- All necessary quantity and quality control of storm water will be provided for all options per code requirements.

V. DESCRIPTION OF OPTIONS (CONTINUED)

Common Building Elements

- All programmed requirements are included in all options.
- All options are two stories with a central stair located near the main entrance.
- The Gymnasium and Multi-Purpose rooms may be easily isolated from the rest of the building for after-hours use.
- Future expansion of (4) classrooms to core capacity has been included in the designs.
- Classrooms are clustered in small groups.
- The Administration Suite is at the main entrance. The Main entry will be lockable during the school day, requiring visitors to enter through the main office. The location of the Administrative Suite allows easy passive supervision of the bus loop and student drop-off.
- The facility will be ADA accessible.
- Any hazardous materials will be abated from the existing building during the demolition process.

V. DESCRIPTION OF OPTIONS (CONTINUED)

Common Building Elements (Continued)

HVAC System

The existing heating and ventilating systems with all associated piping, boilers, pumps, air handlers etc. will be removed, and a state-of-the-art energy efficient heating, ventilating and air conditioning system will be installed in accordance with local codes and MCPS design criteria.

Electrical Power System

The existing electrical service will be removed in its entirety. A new electrical service will be provided in each option including new power and lighting.

Emergency Power System

A new emergency generator will be provided in each option that will provide emergency power for the emergency lighting, boiler(s), security systems, and kitchen refrigerators and freezers.

Fire Alarm System

Each option will have an entirely new code compliant fire alarm system.

Plumbing

All existing plumbing fixtures and piping (including underground and concealed piping) will be removed and replaced with new plumbing in accordance with local codes and MCPS design criteria.

Sprinkler System

Each option will be fully sprinkled.

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE – DESCRIPTION

Option One achieves revitalization / expansion by demolishing the existing building, and providing a new school building at the same location of the existing. All of the site and building elements from the educational specifications are included in this option.

The main entry for this option faces River Road. The existing site entrance will be utilized for the student drop-off loop and the staff and visitor parking. A new site entrance at the northwest corner will allow for a separate bus entrance. In the event that a second entrance cannot be added, the bus and parent traffic will be diverted from each other as soon as they enter the existing entrance.

The building is oriented around a central courtyard, with afterhours spaces (Multi-Purpose and Gymnasium) located to the rear of the site, and accessible from the parking lot. The Music and Art spaces are adjacent to the Multi-Purpose room. The Media Center is located off of the courtyard, immediately adjacent to the main entrance. The second floor classrooms are accessed by an elevator and stairs at the ends of the corridors. Building entry from the bus loop will occur directly into the academic area.

V. DESCRIPTION OF OPTIONS (CONTINUED)

SITE PLAN

OPTION 1 SITE

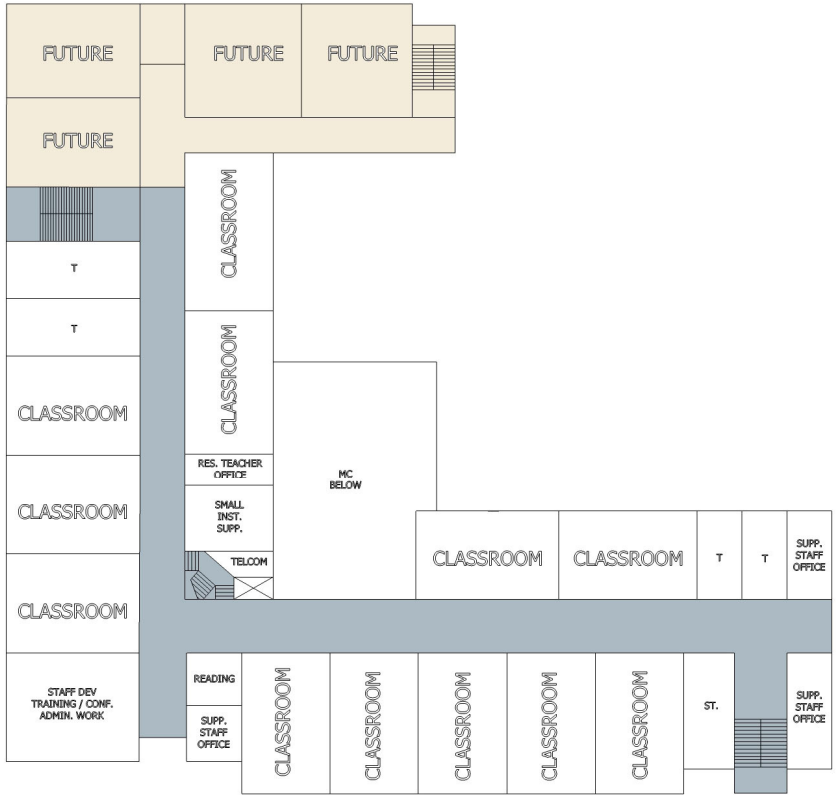
V. DESCRIPTION OF OPTIONS (CONTINUED)

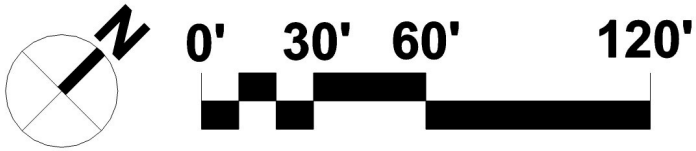
OPTION ONE FLOOR PLAN

FIRST FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE FLOOR PLAN





SECOND FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION ONE ADVANTAGES AND DISADVANTAGES

Advantages:

- The River Road site is adjacent to the services of the Potomac Village area.
- The internal circulation pattern offers easy supervision of the corridors by fewer staff.
- The courtyard provides secure enclosed usable exterior space for the students.
- The loop configuration of the corridors provides for optimal circulation.
- It is unknown at this point in the process if MCPS will be allowed to add a second site entrance off of River Road. This Option provides flexibility in the event that one or two River Road entrances are available.

Disadvantages:

- Revitalization / Expansion of the existing building will require the use of the Radnor Holding Center during the one and a half year construction.

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V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO – DESCRIPTION

Option Two achieves revitalization / expansion by demolishing the existing building, and providing a new school building at the same location of the existing. All of the site and building elements from the educational specifications are included in this option.

The main entry for this option faces River Road. The existing site entrance will be utilized for the student drop-off loop and the staff and visitor parking. A new site entrance at the northwest corner will allow for a separate bus entrance. In the event that a second entrance cannot be added, the bus and parent traffic will be diverted from each other as soon as they enter the existing entrance.

The building is organized in two distinct zones. A two story classroom wing houses the classrooms, Media Center and Administration. The Multi-Purpose, Gymnasium, Kitchen, Music, and Art Classrooms are on another wing that can be isolated for after-hours use. The Multi-Purpose Room and Gymnasium are located to allow access to the rear of the site and are accessible from the parking lot. The Media Center is located immediately adjacent to the main entrance. The second floor classrooms are accessed by an elevator and stairs at the ends of the corridors. Building entry from the bus loop will occur directly into the academic area.

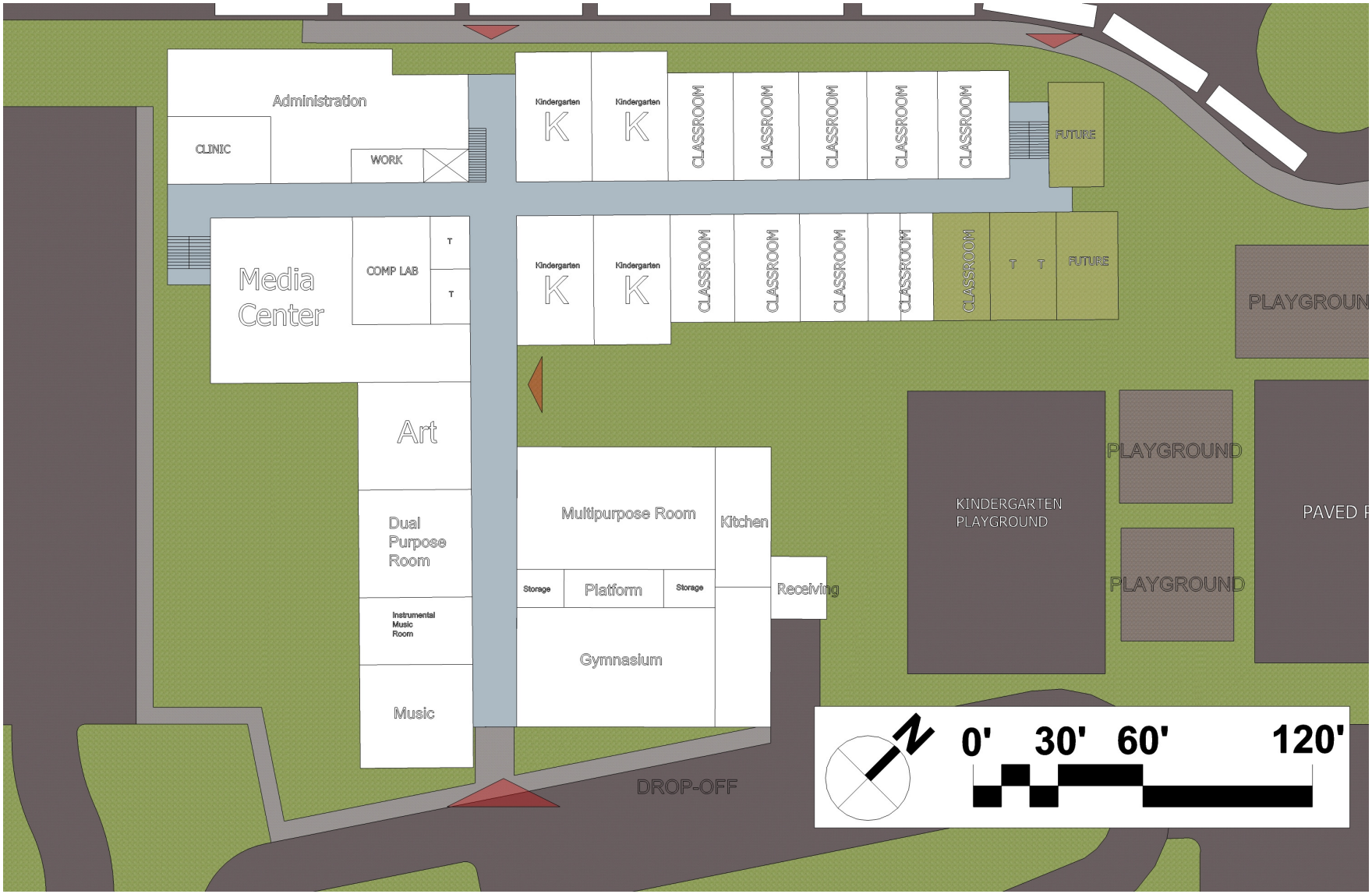
V. DESCRIPTION OF OPTIONS (CONTINUED)

SITE PLAN

OPTION 2

V. DESCRIPTION OF OPTIONS (CONTINUED)

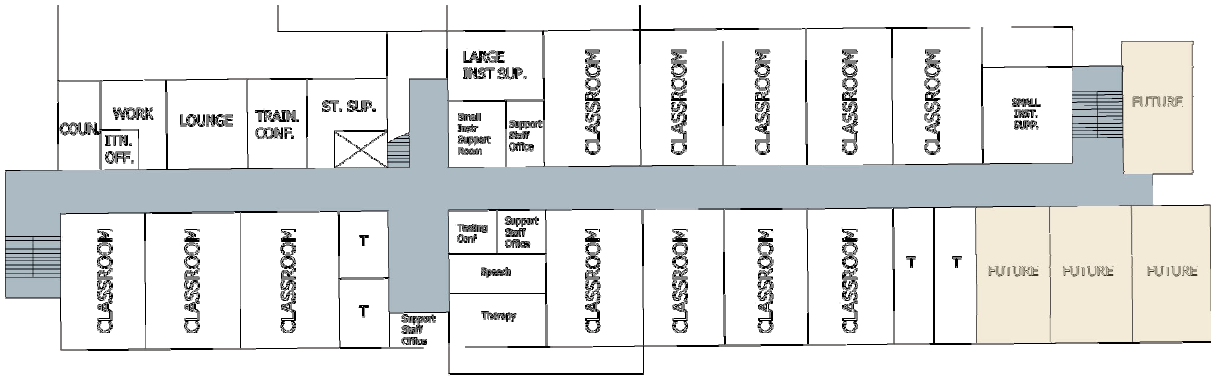
OPTION TWO FLOOR PLANS

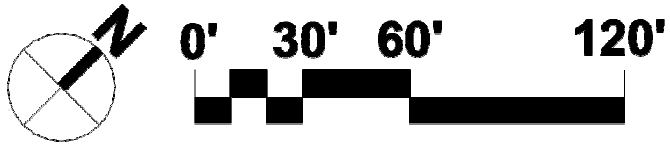


FIRST FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO FLOOR PLANS





SECOND FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION TWO ADVANTAGES AND DISADVANTAGES

Advantages:

- The River Road site is adjacent to the services of the Potomac Village area.
- It is unknown at this point in the process if MCPS will be allowed to add a second site entrance off of River Road. This Option provides flexibility in the event that one or two River Road entrances are available.
- Noisier elements such as music, gymnasium, and the cafeteria are more isolated from the academic spaces than other options.

Disadvantages:

- Revitalization / Expansion of the existing building will require the use of the Radnor Holding center during the one and a half year construction.
- Access to the Multi-Purpose Room, Gymnasium, and Cafeteria is limited to one corridor, which may increase circulation congestion.

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V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE – DESCRIPTION

Option Three achieves revitalization / expansion with the reuse of portions of the existing building and construction of a new educational wing. The reuse of the existing elements will be limited to reusing structural elements and some existing walls. All of the site and building elements from the educational specifications are included in this option.

The main entry for this option faces the southeast parking area. The existing site entrance will be utilized for the student drop-off loop and the staff and visitor parking. A new site entrance at the northwest corner will allow for a separate bus entrance. In the event that a second entrance cannot be added, the site circulation will be significantly impacted, due to the existing building location limiting the possibility of an internal access road between the building and River Road.

A new two story classroom wing houses many of the classrooms. The Multi-Purpose, Gymnasium, Kitchen, Music, and Art are also new construction, and are located to allow after hours use and to provide access to the rear of the site. Classrooms, the Administrative area, and the Media Center are located in the re-used portion of the building. The second floor classrooms are accessed by an elevator and stairs at the ends of the corridors. Building entry from the bus loop will occur directly into the academic area.

V. DESCRIPTION OF OPTIONS (CONTINUED)

SITE PLAN

OPTION 3

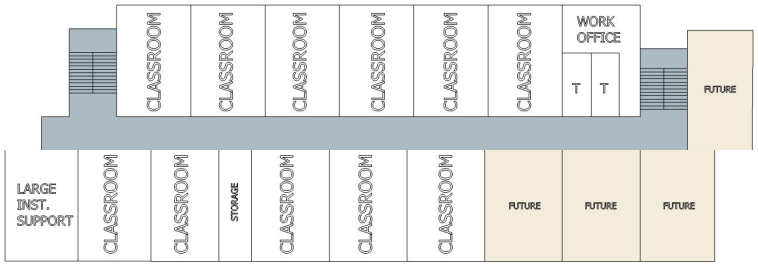
V. DESCRIPTION OF OPTIONS (CONTINUED)

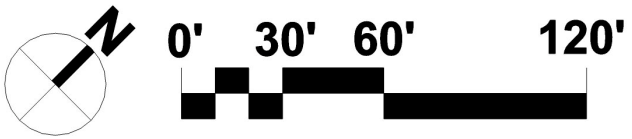
OPTION THREE FLOOR PLANS

FIRST FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE FLOOR PLANS





SECOND FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION THREE ADVANTAGES AND DISADVANTAGES

Advantages:

- The River Road site is adjacent to the services of the Potomac Village area.
- A significant portion of the existing building structure will be re-used.
- The loop configuration of the corridors provides for better circulation.
- The courtyard provides secure enclosed usable exterior space for the students.

Disadvantages:

- Revitalization / Expansion of the existing building will require the use of the Radnor Holding Center during the one and a half year construction.
- It is unknown at this point in the process if MCPS will be allowed to add a second site entrance off River Road. This Option does not improve the site circulation problems if only the existing site entrance is used.
- The main entrance, "front" door, is located on the side of the building.
- Corridors will require elevation changes through ramps or stairs.
- The building layout is less efficient than other options due to the re-use of the existing building. Existing portions of the building limit the ability to provide optimal adjacencies of spaces due to square footage requirements.
- The existing roof structure is lower than today's typical construction. Providing infrastructure to support the classroom spaces under today's codes will be a challenge.
- There are a few classrooms in the existing building that will not have exterior views.
- As a result of using the fixed building floor elevations, additional site work, and small retaining walls will be required to ensure that all of the site paths meet accessibility codes.

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V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR – DESCRIPTION

Option Four achieves revitalization / expansion with the construction of a new building on the Board of Education-owned Brickyard Road Site. All of the site and building elements from the educational specifications are included in this option.

For the purposes of this study, the site was analyzed using the preferred plan option layout from the River Road Site. The plan for Option One works on this site. Should this Option be selected, further analysis of the plan will be done to ensure that the chosen plan is appropriate to this particular site.

The main entry for this option faces Brickyard Road. Two site entrances are proposed. One will be utilized for the student drop-off loop and the staff and visitor parking. The other will allow for a separate bus entrance.

The building is oriented around a central courtyard, with afterhours spaces (Multi-Purpose and Gymnasium) located to the rear of the site, and accessible from the parking lot. The Music and Art spaces are adjacent to the Multi-Purpose room. The Media Center is located off of the courtyard, immediately adjacent to the main entrance. The second floor classrooms are accessed by an elevator and stairs at the ends of the corridors.

SITE PLAN

OPTION 4

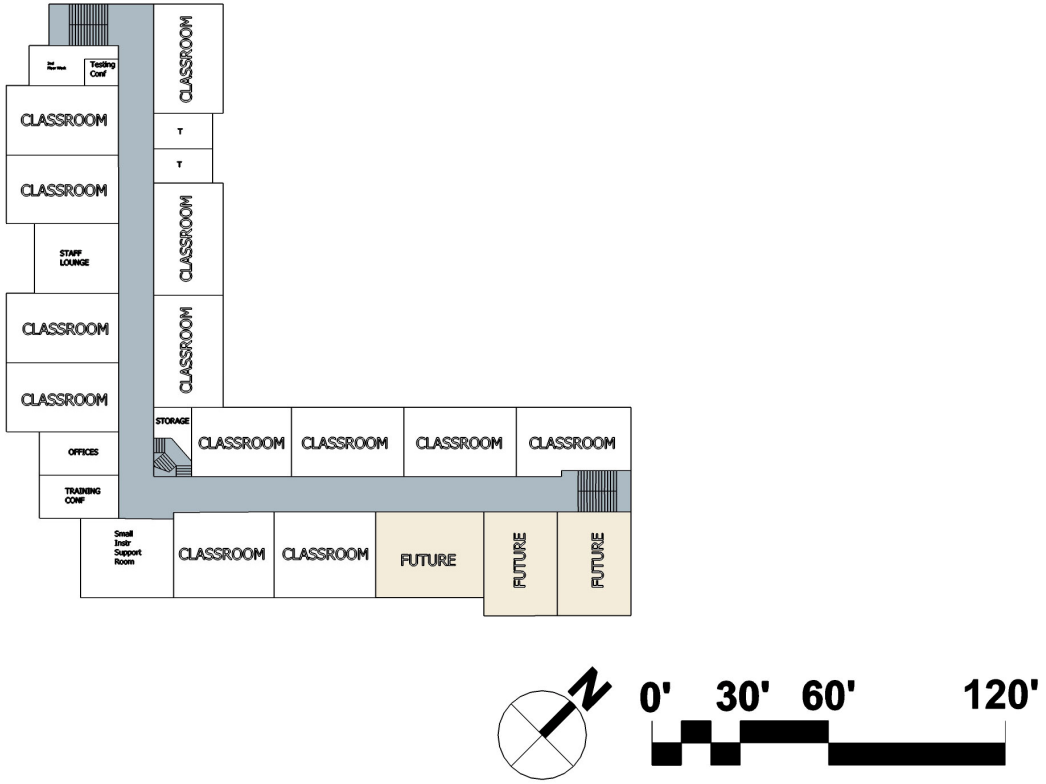
V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR FLOOR PLANS

FIRST FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR FLOOR PLANS



SECOND FLOOR

V. DESCRIPTION OF OPTIONS (CONTINUED)

OPTION FOUR ADVANTAGES AND DISADVANTAGES

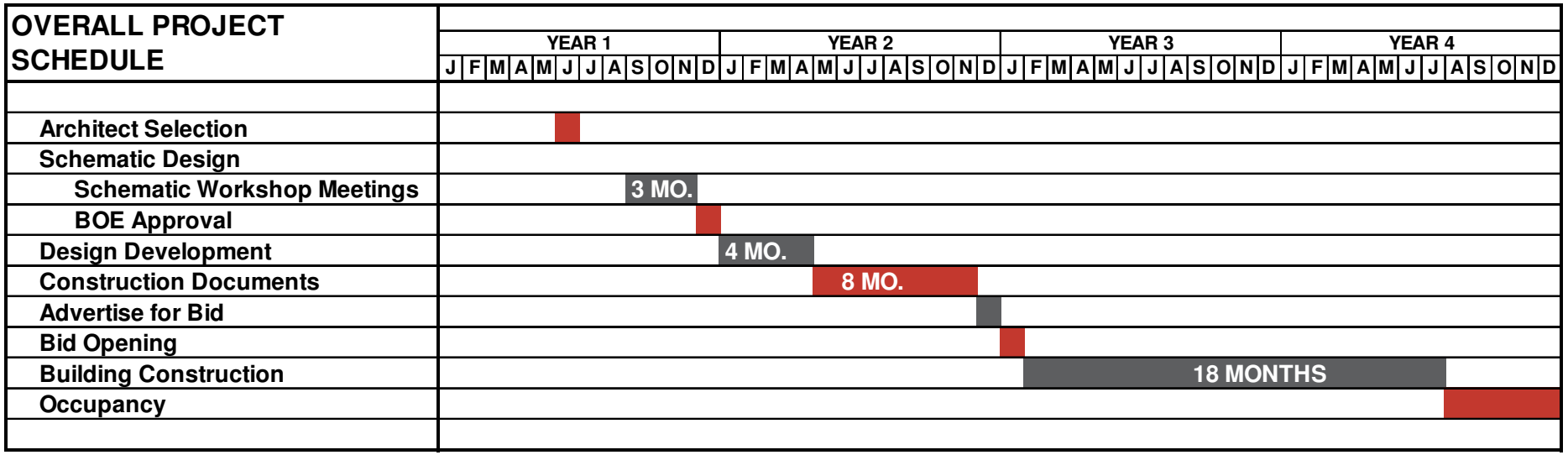
Advantages:

- The Brickyard Road site is already owned by the Board of Education and is a designated school site in the Potomac Elementary School Service area. No site acquisition costs would be required to utilize this site.
- Utilizing the Brickyard Road Site allows the existing school to remain in operation throughout the construction process. The use of the Radnor Holding Center will not be required.
- An adjusted option 1 , the preferred River Road option, can be adapted to fit onto the Brickyard Road site.
- The Brickyard Road Option preserves a large portion of green space at the rear of the site, which could be used for future school development, community use, or potential environmental learning opportunities.

Disadvantages:

- The Brickyard Road site is at the edge of the service area for the school. Additional bus and parent traffic through the River Road and Falls Road intersection will be created, increasing commute times.
- The use of the Brickyard Road site will eliminate, or reduce, the unique organic soil resource that has the potential to be a learning resource for MCPS students for environmental studies.
- Existing families purchased homes to be close to the existing River Road site.
- The history of the school on the River Road site would be lost if the school was relocated.
- Locating the school at the Brickyard site would diminish the sense of community that exists with the Potomac Village / River Road location.
- Brickyard Road is a two lane road which may require modifications to the existing infrastructure.

VI. PROPOSED PROJECT IMPLEMENTATION SCHEDULE



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APPENDIX A—SPACE ALLOCATION SUMMARY

Potomac Elementary School Modernization
Square Foot Summary

When this project is complete, the following spaces are to be provided:
Capacity after modernization will be 548.

Update:d: 6/7/2013

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Classrooms				
Kindergarten	**4**	Includes 250 s.f. storage	1300	**5200**
Standard	**20**	Includes 150 s.f. storage	900	**18000**
Art	1	Includes 250 s.f. storage	1100	**1100**
Music	1	Includes 250 s.f. storage	1050	**1050**
Instrumental Music Room	1		450	**450**
Dual purpose Room	1		1000	**1000**
Support Rooms				
Large Instructional Support	2		600	**1200**
Small Instructional Support	2		450	**900**
Academic Interventions Room	1		300	**300**
Speech/Language Room	1		250	**250**
Therapy/Support Room	1		250	**250**
Testing/Conference Room	1		150	**150**
Student Support Center	1	Locate between classrooms	250	**250**
Instructional Data Assistant	1		250	**250**
Support Staff Offices	3		150	**450**
Resource Teacher Office	1		100	**100**

APPENDIX A—SPACE ALLOCATION SUMMARY (CONTINUED)

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Media Center				
Main Resource Area	1		2100	**2100**
Materials Preparation/Office	1		400	**400**
Media Storage	1		300	**300**
Textbook Storage	1		200	**200**
Control Room and Storage	1		250	**250**
Telecommunication Equipment	1		150	**150**
Telecommunication Closet	3		80	**240**
Computer Laboratory	1	Includes 150 s.f. storage	900	**900**
Physical Education				
Gymnasium	1		3700	**3700**
Office	1		150	**150**
Storage	1		250	**250**
Storage	2		100	**200**
Outside Storage	1		150	**150**
Multipurpose Room				
Multipurpose Room	1		3700	**3700**
Chair Storage	1		150	**150**
Table Storage	1		150	**150**
Platform	1		450	**450**
Before/After Care Kitchenette	1		30	**30**
Before/After Care Storage	1		100	**100**

APPENDIX A—SPACE ALLOCATION SUMMARY (CONTINUED)

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Kitchen/Food Services				
Serving Area	1		300	**300**
Walk-in Cooler/Freezer	1		155	**155**
Dry Storage	1		192	**192**
Office	1		100	**100**
Toilet Room	1		70	**70**
Preparation Area	1		555	**555**
Administration Suite				
General Office	1		500	**500**
Workroom	1		350	**350**
Principal's Office	1		250	**250**
Assistant Principal's Office	1		150	**150**
Conference	1		300	**300**
Record Room	1		100	**100**
Telephone Booth	1		50	**50**
Storage	1		100	**100**
Toilet Room	1		50	**50**
2nd Floor Workroom	1		75	**75**
Counseling Area				
Counselor's Office	1		250	**250**
Itinerant Staff Office	1		150	**150**

APPENDIX A—SPACE ALLOCATION SUMMARY (CONTINUED)

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
Staff Development Area				
Staff Development Office	1		100	**100**
Reading Specialist Office	1		100	**100**
Training/Conference Room	1		450	**450**
Health Services Suite				
Waiting Area	1		100	**100**
Treatment/Medication Area	1		120	**120**
Office/Health Assessment Roon	1		100	**100**
Health Assessment/Isolation Ro	1		100	**100**
Rest Areas	1		200	**200**
Toilet Room	1		50	**50**
Storage Area	1		40	**40**
Staff Lounge	1		700	**700**
Building Service Facilities				
Building Services Office	1		150	**150**
Locker/Shower Area	1		150	**150**
Compactor/Trash Room	1		150	**150**
General Storage and Receiving	1		550	**550**
General Storage/Book Storage	3	250 sq. ft. each	250	**750**
Building Services Outdoor Stora	1		175	**175**
Building Service Closets	3		50	**150**
PTA Storage	1		150	**150**
Total	**28**			**52452**

APPENDIX B —EDUCATIONAL SPECIFICATIONS

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Potomac Elementary School Modernization

Educational Specifications
Feasibility Study

August 28, 2012
Updated February 11, 2013

Montgomery County Public Schools
Rockville, Maryland 20850

Table of Contents

Introduction

☐ This document describes the facilities that are needed for the Potomac Elementary School modernization educational program. The descriptions provide the architect with important guidelines and will be used by staff representatives when reviewing drawings for the facility.

☐ The program capacity for this school will be 640 with a master-planned (core) capacity for 740. The architect should show the location for a 4-classroom future addition to bring the school to capacity.

☐ 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. **(Refer to Appendix A)**
- 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 any additional program requirements for the school that were identified by the Facility Advisory participants.

☐ 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.

☐ 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.

☐ 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, special consideration is to be given to the following comments and instructions:

- ☐ The architect is expected to be compliant 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 guidelines and provide adequate levels.

- ☐ High quality materials are to be used in the construction.

- ☐ The architect should refer to the MCPS Facility Guideline Specifications when noted. The document can be found at: http://www.montgomeryschoolsmd.org/departments/construction/publications/guidelines.shtm

- ☐ 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 children's work can be displayed is recommended.

- ☐ 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 encouraged by eliminating visual barriers.

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

- ☐ Water coolers should be provided throughout the school.

- ☐ 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.

- ☐ 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.

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

- ☐ Building code requirements call for less than fifty percent of interior corridor space to be used for displaying flammable materials. Display areas can be provided by a 5' x 5' bulletin board per classroom or an equivalent amount of space in a larger area. Please refer to the MCPS Facility Guideline Specifications.

- ☐ Students should have ADA compliant access to the play areas from the multipurpose room. Play areas are to be protected from any vehicular traffic. Unobstructed supervision of play areas from one central area is desirable.

- ☐ The school is to be air-conditioned except for the gymnasium and kitchen. Careful placement of glass is required to avoid excess heat gain in occupied areas.

- ☐ 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.

- ☐ Zoning the plant for heating and air-conditioning should be related to after-hours use of various areas such as offices, gymnasium, multipurpose room, 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's 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.

- ☐ Adult restrooms should be provided in accordance with the latest code requirements. Adult restrooms in elementary schools will be unisex.

- ☐ 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.

- ☐ Carpeting should be limited to the principal's office, assistant principal's office and conference room in the administration suite and the main reading room of the instructional media center.

- ☐ All instructional, resource, or office spaces that students may occupy should be designed with either a sidelight or glass panel in the door and must be able to be supervised from the corridor or an adjacent space. Doors should be provided between classrooms whenever possible, however, expensive folding walls should be carefully considered as they are rarely utilized.

- ☐ 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.
- ☐ The shape of the classroom and the design of built-in features and storage areas should provide optimum net usable floor area. Elongated rooms and features that protrude into floor area, limiting flexibility, are to be discouraged. Rectangular shaped classrooms are preferred.
- ☐ Metal adjustable shelving is to be provided in all building storage closets.
- ☐ All plan reviews will be coordinated through the Division of Construction.
- ☐ Special consideration must be given to energy conservation including total life-cycle costs. The current Maryland State Department of General Service (DGS) requirements will be applied as design criteria. Life-cycle cost accounting in accordance with DGS criteria is required.
- ☐ Per COMAR 23.03.02: Regulation .29, all school projects that include replacing or upgrading the electrical system should be designed and constructed sot that a designated public shelter area can be fully powered in the event of an emergency.

Description of Facilities

Please refer to the summary of spaces in the front of this document for the square foot requirements for each space described below. Square foot allocations should be considered the standard to be followed, although minor deviations are permitted.

Kindergarten Classroom

- ☐ Each room should allow flexibility in creation of activity areas and to provide for individualized instruction through arrangement of the "centers" approach.
- ☐ An area should be designated for placement of a 12' by 15' area rug over the finished floor.
- ☐ A 100 square foot walk-in storage closet and 150 square feet of general storage (casework throughout the classroom) is needed.
- ☐ When possible there should be interconnecting interior doors between pairs of kindergarten rooms.
- ☐ The computers should not be located next to a whiteboard where magnets might damage the hardware and software. Glare from the windows on the computer screens should be eliminated as much as possible. Security for the computers should be planned in consultation with the DOC. Computer/technology wiring must be in accordance with MSDE/MCPS guidelines.
- ☐ Every classroom must have computer outlets for five student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the February 2002 revision of the MSDE *Maryland Public School Standards for Telecommunications Distribution Systems*.
- ☐ The main teaching wall layout should be in accordance to MCPS Facilities Guide.
- ☐ A sink with a drinking fountain must be provided, with cabinets above and below.

- ☐ The built-in student wardrobe area must provide 28 individual compartments to store students' belongings. The architect is to refer to the MCPS Facility Guideline Specifications for a typical cubby design. Lockers in the classroom may be considered for the kindergarten classrooms.
- ☐ A total of 20 feet of tackboard and 10 feet of magnetic whiteboard should be installed at eye-level height for small children, with tack stripping along walls for display of student work.
- ☐ Each room must have a toilet room that is accessible from within the room and easily accessible from outside. The toilet room will contain a standard height toilet, a sink with child-height mirror, and soap and towel dispensers that are accessible to small children. The light switch should automatically turn on the vent fan.
- ☐ Each classroom should be equipped with window blinds per the MCPS design guidelines.
- ☐ Battery operated clocks will be installed.
- ☐ All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.
- ☐ A full-length mirror should be installed.

Standard Classroom

- ☐ Each room must have an open classroom area with moveable furniture.
- ☐ 150 square feet of casework storage is needed in the classroom.
- ☐ When possible there should be interconnecting interior doors between pairs of classrooms.
- ☐ The computers should not be located next to a whiteboard where magnets might damage the hardware and software. Glare from the windows on the computer screens should also be eliminated as much as possible. Security for the computers should be planned in consultation with the MCPS DOC. Computer/technology wiring must be in accordance with DOC/MSDE/OCTO guidelines.
- ☐ Every classroom must have computer outlets for 5 student workstations and 1 teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.
- ☐ The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ Thirty built-in individual compartments in the wardrobe area for storing student personal property are required. The architect should refer to the MCPS Facility Guideline Specifications for a typical cubby design for grades K-1 and grades 2-5. Lockers in the hallway may be used in place of the classroom cubbies.
- ☐ If lockers are designed for storing individual student property, the architect should design the facility with 700 lockers.
- ☐ All classrooms should be equipped with a handicapped accessible sink with drinking bubbler.
- ☐ A storage area is needed to hold at least two science kits (approximate 27" x 17" x 12" each) and one math kit in each classroom.
- ☐ General storage space must be built in and must accommodate 24- by 36-inch paper and a 4-drawer file cabinet. Each classroom must include 48 linear feet of built-in adjustable shelving.

- ☐ A small lockable teacher's wardrobe must be provided, as per MCPS Facility Guideline Specifications.
- ☐ Designated shelf space, not near a window, for an aquarium/terrarium with nearby electrical outlet, is desirable.
- ☐ Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- ☐ Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- ☐ Battery operated clocks will be installed.
- ☐ Shelving or cabinetry should be provided in every teaching station for the VCR and television. A school may choose to place the television and VCR on a cart. Appropriate CCTV receptacles and a duplex outlet should be provided nearby for the operation of the TV and VCR. Placement of the TV should be to maximize student viewing and not be unduly influenced by exterior or interior extraneous light.
- ☐ A school may consider reducing the size of each classroom to create small break-out rooms in the school. The number and design of these breakout rooms may be determined by school and MCPS staff.

Art Room

The art room is to provide space for teaching and creating art, displaying student work and educational aids, and storing supplies and materials. The room should be designed as follows:

- ☐ The art room must not be carpeted.
- ☐ Both art and music rooms must be located near student restrooms.
- ☐ For technology accessibility purposes, the art room is to be considered as a regular classroom with appropriate data, CCTV, modem, and electrical outlets.
- ☐ The design of all work, display, and storage areas should create an environment that is functional and easy to clean.
- ☐ Lighting should be both natural and artificial and conducive to close work.
- ☐ A door to the outside is desirable.
- ☐ Space and electrical outlets for two kilns should be in the farthest corner of the storeroom with proper ventilation.
- ☐ Eight duplex electrical outlets are to be provided (where feasible quadruplex outlets may be utilized).

The window wall should have the following:

- ☐ Windows that permit views of the surrounding landscape.
- ☐ Blinds to permit room darkening.
- ☐ Shelves under windows 15" deep.
- ☐ Tack board or tack strips above windows if space permits.

The teaching wall should have the following:

- ☐ Two 3-foot wide by 7-foot tall, 18" deep, shelf sections for storage of unfinished work.
- ☐ Eight-foot long by 4-foot tall whiteboard between two 8-foot sections of 6-foot tall white/tack board with 2-foot tall tack board above the white board. Tack and white boards should be mounted 2 to 4 inches above low shelving.
- ☐ Fourteen-inch deep, 24 inch high, shelving under the center of the 16-foot long tack board and white board.
- ☐ Wall mounted projection screen with electrical outlet underneath.

The wall near the entrance should have the following:

- ☐ Three sinks should be provided. Faucets should be accessible to students and positioned to prevent splashes onto floor.
    - ☐ One teacher sink (36" high)
    - ☐ One sink located on a peninsula (30"-32" high). Peninsula is to be no longer than 3 feet.
    - ☐ One ADA accessible sink (30"-32").
- ☐ Sinks and sink area should also include:
- ☐ Removable plaster traps
- ☐ Closed cabinets below and above
- ☐ Conveniently located towel and soap dispensers
- ☐ At least 9 feet of counter space (includes 1 ½ feet of counter space on both sides of the sinks) with rounded corners

- ☐ Hot and cold water faucets with bubbler
- ☐ A 5- to 7-foot open space is needed for drying rack(s) along one wall.
- ☐ Approximately 30 smock hooks in 3 feet of staggered tiers, beginning 2 feet from the floor, spaced 4 inches apart, up to 48 inches high. (Optional in rooms where one end of drying rack(s) that measure 44 inches wide and 24 inches deep is accessible, since hooks can be installed on pegboard ends.)

The wall opposite or adjacent to the teaching station should have the following:

- ☐ One 6-foot tall, 12-foot long tack board with 24-inch tall, 14-inch deep shelving units below.
- ☐ Two or three 7-foot tall, 18-inch deep, 36-inch wide shelf sections near kiln area for storage of ceramic work

Kiln Area

- ☐ The kiln area should be located at the far end of the storeroom and should accommodate two kilns.
- ☐ Two kiln exhaust hoods and fans (local switch) must be installed. Positive ventilation (using negative pressure) is needed to assure removal of fumes.
- ☐ Kilns should be 30 inches wide, 30 inches deep and 36 inches tall. Allow an additional 6 inches in depth for opening of the kiln lid.
- ☐ Electrical characteristics for the kiln are 208 volt, 30 amps, single phase, and 7200 watts. Provide 2-50 amp 250-volt outlets NEMA configuration 6-50R. Provide outlet(s) on wall behind kiln(s).
- ☐ Kilns may be located in the far end of the storeroom with built-in hood above and metal shelving 12 inches to 18 inches deep on walls adjacent to the kiln area. See notes above for additional kiln information.

Art Storeroom

- ☐ The storeroom must have a 6-foot wide, 30-inch tall, and 34-inch deep worktable immediately inside the entrance to the storeroom with built-in adjustable shelves below and 14-inch deep wall hung shelving above. This table will accommodate a 30-inch square paper cutter and storage of large art reproductions and papers below, in 3 banks of shelving units 8 inches on center, 20-inches wide (inside width).
- ☐ One or two 6-foot tall 20-inch wide paper storage shelf section(s), 24 inches deep with shelves 8 inches on center to accommodate 18" x 24" paper.
- ☐ Seven foot tall open shelving, 18 inches deep, should be provided along remaining walls where space permits. Twelve to fourteen inch deep sections are acceptable for some sections where 18-inch deep shelves won't fit.
- ☐ Storeroom door is to be lockable, and 2 coat hooks are to be mounted behind the door.

Music Suite

Spatial Needs
Music Room (includes 250 sq. ft. storage)
Instrumental Music Room

- ☐ The music room and instrumental music room should be located adjacent to each other with a shared storage room.
- ☐ These rooms should be located near the multipurpose room to allow easy access to the platform.
- ☐ The rooms must be acoustically treated for isolation and reverberation.

Music Room

- ☐ The music room should have a clear circular area of at least 20 feet in diameter and access to the music storage room.
- ☐ A 150-square foot secure closet area to store instruments, equipment, choral music, and instructional charts is necessary with access from the music room.
- ☐ Variable sized shelving must allow for storage of books, records, and small instruments.
- ☐ The music room needs a child height sink with a work area and drinking fountain.
- ☐ Window blinds and a wall-mounted retractable projection screen are required.
- ☐ Approximately 20 feet of white board and 4 feet of tack board must be provided. Continuous tack strips are needed around the room.
- ☐ Specific storage and shelving specifications are available through Montgomery County Public School's MCPS Facility Guideline Specifications.

- ☐ Eight duplex electrical outlets are to be provided (where feasible, quadruplex outlets may be utilized).
- ☐ This room must be acoustically treated.
- ☐ Doors into the music room and stage platform must be wide enough to accommodate the passage of a piano.

Instrumental Music Room

- ☐ A secure closet area is needed adjacent to the room for large instrument storage.
- ☐ A sink and countertop area should be provided for cleaning and repairing musical instruments.
- ☐ The Instrumental Music Room must be soundproofed.
- ☐ Doors into the instrumental music room must be wide enough to accommodate the passage of a piano.

Dual Purpose Room

- ☐ This room should be designed to accommodate both art and music activities in the school but with less detail than the regular art and music rooms.
- ☐ Some acoustical treatment should be provided in the room.
- ☐ One sink for student use should be provided along with some countertop area.
- ☐ No kiln area is needed and less shelving than described in the art room is to be provided.
- ☐ The exact details of the design should be discussed with the school staff and community.

Support Rooms

Spatial Needs
Large Instructional Support Room
Small Instructional Support Room
Speech/Language Room
Occupational Therapy/Physical Therapy (OT/PT) Room
Testing/Conference Room
Student Support Center
Instructional Data Assistant Office
Support Staff Offices (three)

Large Instructional Support Room

- ☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- ☐ This room must have computer outlets for two or three student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.
- ☐ Approximately 10 to 15 linear feet of magnetic marker board and 10 to 15 linear feet of tack board, both with tack strips and map rails above the boards, should be installed in each classroom. Marker boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.
- ☐ Each classroom must include a minimum of 50 linear feet of built-in adjustable shelving for books.
- ☐ Space for a big book rack should with an incline to display the book open and also for storage beneath for space to lay the books flat should be provided.

- ☐ A small lockable teacher's wardrobe must be provided, as per MCPS Facility Guideline Specifications.
- ☐ 40 mailboxes should be designed for storage of student work such as folders or notebooks.
- ☐ This room should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.
- ☐ This room should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- ☐ This room should be equipped with a retractable projection screen (7' x 7'). The projection screen should not be mounted near any emergency lighting tracks. All areas of the screen should be illuminated and readable when the lights are dimmed.
- ☐ Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- ☐ Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

Small Instructional Support Rooms

- ☐ These rooms are designed for ESOL instruction and other small group instruction.
- ☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- ☐ This room must have computer outlets for two or three student workstations and one teacher workstation. The building information and communications distribution system and other aspects of the building design must comply with the latest edition of MSDE *Maryland Public School Standards for Telecommunications Distribution System*.
- ☐ Approximately 10 to 15 linear feet of magnetic marker board and 10 to 15 linear feet of tack board, both with tack strips and map rails above the boards, should be installed in each classroom. Marker boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the MCPS Facility Guideline Specifications for the main teaching wall layout.

- ☐ This room must include built-in adjustable shelving under the windows.
- ☐ A small lockable teacher's wardrobe must be provided, as per MCPS Facility Guideline Specifications.
- ☐ This room should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.
- ☐ This room should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- ☐ This room should be equipped with a retractable projection screen (7' x 7'). The projection screen should not be mounted near any emergency lighting tracks. All areas of the screen should be illuminated and readable when the lights are dimmed.
- ☐ Electrical and data outlets should be provided in the ceiling for a ceiling mounted LCD projector.
- ☐ Battery operated clocks will be installed. The clock should not be mounted behind the projection screen.

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 to supplement verbal skills training.
- ☐ The speech room requires a sink with counter space.

Occupational Therapy/Physical Therapy (OT/PT) Room

- ☐ Each room must have whiteboard that is mounted two feet off the floor.
- ☐ A tack board, open and closed lockable storage, open shelving, and a lockable teacher wardrobe are required.
- ☐ A sink with counter space is required in the OT/PT room.
- ☐ Room for a teacher's desk, lockable file cabinet, and assorted sized furniture with adjustable legs should be provided.
- ☐ The OT/PT rooms should be wired for access to one computer workstation each.
- ☐ The OT/PT requires a ceiling mounted hook for a swing.

  The OT/PT room requires lockable storage with sufficient area to house large gross motor equipment (minimum of 35 square feet) such as therapy balls, scooter boards, walkers, balance beams, ramps, etc.

Testing/Conference Room

- ☐ School and/or central office staff test individual students or small groups of students. Typical testing includes psychological, diagnostic, vision/hearing, gifted, and makeup testing for required standardized tests. This room also will be used to accommodate post-test conferences with teachers and/or parents.
- ☐ This room needs acoustical treatment as well as video, voice, and data outlets.

Student Support Center

- ☐ This room should be located between a pair of special education classrooms.

Instructional Data Assistant Office

- ☐ This room is required for a data assistant who conducts assessments, updates individual student test scores, and provides remediation of students' skills.
- ☐ This room houses one computer with printer and card reader and must be lockable and secure.
- ☐ This room requires some built-in casework with shelves and doors, a small lockable teacher's wardrobe, whiteboards both with and without coordinate grids, and video, voice, data outlets, and space for file cabinets.

Support Staff Offices

- ☐ Office space is needed for permanent as well as itinerant support staff (curriculum coordinator, team coordinator, social worker, psychologist, auditory and vision specialists, and psychiatrist).
- ☐ A teacher's wardrobe should be provided for itinerant staff use.
- ☐ Video, voice, and data outlets should be provided.

Instructional Media Center

Spatial Needs
Main Resource Area
Materials Preparation/Office Area
Media Storage
Textbook Storage
Control Room/Storage
Head End Equipment Closet
LAN Wire Closet

- ☐ The architect should refer to the MSDE document, *Facilities Guidelines for Library Media Programs, 1998* as a guide for media center design.
- ☐ Staff in the Department of Educational Media and Technology must approve specific design.
- ☐ The media center is to be central to the instructional program of the school.
- ☐ The total media complex is to be enclosed and lockable.
- ☐ The media center is to accommodate multiple arrangements and uses as functions change. It should be acoustically designed for multiple activities. Furniture and shelving should have casters for easy moving, to divide one area from another, and create traffic patterns.
- ☐ A complete media center is to include the following areas that are described in the following sections:
    - Study and Research Area
    - Informal Reading Area
    - Instructional Area
    - Production and Group Project Area
    - Administrative Area

Main Resource Area

- ☐ The main resource area should have 3 separate lighting zones for the storytelling area, the instructional area, and the circulation area. Each zone should be independently operable. Dimming capabilities are recommended in the storytelling and instructional areas.
- ☐ Two CCTV outlets should be located in the main resource room—one near the storytelling area and one in the instructional area. CCTV receptacles and electrical outlets should be located 44" apart.

The Main Resource Area is to be subdivided to provide for the following program activities:

Study and Research Area

- ☐ Space is needed in the Main Resource Area for an information desk.
- ☐ This area should be designed with ten computer workstations for student use. These computers will be used for accessing the catalog as well as research.
- ☐ This area requires study and research tables, reference materials, professional library materials, basic collections, and stacks.

Informal Reading Area

- ☐ Space is needed in the Main Resource Area for books and periodicals to encourage literacy, lifelong learning, and reading for pleasure.
- ☐ This area needs to provide space to seat 30 students on the floor away from the busy areas for a storytelling area.
- ☐ A projection screen should be accessible. Emergency lighting should not affect the projection screen.
- ☐ Zone lighting should be controlled from this area.

- ☐ A CCTV receptacle and appropriate electrical outlet should be located near this area.
- ☐ The architect may want to define this area by architecture and/or accent carpeting.
- ☐ Picture book shelving also may help define this area.

Instructional Area

- ☐ Space is needed in the Main Resource Area for formal seating for small, large group, and whole class instruction.
- ☐ A "teaching wall" with appropriate instructional technology, and display space is needed.
- ☐ This area should not be located near an entrance.
- ☐ It should seat 30 students at tables.
- ☐ A projection screen with appropriate floor mounted outlets should be located in this area.
- ☐ Lights in this area should be separate for dimming without affecting the reference area.

Production and Group Project Area

- ☐ Space is needed in the Main Resource Area for functional work and meetings for individuals, teams, and classes as well as facilities for media production should be designed in the main resource area.
- ☐ This area allows for individual study desks for students to carry on independent study research projects, analyze information, and solve problems.

Administrative Area

- ☐ Space is needed in the Main Resource Area for the circulation desk should be designed near the entrance of the media center. This area needs writing space, book return, computer workstation, file cabinet, and storage.
- ☐ An electronic catalog area (ECC) should be located near the circulation desk and should contain one to two computer workstations.
- ☐ The reference section area should contain two to four computer workstations. These should be located near the electronic card catalog and be positioned so they may be utilized with the ECC for directed instruction to students for on-line retrieval skills. Appropriate data, telephone and electrical outlets as well as casework should be provided for these workstations. Casework should include wire management, area for student books and a pullout keyboard.

Materials Preparation/Office Area

- ☐ The Office and Materials Preparation Rooms may be combined into one room. The Office access should be located immediately behind the circulation desk at the entrance to the Media Center. Plentiful interior windows from these rooms into the Media Center are to be provided for supervision.
- ☐ The materials preparation area provides for the preparation of several types of instructional materials, such as transparencies, slides, and charts.
- ☐ The materials preparation area should have corridor access.
- ☐ This space requires appropriate counter space for repairs, including cabinetry, sink, storage of tools and cords, as well as electrical and computer receptacles for testing equipment.
- ☐ Appropriate casework for storage, computer workstations, data, electrical, and modem receptacles should be provided.
- ☐ See media center specifications available from the MCPS Facility Guideline Specifications.
- ☐ The office area should include space for collaborative planning and processing of library media materials.

- ☐ The office area must be accessible to the materials preparation area and main reading room. It should include appropriate casework for a computer workstation, book shelving, and cabinetry as well as phone, data, and electrical receptacles. Adequate space should be allocated for the media center file server.

Media and Textbook Storage

The storage areas should be located adjacent to the materials preparation work area and should have the following specifications:

- ☐ Space is needed for the storage of instructional materials, such as seasonal materials, maps and globes, and instructional equipment, such as projectors for distribution. Minor repairs, cleaning, and testing of equipment are completed here. Space for manipulatives, especially mathematics and science, is needed.
- ☐ Textbook storage provides for storage of textbooks, workbooks, and classroom materials.

Control Room/Storage Area

- ☐ A support room should be located adjacent to the control room so the room can serve the dual function of a support space and TV studio.
- ☐ The support room used as a TV studio should have adequate electrical outlets and acoustical treatment.
- ☐ See studio specifications for media center communication labs available from the MCPS Facility Guideline Specifications.

Telecommunication Equipment Closet

- ☐ This room is to be located in or near the instructional media center.
- ☐ It should have corridor access and be centrally located in the school.
- ☐ Specifications for this space are available from the MCPS Facility Guideline Specifications.

Shelving Requirements

☐ The architect is to refer to the MCPS Facility Guideline Specifications for the material to be used for the shelving in the media center resource area and storage area.

☐ The shelving should be interchangeable within standard upright wall units in accordance with MCPS specifications (maximum height and island shelving requirements are available from the MCPS Facility Guideline Specifications).

☐ Low shelving is desirable for sight and safety reasons when extra shelving is needed.

☐ Shelving is to be allocated on the average as follows:

	Linear Feet
Books	700
Picture Books (with dividers)	165
Magazines (with space for back issues)	20
New Book/Interest Display	10
Media Center Storage (20-24″ depth)	As space allows
Textbook Storage (12-18″ depth)	As space allows

Computer Laboratory

- ☐ This room should have direct access to the Instructional Media Center.
- ☐ The computer laboratory should be zoned for independent air-conditioning during times when the rest of the building is closed.
- ☐ The minimum dimensions of the room should provide for an uninterrupted area of 25' x 32' so that the computer laboratory may be designed with the following requirements.
- ☐ Each computer laboratory should accommodate 32 student workstations.
- ☐ The layout should be designed with four rows with eight computers in each row facing the teaching wall. Each row should have a center aisle that separates each row, with four computers on either side of the aisle.
- ☐ File server and printers are to be located near teacher's desk or in office.
- ☐ A teacher's wardrobe and storage cabinets should be provided.
- ☐ The teaching wall should be designed to accommodate a Promethean board. The teaching wall layout will be provided by the Division of Construction.
- ☐ Tackboards should be provided in the laboratory.
- ☐ The architect should consult with the OCTO/DOC for the latest technology requirements.

Physical Education

The gymnasium has two major purposes:

- To provide an indoor facility for the physical education instructional program.
- To provide for student and community recreation during after school hours, weekends, summers, and holidays.

Spatial Needs
Gymnasium (74'x50')
Physical Education Office
Storage Rooms
Lobby Area
Outdoor Storage

Gymnasium

☐ The location of the gymnasium should be near the play areas, directly accessible from a corridor, and easily accessible from the parking lots.

☐ Buffering the gymnasium with a corridor or related spaces is required to separate gymnasium noise from the rest of the school.

☐ The physical education office should be adjacent to the gymnasium and lobby.

☐ The architect should refer to detailed requirements provided by MCPS Facility Guideline Specifications.

☐ Any windows into the gymnasium should be oriented north and south so that direct east-west sunlight does not impact play in the gymnasium. However, windows should not be placed in the end walls.

☐ The gymnasium should be ADA accessible from within and without (access from inside gym to playfields).

☐ A ceiling clearance of 18-20 feet free of girders, pipes, heating vents, lights and curtain supports is required.

- ☐ No ledges or sills should be created over 6' in height that would make it difficult to retrieve a ball.
- ☐ Glazed tile on the walls must cover at least seven feet from the floors.
- ☐ If the gymnasium is a community sized gymnasium (84'x 75') then a vinyl-mesh curtain to divide the floor area into two equal size spaces should be provided. It must be the type that can be electrically rolled to the ceiling for storage. If the gymnasium has a divider curtain, a clock with a protective wire covering should be provided on both ends of the room.
- ☐ Adequate lighting in the gymnasium is required. The lighting should be securely mounted and guarded to prevent damage by balls with keylock switches to control the lighting.
- ☐ A minimum number of windows to prevent glare and glass breakage is requested.
- ☐ Acoustical treatment of walls and ceiling is required and must be able to withstand damage by balls.
- ☐ Ventilation equipment must not inhibit use of the space for auditorium purposes.
- ☐ A wood floor should be installed in the gymnasium. Striping for basketball, volleyball, and floor games should be provided. (i.e. hopscotch and four square)
- ☐ Graphics or approved words should be painted on the gymnasium walls. The school may choose from an approved curriculum list of words to paint on the gymnasium walls. The list of words will be provided by MCPS staff.
- ☐ A whiteboard, 4'x6', with no ledge is required.
- ☐ Separate heating source or controls to permit use when the remaining part of the building is not occupied is required.
- ☐ Recessed door handles are required.
- ☐ Doorway center posts must be removable to allow for the passage of equipment.
- ☐ A recessed fire alarm box or covered fire alarm box, preferably in a corner of the room needs to be provided.

- ☐ Two call buttons located at opposite sides of the gymnasium are required to contact the main office.
- ☐ A clock with a protective wire covering should be provided on a sidewall of the gymnasium. The fire extinguisher, if mounted in the gymnasium, should be recessed into the wall.
- ☐ Wall safety padding must be mounted under each basketball backstop with 16 feet under end basketball backstops and 12 feet under side basketball backstops with nylon nets.
- ☐ Doors or openings should not be directly behind basketball backstops.
- ☐ Fan-shaped basketball backstop, adjustable from 8 feet to 10 feet, must be mounted four feet from the sidewalls to provide two equal sized side courts. The backstops must be of aluminum composition. Collapsible rims must be provided.
- ☐ A basketball backstop, adjustable from 8 feet to 10 feet, must be mounted on each end wall for full court play. The fan-shaped backstops must be of aluminum composition. Collapsible rims must be provided.
- ☐ A hand crank must be provided for the adjustable basketball backstops if they are not operated electrically.
- ☐ Four climbing ropes (1 knotted, 3 plain) with hoist located 6 feet from the ground and safety cables located away from ceiling lights and basketball backstops should be provided.
- ☐ One 8-foot semi-guyed (wall mounted) horizontal bar with safety chain and floor plates should be provided. The MCPS shade shop will provide safety padding.
- ☐ One pair of volleyball aluminum uprights and one center volleyball aluminum upright (insertion type) must be provided. Heavy-duty net ratchet and removable crank handle should be included.
- ☐ Five solid brass floor plates and floor sleeves need to be installed. Two volleyball nets, 32" in length with end sleeves for wooden dowels should be provided.
- ☐ Two portable game standards are required.

- ☐ A wall-mounted, chin up bar should be provided. The lowest bar height should be approximately 5 feet from the floor.
- ☐ Computer data/CCTV/electrical/network receptacles on opposite walls of the gymnasium are required.

Physical Education Office

The following items are required in the physical education office:

- ☐ Non-breakable window to the gymnasium, low enough to view students, is required.
- ☐ Non-breakable window to the lobby for supervision, low enough to view students, is required.
- ☐ Toilet and shower facilities are required.
- ☐ Computer/Telephone/Cable TV outlets connected to the school-wide network are required.
- ☐ Venetian blinds for windows are required.
- ☐ VCT flooring is required.
- ☐ A call button the main office is required.
- ☐ Three full size clothing locker should be provided.
- ☐ Electrical outlets.
- ☐ A tack board should be provided.
- ☐ A wall-mounted clock should be provided.
- ☐ A small closet with shelves should be designed in this office.

Storage Rooms

- ☐ All of the storage rooms require 8-foot doors and 12-foot ceiling heights with a flush threshold.
- ☐ The large storage room requires 8-foot double doors with no center post and must be able to accommodate a set of parallel bars.
- ☐ The large storage room must contain shelves, 6 feet high and 18 inches deep, mounted on at least two walls. The shelves must be adjustable after installation.
- ☐ Both of the small storage closets must contain shelves, 6 feet high 18 inches deep, mounted on the two side and back walls. The shelves must be adjustable after installation.
- ☐ Two volleyball wall racks should be installed in the small storage closet designated for community use. Each rack will hold two uprights.
- ☐ The large storage closet must have a length that will accommodate a 12' long balance beam.

Lobby Area

- ☐ Separate toilet rooms for boys and girls should be located in the lobby.
- ☐ An electric water cooler and public telephone should be located in the lobby area.
- ☐ Six feet of tack board should be installed in the lobby area.
- ☐ The window between the lobby and physical education office must be low enough to view people in the lobby.
- ☐ A control gate to separate the gymnasium, lobby area, and restrooms from the rest of the school during after-hours is required

Multipurpose Room and Platform

Spatial Needs
Multipurpose Room
Platform
Chair Storage
Table Storage
Before/After Care Kitchenette and Storage

Multipurpose Room

- ☐ The multipurpose room should have a ceiling height of 12–14 feet.
- ☐ A building service utility closet should be provided near the entrance to the multipurpose room for convenient lunch cleanups.
- ☐ Table storage and chair storage must be located adjacent to the multipurpose room.
- ☐ Exits from the multipurpose room must be sufficient to allow maximum seating.
- ☐ Toilet rooms and an electric water cooler should be near the multipurpose room to allow for public use.
- ☐ Audiences need to be able to hear and see presentations from all locations in the room.
- ☐ Ventilation equipment noise must not inhibit use of the space for auditorium purposes.
- ☐ Acoustical treatment is needed.
- ☐ Proper lighting and sound amplification are required.
- ☐ Each side of the risers at the multipurpose room floor level should be equipped with CCTV/data/voice/modem/electrical receptacles.
- ☐ Lighting, windows, fire alarm box, clock, and ceiling must be protected to prevent damage by balls.

- ☐ Outdoor play areas should be accessible from the multipurpose room. Children should not have to cross driveways or parking lots to access the play areas.
- ☐ An audio loop system should be provided for hearing impaired students; guidelines are available through the Division of Construction.
- ☐ An independent sound system should be provided in the multipurpose room.
- ☐ A call button to the main office should be provided.

Platform

- ☐ The platform should have a proscenium opening 24 feet wide. The depth is to be 15 feet deep. The platform floor is to be three risers above the multipurpose room floor. A full set of platform curtains is to be provided. An 8'x10' motorized projection screen is to be provided. Platform steps must NOT be carpeted.
- ☐ The platform must be accessible to the physically handicapped.
- ☐ Each side of the platform should be equipped with CCTV/data/voice/modem/electrical receptacles.

Chair and Table Storage

- ☐ Storage rooms are required for the storing the tables in the multipurpose room and folding chairs.

Before/After Care Kitchenette and Storage

- ☐ The Before/After Care Kitchenette and Storage spaces may be combined.
- ☐ These spaces must be lockable.
- ☐ The space is designed for the preparation of snacks and storage of materials and should have appropriate counter space, cabinets, and shelving.

Food Services

- ☐ The kitchen is operated as a "finishing kitchen" and should include an area for dry storage, a manager's workstation, toilet facilities, preparation and serving area, and a receiving area for daily deliveries.
- ☐ A sheltered dock is preferred and should be separate from other school receiving.
- ☐ Delivery flow path must be clear of preparation area.
- ☐ The trash room should be separate from the rest of the building i.e. no common walls.
- ☐ The trash room should not be accessed from the kitchen.
- ☐ Air conditioning must be available at all times in elementary kitchens, storage, and office.
- ☐ Code requirements for lighting, surfaces, and equipment must be met. These requirements are included in the MCPS Facility Guideline Specifications.
- ☐ Windows must have screens.
- ☐ Receiving door should be 48" wide and must be self-closing with peephole and doorbell to manager's office.
- ☐ An easy to mop, slip resistant quarry tile floor is required. Color of grout should be the same or darker than the color of the floor.
- ☐ There should be direct access to both the hallway and the multipurpose room to facilitate one-way circulation through the serving line.
- ☐ A minimum 9' ceiling height is recommended.
- ☐ A building service closet with floor type mop basin shall be located outside the kitchen but readily accessible to the kitchen.
- ☐ A dedicated circuit is required for the cash register with under the floor conduit for connection to the computer in the manager's office.

Serving Area

- ☐ A 26 ft. long serving line with 3-ft. clearance at each end should be provided.
- ☐ The color selection will be approved by Food Services.
- ☐ A single door refrigerator and microwave oven on a cart adjacent to the service area is needed.
- ☐ A wall clock and tack board should be located on a wall so it is visible from the serving line wall.

Walk-in Cooler/Freezer

- ☐ A 7' 9" x 8' 8 1/2" cooler is required.
- ☐ A 7' 9" x 10' 8 1/2" freezer with a height of 8' 6" is required.
- ☐ A mobile polymer shelving and dunnage is required.
- ☐ A roof top compressor is required.

Dry Storage

- ☐ The recommended dimension for the dry storage area is 12' x 16'.
- ☐ A mobile polymer shelving and dunnage is required.
- ☐ Adequate ceiling height for top shelf storage should be considered.
- ☐ This space should be totally secure and free of roof access ladders or electrical panels.
- ☐ Locking cabinets for chemical storage should be provided.

Manager's Office

- ☐ Visibility to delivery and serving area is required.
- ☐ The office should be located away or protected from outside door draft.
- ☐ Desk (NIC), file (NIC), telephone, tack board, and LAN access are required.

Toilet Room

- ☐ A hand sink with soap and towel dispenser, sanitary napkin disposal, and 3 full-height lockers are required.

Preparation Area

- ☐ A roll-in double convection oven is required.
- ☐ An oven cart and dolly (2 each) are required.
- ☐ A half size range is required.
- ☐ A heat removal exhaust hood is required.
- ☐ Work tables, one 6 ft. and the other 8 ft. with 2 drawers each, under the table are needed.
- ☐ Arlington wire baskets (500 each) and dollies (10 each) are required.
- ☐ Hand sink with pedals and soap and towel dispensers that meet the code requirements are needed.
- ☐ A three compartment sink, 24" x 24" x 14", with 24 inch drainboards, is required. Disposal in drainboard with pre-rinse spray is required.
- ☐ A 6-foot louvered shelf above with hooks is required.
- ☐ A mobile warmer to accommodate Arlington baskets is needed.
- ☐ Two utility carts are required.

Administration Suite

Spatial Needs
General Office
Workroom
Code Red/Code Blue Command Center
Principal's Office
Assistant Principal's Office
Conference Room
Counselor's Office
Telephone Room
Storage Room
Records Room

- ☐ The administration suite must be located with good access from the main entrance of the school and visual oversight of the main entrance and bus drop-off area.
- ☐ The suite must be a natural first stop for visitors to the school and must, therefore, have direct corridor access. A security vestibule must be designed so that all visitors must enter the general office to check in before entering the school.
- ☐ Spaces need to be arranged for student and visitor flow and for efficient use by office staff.
- ☐ The general office is to be treated as the center of the administration suite with direct access to the principal's office, the workroom, and the health suite.
- ☐ A coat closet is to be provided for office staff and visitors.
- ☐ The Administration suite should be carpeted.

- ☐ Sufficient electrical outlets are to be provided (where feasible, quadruplex outlets may be utilized) as well as CCTV receptacle for the general office, principal's, and assistant principal's offices.
- ☐ A glass display case should be located in the vestibule of the Administration suite entrance.
- ☐ The administration suite should be designed with separate toilet rooms. If the school chooses, one of these toilet rooms may be located in the principal's office.

General Office

- ☐ A counter should be provided near the entrance to greet and separate visitors from staff and to provide a place to write.
- ☐ Space for two to three staff persons is required behind the counter.
- ☐ The general office should be equipped with a staff bulletin board.

Workroom

- ☐ The location of mailboxes should not create congestion by impeding the smooth flow of traffic in the general office and hallways.
- ☐ 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.
- ☐ A sink is needed in the workroom.
- ☐ There should be direct access to a corridor from the workroom.
- ☐ The workroom should be treated acoustically to keep machine and work noises at low levels.

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.

Principal's Office

- ☐ This office should be carpeted.
- ☐ This office should be equipped with a tack board and two-shelf adjustable bookcases under the windows. Each shelf must be able to hold a 12 inch notebook upright.
- ☐ The office should be directly accessible to the conference room through a connecting door.
- ☐ This office should have good visible access of the main entrance and to the bus drop-off area.

Assistant Principal's Office

- ☐ This office should be carpeted.
- ☐ This office should be equipped with a tack board and two-shelf adjustable bookcases under the windows. Each shelf must be able to hold a 12 inch notebook upright
- ☐ This office should have good visible access to the main entrance and bus drop-off.

Conference Room

- ☐ The conference room should be carpeted.
- ☐ The conference room is to have a whiteboard, a tack board, and one bookcase.
- ☐ The conference room should be equipped with a telephone jack.
- ☐ Casework should be provided on one wall with two, two-drawer file cabinets for confidential records, letters forms, etc.

Counselor's Office

- ☐ This office should be carpeted.
- ☐ The counselor's office should be easily accessible from the classrooms and near, but not a part of, the administration suite and should have a window.
- ☐ This office needs a whiteboard, tackboard, telephone, and bookshelves.

Telephone Booth

- ☐ A small room where a teacher can talk privately on the telephone is required. (The room needs a door with a window, or a "phone in use" light.)
- ☐ This room should have a small built in countertop and room for one chair.
- ☐ This room should be carpeted.

Storage and Records Rooms

- ☐ Two lockable rooms are needed for storage of office supplies and student records.
- ☐ The records room needs space for lockable file cabinets.

2nd Floor Workroom

- ☐ This room requires appropriate electrical wiring and ventilation to house a copier for staff use.
- ☐ This room requires a work counter and cabinets under and over the counter for storing supplies.

Staff Development Area

Spatial Needs
Staff Development Office
Reading Specialist Office
Training/Conference Room

These spaces should ideally be designed as a suite so that the staff developer and reading specialist have convenient access to the training room.

Staff Development Office

- ☐ The staff development area should be located near the classrooms.
- ☐ The office should include one workstation.
- ☐ This office needs a whiteboard, tack board, closet, and video, voice, and data outlets.

Reading Specialist Office

- ☐ The staff development area should be located near the classrooms.
- ☐ The office should include one workstation.
- ☐ This office needs a whiteboard, tack board, closet, and video, voice, and data outlets.

Training/Conference Room

- ☐ This room will be used for staff training needs.
- ☐ This room should include ample shelving for training materials.
- ☐ A whiteboard and tack board should be installed and the wiring for an overhead LCD projector should be provided.

Health Services Suite

Spatial Needs
Waiting Area
Treatment/Medication Area
Office/Health Assessment Room
Health Assessment/Isolation Room
Rest Area
Toilet Room
Storage Room

- ☐ The Health Services Suite should be in complete compliance with COMAR 13A.05.05.10A.
- ☐ The health suite must meet accessibility requirements of the ADA, and at a minimum, include spaces for waiting, examination and treatment, storage, resting, a separate room for private consultation and for use as the school health services professional's office, a toilet room, and lockable cabinets for storing health records and medications.
- ☐ A designated school health services professional must be involved in the planning of the health services suite.
- ☐ The architect should refer to MSDE document, *School Health Services,* June 2002 for specific utility information.
- ☐ The suite should be designed to provide easy visual supervision of all the spaces by the health services professional. The suite should be laid out so that an additional workstation for a health professional can be positioned near the treatment and waiting areas.
- ☐ In addition to access to the general office, the health services suite also must have a window into the general office so that office staff may monitor the room when heath staff is unavailable.
- ☐ The health room also must have a door to the corridor.
- ☐ Ventilation is important throughout the health suite. .

- ☐ The countertops should be seamless to aid in maintaining sanitary conditions.
- ☐ The floor finish should be an easily cleaned non-absorbent material. Carpet should not be used in any areas of the health suite.
- ☐ A non-porous ceiling material should be used. Vinyl-coated ceiling tile or painted drywall is an acceptable choice.
- ☐ If any of the areas are enclosed then glazed walls areas should be provided.
- ☐ The health suite requires wall and base cabinets, lockable file cabinets, for storing health records. A portion of these cabinets must be lockable to store medications, medical supplies, and equipment.

Waiting Area

- ☐ The waiting area should have space for four to eight chairs.
- ☐ A small tack board should be provided in the waiting area to display health care and other information of importance to students and staff.

Treatment/Medication Area

- ☐ This area should be adjacent to the waiting area to facilitate the efficient flow of students.
- ☐ This area should have a kitchen type sink with cabinets above and below (including a locked medicine cabinet), a 34-inch high countertop, and a small residential style refrigerator/freezer to store medical supplies and foods.
- ☐ A minimum of 12 linear feet of wall and base cabinets should be provided.
- ☐ The freezer should have an icemaker.
- ☐ The treatment area also requires a computer.

Office/Health Assessment Room

- ☐ The room requires one computer, fax machine, and electronic connection and physical proximity to a copy machine.
- ☐ The spaces used for consultation and examinations must be enclosed with sufficient acoustical isolation to ensure complete privacy and confidentiality.
- ☐ A small sink, with cup, towel, and soap dispensers should be provided.

Health Assessment/Isolation Room

- ☐ The spaces used for consultation and examinations must be enclosed with sufficient acoustical isolation to ensure complete privacy and confidentiality.
- ☐ A small sink, with cup, towel, and soap dispensers should be provided.

Rest Area

- ☐ This area should not be a fully contained room but rather an area that can provide privacy for each cot with a draw curtain on a ceiling track.
- ☐ The rest area needs space for two to four cots, and one bedside cabinet.
- ☐ There should be a separate privacy room within the rest area, with a door and space for a cot and a single pedestal desk and chair.
- ☐ In the rest area and privacy room, supplementary power ventilation capable of 20 changes per hour should be provided, with control by means of a separate switch within the health suite.

Toilet Room

- ☐ One ADA toilet should be provided.
- ☐ The toilet room should be accessed without having to go through another functional space in the health suite such as a rest area.
- ☐ Ideally, students should be able to enter the health suite solely to use the toilet room without disrupting other activities.

Storage Room

- ☐ The storage area is to have space sufficient for a four drawer locked file cabinet, a wardrobe for coats, and space for storing large items such as wheelchairs.

Staff Lounge

- ☐ The staff lounge is a place for staff members to relax, study, plan, and think together.
- ☐ Two toilet rooms are required just outside of the staff lounge. The toilet rooms may be labeled "adult" rather than "male" and "female" in an elementary school.
- ☐ The staff lounge should contain a compact built-in kitchen with six linear feet of counter space for a microwave and sink and a space for a refrigerator (NIC).
- ☐ A clock should be provided.
- ☐ A small, enclosed room with countertop and space for one chair is needed for a telephone.
- ☐ Ventilation must be provided. An operable window in the staff room is preferred.
- ☐ An area should be designated for a computer with jacks for computer & telephone (modem).

Building Service Facilities

Spatial needs
Building Service Office
Locker/Shower area
Compactor/Trash Room
Recycling Room
General Storage & Receiving Area
General Storage/Book Storage
Building Service Outdoor Storage
Building Service Closets

Building Service Office

☐ The entire building services area should be located adjacent to the general receiving area.

☐ The office should be designed as a general office that can accommodate two staff members with two desks and appropriate wiring for computers, phones, etc.

Locker/Shower Area

☐ A locker area must be located near the receiving area.

☐ Six full-size lockers should be provided in the locker area.

☐ The locker area should be designed with an enclosed toilet room and shower room for building service staff use.

Compactor/Can Wash/Trash Room

- ☐ This room needs to be completely separate from the kitchen spaces with no common walls.
- ☐ Trash trucks must have access to this room.
- ☐ The room should be heated and have adequate interior lighting, floor drainage, and easily cleanable surfaces.
- ☐ Hot and cold water should be available for flushing and cleaning.
- ☐ The room should be designed to be pest free and well ventilated.
- ☐ Floors should be sloped so that wash down stays within the room and goes down the drain.
- ☐ The compactors need to be installed with enough clearance away from the wall to permit staff to access the equipment from all sides.
- ☐ A roll-up door for trash transfer to trucks, steam cleaning equipment, and trash collection containers are needed.
- ☐ The room should be designed with a ramp to allow trashcans to be rolled to the dock.
- ☐ Space for a recycling dumpster for cardboard is needed at the loading dock.

General Storage and Receiving Area

- ☐ The receiving area should be enclosed, floor to ceiling, with a chain link fence.
- ☐ Flexible shelving is required but should not occupy more than one third of the area.
- ☐ This area must be secured.
- ☐ Good lighting and easy access to materials being stored are required.
- ☐ Electrical outlets, upgraded lighting and ventilation must be provided in this area.

General Storage Closets/Book 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.
- ☐ Two closets may be combined into a larger storage space if desired by the school.
- ☐ It is desirable to locate storage throughout the building on all floors.

Building Service Outdoor Storage Room

- ☐ Outdoor storage is to be near the service area and is to be suitable for heavy mowing, snow removal, and other outdoor equipment.
- ☐ The dimensions of the outdoor storage area must be able to accommodate two tractors side by side. (one tractor is approximately 9’ long by 7.5’ wide and a second smaller tractor) and other equipment.
- ☐ A rolling garage style door and a regular door must be provided.
- ☐ A ramped and paved driveway is required for the tractor so that it can access the sidewalk and driveways of the school during snow removal.
- ☐ Electrical service and lighting inside must be provided. Access to the light switches must be available at both entrances.
- ☐ Proper ventilation for storage of gasoline is required.

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 and a mop/broom holder is required.
- ☐ The closet requires a floor mop sink with hot and cold running water and a floor drain.
- ☐ Where feasible, closet doors should swing outward in order to maximize the storage area and provide easier access to items within the closets.

PTA Storage

- ☐ This room should be located in a part of the building that is accessible after hours.
- ☐ This room may be designed exclusively for storage or as a workroom, or a combination storage/workroom.

Site Requirements

- ☐ 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 Facility Guideline Specifications 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, a minimum of 80 parking spaces should be designed initially for a school with regular staffing allocations, with future expansion possible. At schools with class-size reduction, 100 parking spaces 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.

Physical Education Site Requirements

The items described below are for a school that meets the preferred site size of 12 usable acres. At schools with smaller sites, the architect is to work with MCPS staff, including the Physical Education Curriculum Coordinator, Safety Director, and school staff to determine layout of the play areas. The outdoor physical educational instructional space should not be compromised for playground equipment.

Softball Fields

- ☐ Two softball fields should be provided with the following design requirements:
- ☐ 250' radius, with a soccer field superimposed should be provided if possible. See below for the soccer field dimensions.
- ☐ The site size will determine the number and dimension of the softball fields.
- ☐ Softball fields should have metal benches protected by fencing for each team's use.
- ☐ The fencing and benches should not interfere with soccer field usage.
- ☐ The softball backstops (2) shall be in diagonal corners of the field or in corners on the same side. See the diagram in the MCPS Facilities Guideline Specifications.
- ☐ Softball infields are not skinned for elementary schools. However, one field may be skinned if it does not significantly impact the soccer playing area.

Soccer

- ☐ The site size will determine the size of the soccer fields. The elementary school size soccer field is 150'x240' however the minimum size field should be 105' x 180'.
- ☐ No permanent goals or temporary goals should be installed on the soccer fields.

Paved Play Areas

- ☐ Two paved areas, 80' x 100' should be provided if the site permits.
- ☐ If located adjacent to one another, a grassy strip of at least 20' should be between the two paved areas.
- ☐ One area should have four basketball goals with appropriate striping (see diagram in the MCPS Facility Guideline Specification).
- ☐ A second area, designated for primary use, shall be striped according to drawings provided in the MCPS Facility Guideline Specification. On small sites, this pave area should be fenced for use by Grade Kindergarten students.

Kindergarten Paved Play Area

- ☐ A third paved area, at least 40'x 60' but preferably 80' x 100', is desired, is needed for the Kindergarten students.
- ☐ This area needs to be located adjacent to the Kindergarten playground (mulched) area and close to the other paved play areas.
- ☐ This area requires a fence around it or adequate separation from the other paved play areas.
- ☐ The area will be striped according to drawings provided in the Facility Guideline Specification.

Playground Equipment Areas (mulched areas)

- ☐ One or two areas shall be provided near the playing fields and large paved play area for playground equipment. Each area should be approximately 40'x40'. The size and shape of the play area will be developed during the design process in consultation with MCPS staff.
- ☐ The area shall be level, bare ground, unseeded, and no sod. MCPS will provide equipment dimensions for these areas.
- ☐ An underground drainage system must be provided.
- ☐ The loose-fill surfacing material (engineered wood fiber) must meet ADA requirements. A border must be provided to contain the filler. The surfacing materials must meet or exceed safety specifications for shock absorbing qualities as outlined by US CPSC.

Kindergarten Play Area (mulched area)

- ☐ A mulched kindergarten play area of 40' x 60' should be located adjacent to the kindergarten paved play area described in the physical education section for playground equipment. The size and shape of the play area will be developed during the design process in consultation with MCPS staff.
- ☐ The area shall be level bare ground, unseeded, and no sod. MCPS will provide equipment dimensions for this area.
- ☐ Protective fencing should enclose the area.
- ☐ An underground drainage system must be provided.
- ☐ The loose-fill surfacing material (engineered wood fiber) must meet ADA requirements. A border must be provided to contain the filler. The surfacing materials must meet or exceed safety specifications for shock absorbing qualities as outlined by US CPSC.

Prekindergarten Play Areas

- ☐ If the school has a prekindergarten, Head Start, or Preschool Education Program, then a separate and fenced outdoor play is required.
- ☐ This area must be adjacent to the classrooms with access directly from the classrooms.
- ☐ If the school does not have a prekindergarten program than the outdoor play area should be master planned so that it can be added on at a later time.
- ☐ The prekindergarten play area should include a 40'x40' paved play area and a 40'x40' mulched area. The architect will consult with the MCPS staff on the design of the playground equipment.

Additional Program Requirements for Potomac Elementary School

☐ This school has a Chinese Immersion Program. There are no special program requirements for this program. Due to the Immersion program, many students are car riders.

☐ This school has a partnership with the Kennedy Center and is an Arts Integrated Model School. Spaces in the building to showcase the arts are desirable.

☐ The Counselor's office should be connected to an itinerant staff office to form a Counseling area where the school psychologist, pupil personnel worker and other itinerant staff can work closely with the Counselor.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

General Site Information

Potomac Elementary School is situated on a 9.61-acre property located at 10311 River Road in Potomac, Maryland within Election District 10. The property is found on ADC Map grid 5283-F7, 5283-G7. The site is zoned as RE-2 and is bounded to the northwest and northeast by single-family homes, to the southeast by single family homes and Potomac Presbyterian Church, and to the southwest by River Road.

Per the current Montgomery County Zoning Ordinance the dimensional parameters for the property include the following:

Front setback – 50'

Side setback –18'

Rear setback – 35'

Maximum Building Height – 50'

Maximum Lot Coverage – 25% (Maximum of net site area covered by buildings, including accessory buildings)

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Site Analysis:

Adjoining Streets, Pedestrian Access, and Vehicular Access:

There are three proposed vehicular connection points to from the site to the right-of-way. The northwest connection point provides a dedicated enter and exit for the bus drop off to River Road. The southeast connection point provides access to the main parking lot, student drop-off, and loading area to River Road. The separation of the bus and student drop-off loops will improve site circulation and safety by decreasing congestion. The last vehicular connection point is from the Potomac Presbyterian Church parking lot. During the design phase, pedestrian access will need to be evaluated and considered in the final design. This will ensure safe and ADA complete access from the right-of-way to the building's main entrance, while providing the most direct route with as few crosswalks as possible. ADA accessibility design will be in accordance with MCPS policy and the latest state and federal ADA accessibility guidelines.

The Montgomery County Master Plan of Bikeways calls out River Road as a future signed shared roadway. Montgomery County Park and Planning defines a signed shared roadway as "A roadway opened to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes, or road with paved shoulders. Types include wide outside curb lanes, bikeable shoulders, and low volume / low speed streets".

Existing Entrance

Church Entrance

A 66-inch water main separates Potomac Elementary School and River Road. The depth and required coverage for the existing water main may influence the design of the proposed entrance. Further investigation by test pit is required to determine the exact depth of the water main.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Sidewalks:

Sidewalks will be designed to meet current ADA requirements both from the right-of-ways to the building and around the site. The site currently does not provide ADA access from the right-of-way to the existing building. This will need to be addressed during the design phase. The right-of-way improvements will require the relocation of the asphalt sidewalk along River Road. The existing sidewalk appears to exceed maximum allowable cross slopes per ADA requirements. The cross slope of the existing crosswalk at the northwest entrance appear to excess the maximum slope per current ADA requirements. Field and play area access will need to conform to current ADA accessibility regulations.

Existing Entrance

Fire Access:

The proposed site layouts appear to meet current fire access requirements. During the design phase, the need for an additional on-site hydrant may be required to meet current fire access regulations. All fire exits from the building should provide accessible egress to the public way. A meeting with County Fire and Rescue personnel is needed early in the design process in order to determine what improvements need to occur for any proposed improvements.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Site Topography:

The site appears to be relatively flat and drains from the high points on the site at the north at an elevation of 352', east at an elevation of 360', south at an elevation of 344', and west at an elevation of 356' corners to the low point at an elevation of 336' along the southeast properly line at an approximate slope of three percent. There appears to be off-site drainage area that enters the site from the adjacent residences.

The sites topography may require the construction of a retaining wall adjacent to the northwest property line to accommodate the bus loop.

Vegetation:

There are several mature trees spread out around the site and along the property lines. A Natural Resources Inventory / Forest Stand Delineation was completed for the River Road site and indicates tree sizes, species, and health. M-NCPPC may request an update prior to the design phase.

Water and Sewer:

The existing site appears to be served by the eight (8) inch water main that runs along the River Road right-of-way. A six (6) inch service connection enters the site from River Road which serves the building. During the design phase an additional hydrant may be required. An upgrade of the existing six (6) inch to an eight (8) inch service connection may be required. A fire flow test was conducted and determined that the flow and pressure was sufficient to support the existing building and any improvements. It is assumed that a new outside meter for the school will be required.

The sanitary sewer service exits the site at the River Road right-of-way, where it connects to the eight (8) inch main.

Gas, Electric and Telephone, Etc.

All additional utility service connections run from the River Road right-of-way to the building. A gas line enters the site from the southwest side of the existing site. Electric and telephone lines are routed underground from a separate pole and connected to the building from the River Road right-of -way.

The existing conditions and capacities of the dry utilities, such as gas, electric, telephone, etc… are unknown.

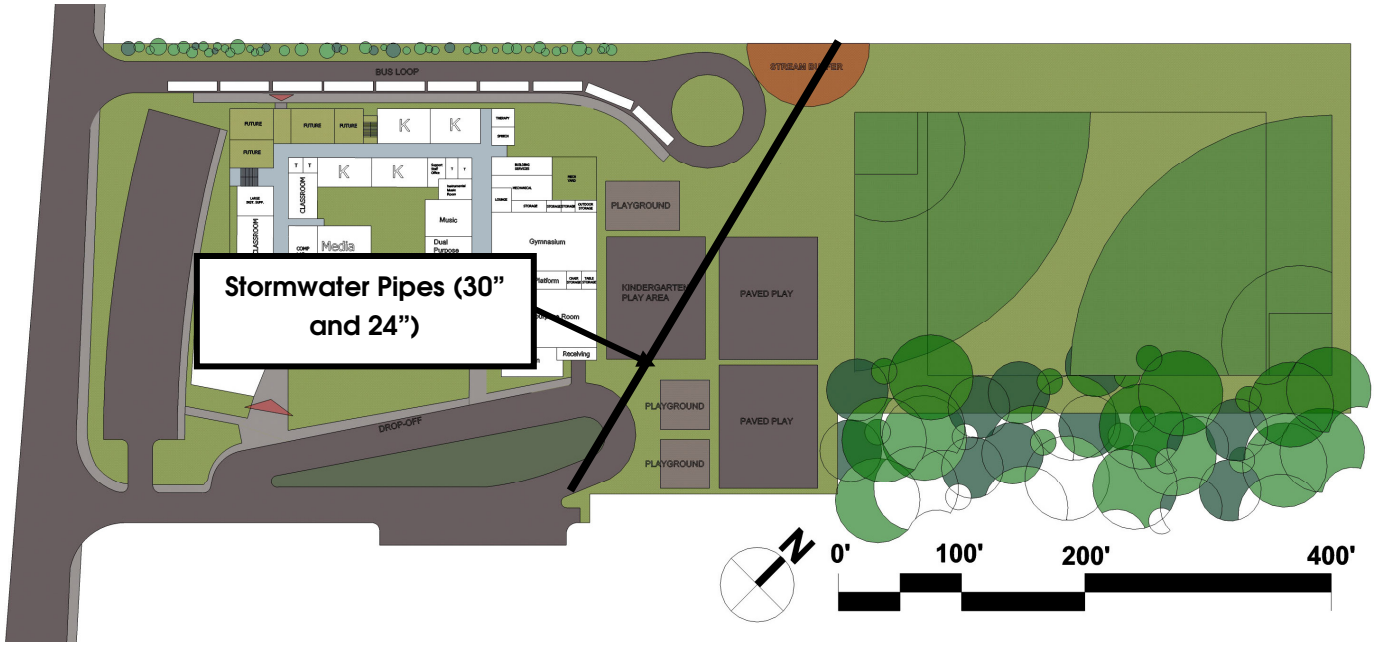
APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Storm Drainage and Stormwater Management:

The site has no existing stormwater management facilities located on the site. It can be anticipated that any site improvements will meet the latest regulations to the maximum extent practicable defined in the Maryland Department of Environment (MDE) Stormwater Design Manual, that includes the Environmental Site Design (ESD) in order to treat all areas inside the limits of disturbance. If ESD efforts are exhausted and the site has still not been able to reach a hydrologic state of "woods in good condition," then structural practices may be permitted as determined by Montgomery County.

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 where available open space can be found, such as parking lot islands and around the athletic fields.

30-inch and 24-inch stormwater drains bisect the site from the northwest property line to the southeast property line. The image below indicates the approximate location of these stormwater pipes. The proposed building foot print should avoid these pipes.



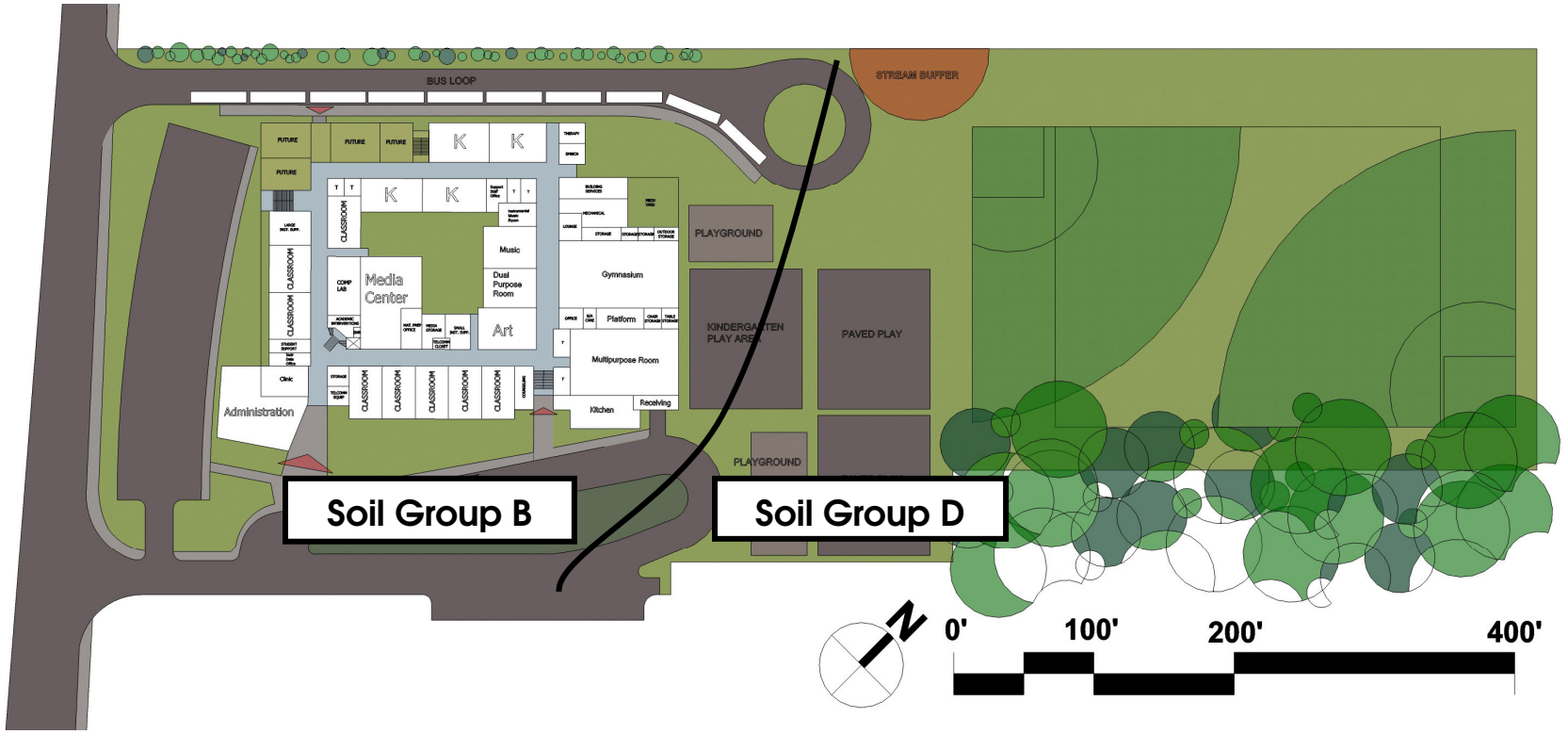
Location of Stormwater Drains

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Site Soils:

Per the Soil Survey of Montgomery County, Maryland the predominant soils on the site are in the Glenelg slit Loam and Baile slit Loam. According to the USDA, this site is split by a vain of poor soil conditions from the northwest to the southeast. The vein of poor soil has characteristics of soil group `D' and a seasonal water table of approximately one and half (1.5) feet. The other 75% of the site consist of soils in soil group `B' and a seasonal water table and depth to bedrock that usually is greater than six and half (6.5) feet.

In terms of hydrology, approximately 75% of the site's soil is within the hydrologic soil group `B' and is characteristically known to provide good drainage and allow adequate infiltration. The other 25% of the site's soil is within the hydrologic soil group 'D' which does not provide adequate infiltration. While limitations on stormwater management facilities could be encountered, ESD facilities can be provided for any soil group.



Soil Group Map

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Mechanical

General

Potomac Elementary School was originally constructed in 1949, with subsequent building additions and renovations performed in 1954, 1960, 1964, and 1975. It appears that a portion of the existing mechanical equipment within the facility dates back to the 1975 renovation, with upgrades provided to select mechanical infrastructure components throughout the building. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

Heating System

Three copper-fin gas-fired boilers produce heating water for the building. Based on the equipment manufacturer's nameplate data, these boilers were installed in 1993 and appear to be in fair working condition. All boiler systems are manufactured by Lochinvar, with different output capacities provided for each boiler. Two of the three boilers (Model PBN0500) have a gross output rating of 440 MBH per boiler, while the third boiler (Model PBN0750) has a slightly higher gross output rating of 660 MBH. While the combined capacity of the existing boilers appears adequate for satisfying the existing school, there does not appear to be surplus capacity available to support any planned additions or expansions to the facility. A wall-mounted Andover control panel is provided for boiler operation and temperature control. Dedicated flues extend from each boiler and connect to a common masonry breeching, located near the perimeter wall of the boiler room. Each boiler's gas burner is manufactured by Lochinvar and rated for an inlet gas pressure of 7-inches WC. The gas train for each boiler is provided with only one gas shutoff valve. To comply with CSD-1 requirements used by the State of Maryland boiler inspectors, present day assemblies are required to have two shut-off valves. The combustion air opening is positioned high on the exterior boiler room wall and does not comply with current mechanical code combustion air requirements.

Heating water is supplied to the building's four-pipe distribution system through a single base-mounted end-suction pump. Manufactured by Bell & Gossett, this pump is located within the boiler room and equipped for constant speed operation. A common chilled / heating water stand-by pump is connected to the heating water distribution system and isolated from the chilled water system by a manually operated valve. Similar to heating water pump, this stand-by pump is manufactured by Bell & Gossett and equipped for constant speed operation. The heating water distribution system is equipped with an air separator, shot feeder, and a horizontal expansion tank supported from the overhead structure. A 3-way automatic temperature control valve is not provided within the heating water distribution system for temperature reset control functions.

Cooling System

A single 125-ton air-cooled chiller (McQuay Model ALS125) is provided for production of chilled water. It is anticipated that this equipment is approximately 20- to 25-years in age and appears to be in fair condition. Based on nameplate data obtained from this equipment, the chiller is equipped with two refrigeration circuits and utilizes R-22 refrigerant for compressor operation. Operation of this equipment could not be confirmed during the project's site visit.

The chiller is located within a fenced enclosure and positioned near the existing loading dock area. This equipment is installed on a series of concrete piers and structural steel dunnage for maintaining proper airflow circulation both through and around the equipment. There does not appear to be surplus capacity available to support any planned additions or expansions to the facility

Similar to the heating water system, chilled water is supplied to the building's four-pipe distribution system through a single base-mounted end-suction pump. Manufactured by Bell & Gossett, this pump is located within the boiler room and equipped for constant speed operation.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

A common chilled / heating water stand-by pump is connected to the chilled water distribution system, and isolated from the heating water system by a manually operated valve. The chilled water distribution system is equipped with an air separator, shot feeder, and a horizontal expansion tank supported from the overhead structure.

In addition to chilled water, direct expansion (DX) type cooling is provided for the administration areas, cafeteria, kitchen, and other select split system units located throughout the school. Spaces served by DX 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 building. It is anticipated that these systems are approximately 20- to 25-years in age and appear to be in fair working condition. A majority of these systems are provided with both constant volume operation and simultaneous heating and cooling. This system arrangement has a poor level of energy performance, as compared with many of today's modern mechanical systems. The following is a breakdown of the various spaces and their associated HVAC system:

Typical Classroom: Classroom areas are conditioned through a series of indoor constant volume air-handling units, located within the penthouse areas of the building. A summary of the existing classroom air-handling unit systems is as follows:

Northeast Classroom Wing - AHU #1 (McQuay Seasonmaster Model LSL-214).

Southwest Classroom Wing - AHU #4 (McQuay Seasonmaster Model LSL-214).

Western Classroom Wing - AHU #5 (McQuay Seasonmaster Model LSL-214).

IMC Classroom Areas - AHU #6 (McQuay Seasonmaster Model LSL-108).

Kindergarten Classroom Wing - AHU #7 (McQuay Seasonmaster Model LSL-108).

Air-handling units are installed on a 4-inch high concrete housekeeping pad, with spring isolators provided for vibration control. Each unit is provided with a similar vertical arrangement, with select units equipped with an integral mixing box. Air-handling unit systems are equipped with chilled water cooling coils and hot water heating coils, connected to the building's four-pipe distribution system. Three-way pneumatic control valves are provided at each coil for temperature control. It is anticipated that these systems are approximately 20- to 25-years in age and appear to be in fair working condition.

Supply air is ducted from each the air-handling unit to a series of duct-mounted hydronic heating coils, located throughout the building. These coils are provided with heating water from the building's four pipe distribution system and serve to maintain proper room temperature control for the areas served. Return air is ducted from each space and returned back to the associated air-handling unit system.

- Administration Areas: The administration and administrative support areas are conditioned through an indoor constant volume air-handling unit, located at the penthouse level. Manufactured by McQuay (Seasonmaster Model LSL-106), this unit is provided with a vertical arrangement and without an integral mixing box. It is anticipated that this air-handling unit is approximately 20- to 25-years in age and appears to be in fair working condition. The air-handling unit is equipped with a DX cooling coil and hot water heating coil. The use of DX cooling allows for year round cooling independent of chiller operation. An air-cooled condensing unit, manufactured by Heil and positioned at the grade, supports the operation of the DX coil. This air-cooled condensing unit appears recently replaced and in good condition. Supply air is ducted from the air-handling unit to a series of duct-mounted hydronic heating coils, located throughout the administration and administrative support areas. These coils are provided with heating water from the building's four pipe distribution system and serve to maintain proper room temperature control for the areas served.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Return air is ducted from each space and returned back to the air-handling unit system.

- Computer Lab: The computer lab is provided with space conditioning and ventilation through the air-handling unit systems serving the classroom areas. Refer to "Typical Classroom" information provided above for a description of these systems. In addition to these systems, the computer lab is provided with a pair of DX split-systems manufactured by Mitsubishi.

- Gymnasium: The gymnasium area is conditioned through an indoor heating-only constant volume air-handling unit, located at the penthouse level. Manufactured by McQuay (Seasonmaster Model LSL-214), this unit is provided with a vertical arrangement and without an integral mixing box. It is anticipated that this system is approximately 20- to 25-years in age and appears to be in fair working condition. The air-handling unit is equipped with a hot water heating coil, connected to the building's heating water distribution system. Supply air is ducted from the air-handling unit to a series of round supply diffusers located throughout the gymnasium area. Return air devices are positioned high and located adjacent to the supply air diffusers. The use of return air devices positioned low within the space is typically recommended for avoiding temperature stratification within the gymnasium during the winter months. A summer ventilation system, which typically consists of an outdoor air intake and companion exhaust fan, is currently not provided.

- Media Center: The media center area is provided with space conditioning and ventilation through the air-handling unit systems serving the classroom areas. Refer to "Typical Classroom" information provided above for a description of these systems.

- Multipurpose Room / Cafeteria Area: The multipurpose room and cafeteria areas are conditioned through an indoor constant volume air-handling unit, located at the penthouse level. Manufactured by McQuay (Seasonmaster Model LSL-111), this unit is provided with a horizontal arrangement and complete with an integral mixing box. It is anticipated that this equipment is approximately 20- to 25-years in age and appears to be in fair working condition. The air-handling unit is equipped with a DX cooling coil and hot water heating coil. The use of DX cooling allows for year round cooling independent of chiller operation. An air-cooled condensing unit, positioned at the roof level adjacent to the penthouse area, supports the operation of the unit's DX coil. Supply air is ducted to a series of ceiling mounted supply diffusers, located throughout the areas served. Return air is ducted from each space and returned back to the air-handling unit system.

- Kitchen: The kitchen area is provided with space conditioning through a DX split-system, located near the rear of the kitchen area. A remote air-cooled condensing unit is located at the roof level and supports the unit's DX coil. While the installation date of this system is unknown, it appears to be in fair condition. The space is provided with exhaust ventilation only, with no supply air devices provided within the kitchen area. A capture hood is not provided above the two stacked convection ovens and range equipment.

- Art Classroom, Art Storage Areas, and Music Classroom: The art classroom, art storage areas, and music classroom are conditioned through an indoor constant volume air-handling unit, located within the basement mechanical room. Manufactured by McQuay (Seasonmaster Model LSL-108), this unit is provided with a horizontal arrangement and complete with an integral mixing box. The air-handling unit is equipped with a chilled water cooling coil and hot water heating coil, connected to the building's four-pipe distribution system. It is anticipated that this air-handling unit is approximately 20- to 25-years old and appears to be in fair working condition. Supply air is ducted to a series of duct-mounted hydronic heating coils, located throughout the areas served. These coils are provided with heating water from the building's four pipe distribution system and serve to maintain proper room temperature control for the areas served. Return air is ducted from each space and returned back to the air-handling unit system. A single kiln is located within the art storage room. Local exhaust for this kiln equipment is accomplished through a dedicated slot-type capture hood. This arrangement offers an effective means of providing local exhaust for this equipment.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Building Exhaust Systems: A combination of roof-mounted and inline fans remove exhaust air throughout the building. These fans appear to be in fair working condition. There are select fans that have damage to their external housing; however, these fans appear to still be operating.

Control System

The existing control system is primarily comprised of pneumatic components, with limited direct digital control (DDC) components currently provided. Major air-handling unit valve and damper components are provided with pneumatic operation. It appeared that select building control components are interfaced with the central MCPS energy management control system for occupied/unoccupied settings, based on the existing Andover control panels located within the basement boiler room. A simplex type air compressor system, complete with horizontal storage tank, is located within the boiler room and serves the building's pneumatic control components. Control air supplied from this compressor system is fed through a wall-mounted refrigerated dryer system. This air compressor system appeared to be in poor working condition and operated continuously throughout our site visit.

Plumbing System

The building is served from the county water system through a 6-inch combination fire and water service, entering the building within the basement boiler room area. A 6-inch water meter with bypass is provided for metering the incoming combination service. A 3-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 day plumbing code requirements. It is anticipated that limited surplus capacity exists for the existing 3-inch domestic cold water main.

Domestic hot water is generated by a Lochinvar gas-fired 100-gallon water heater (Model CNR199-100-DF9-2). This heater is equipped with a 199 MBH gas burner for production of hot water. This water heater was installed in 1992 and appeared to be in fair condition. While currently provided with a Bell & Gossett domestic water circulating pump, this system is not equipped with an expansion tank or thermostatic mixing valve. It is anticipated that limited surplus capacity exists for the hot water heater.

An existing fuel oil tank is located partially below grade, and accessible from the basement boiler room. It is our understanding that this tank is no longer utilized and currently abandoned in-place.

The gas service for the school is located at the exterior wall adjacent to the boiler room. This service supplies 2-PSI gas to the facilities boiler and hot water system components.

Plumbing fixtures appear to be in fair condition, with floor-mounted water closets, wall-hung urinals, and individual wall-hung lavatories. The school appeared to be provided with plumbing fixtures that meet the Americans with Disabilities Act (ADA) requirements.

Fire Protection System

The building is provided with sprinkler coverage throughout. Located within the boiler room, a 4-inch fire line extends from the incoming water service and is provided without a backflow preventer. This fire line serves two zone valve assemblies, each located within the boiler room. Sprinkler mains extend from each zone valve assembly and serve sprinkler heads located throughout their respective zone. Sprinkler system components

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

appear to be in fair condition. The existing 6-inch fire service appears adequately sized to support any planned renovations and additions to the school.

ELECTRICAL

General

The electrical equipment that currently exists within Greencastle Elementary School dates back to the 1975 renovation and is generally in fair working condition. The following is a detailed description of the existing electrical, lighting, communications, security, and fire alarm systems.

Power Distribution

The school's electrical service is fed from a Pepco utility pole along River Road in front of the school. A primary utility feeder is run underground from this utility pole to the primary section of a pad-mounted Pepco utility transformer (Pepco #739432-2771) located outside of the main electrical room on the southwest side of the school along River Road. Secondary service feeders then run underground from the secondary section of the Pepco utility transformer to the CT cabinet of the main distribution switchboard located in the main electrical room.

The main distribution switchboard in the main electrical room is by I-T-E Imperial Corporation, circa 1976, rated at 277/480 volts, 3 phase, 4-wire, with a 1600-ampere bus. The switchboard consists of two sections. The first section contains the power company CT cabinet on top and a 3P-1600A bolted pressure contact switch as the main electrical service disconnect on bottom. The second section is a distribution section with circuit breakers serving the automatic transfer switch, chiller, relocatable trailers/portable classrooms, and branch circuit panelboards located throughout the school. The switchboard is approximately 28 years old and is near its expected service life.

The Pepco meter (YFG02131832800000) is also located in the main electrical room.

The electrical equipment (switchboard, panelboards, disconnects) in the building are manufactured by I-T-E Imperial Corporation. (There is a 75-kVA dry-type transformer in the main mechanical room by Sierra Transformer Company.) Panelboards in the school are located in the corridors and are recessed mounted within the walls.

Typical classrooms have general receptacles, black in color with stainless steel wall plates. There are no dedicated receptacles for computer power.

A power feeder for the relocatable trailers/portable classrooms installed at west and northwest sides of the school comes from the main distribution switchboard in the main electrical room to electrical equipment within a shed at the back of the school. Electrical equipment within this shed consists of a disconnect switch, dry-type step down transformer, and panelboard. Circuit breakers within the panelboard serve the relocatable trailers/portable classrooms.

Emergency Power

There is an indoor generator in the main electrical room, rated at 15-kW, 277/480V, 3-phase, 4-wire, fueled by propane gas. The above-ground propane tank is located outside near the main electrical room. The generator serves a 70-ampere automatic transfer switch (ATS) in the main electrical room, which, in turn, serves an emergency panelboard in the main electrical room. The emergency panelboard serves emergency exit lights in the building.

The generator is by Onan and automatic transfer switch is by Onan/Cummins.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

Lighting

Lighting fixtures using 32-watt or energy-saving 25-watt T8 linear fluorescent lamps are used throughout the school. The standard fixture is a 2' x 4' recessed troffer-type lensed fixture. These fixtures are used in classrooms, corridors, multipurpose room (with stage), kitchen, and offices. The media center uses a 2' x 4' recessed fixture with an 18-cell parabolic louver. The stage area has incandescent spotlight lighting fixtures in front of the stage and makeshift downlights (with colored gels) above the stage, which appear to be installed by the school.

High bay lighting fixtures with metal halide lamps are located in the gym. Exterior building-mounted security lighting and "shoebox" style pole lights in the parking lot use high intensity discharge (HID) lamps, which are either metal halide or high pressure sodium.

Data Wiring System

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

The main file server is located in the MDF closet. The main file server is a Dell file server freestanding cabinet. There are two data racks adjacent to the main file server that have rack-mounted data hardware (switches/hubs), data fiber optic distribution enclosures, and data patch panels. Data racks are by Chatsworth Products, Inc. (CPI). Data fiber optic distribution enclosures are by Superior Modular Products. Data patch panels are by EFS. There are blue and white data cables. The white data cables are Category 5E.

Telephone (Voice) System

The telephone company demarcation point and telephone system equipment are also located in the MDF closet. There is a wall-mounted key service unit by Comdial, along with a wall-mounted telephone termination cabinet, 66-connecting blocks, and 110-connecting blocks. There are blue, gray, and white voice cables.

Video and Audio/Visual Systems

Wall-mounted video outlets with F-connector jacks are located in rooms throughout the school. Televisions on carts are used in classrooms and are connected to the video outlet in respective classroom.

Promethean smart boards are located in the media center and in classrooms.

There is a flat-panel video monitor in the main lobby.

Intercom and Sound Systems

The school intercom system is by Rauland, Telecenter. The main intercom console is located in the main office area. The system has the capability to perform select local calls to classrooms or paging throughout the school. Each classroom has a call switch and ceiling speaker(s). Ceiling speakers are also located throughout the corridors.

The gymnasium has sound reinforcement system hardware on a cart connected to two wall-mounted performance speakers by Electro-Voice located at the corners of far side of the gym.

APPENDIX C —EXISTING CONDITIONS SURVEY AND CODE ANALYSIS (CONTINUED)

The multipurpose room also has sound reinforcement system hardware mounted in an exposed podium at the corner of the multipurpose room connected to two wall-mounted performance speakers by JBL located on each side of the stage.

Security System

The security system consists of an intrusion detection system by Napco (Magnum Alert), door access control card readers by HID at the main entrance and selected doors, and dome-type "IQeye" video surveillance cameras by IQinVision at the main entrance and other exterior doors. The intrusion detection system includes keypads in the main office, and motion sensors in the corridors and classrooms.

There is a wall-mounted black cabinet enclosure labeled "S2 NetBox" located in the MDF room, which is for remote monitoring of intrusion detection, door access control, and video surveillance systems.

Fire Alarm System

The fire alarm system with voice evacuation is by Fire-Lite Alarms. The fire alarm system was installed by SPC, Inc. There is a MS-9600 addressable fire alarm control panel and ACC-25/50 Audio Command Center (for voice evacuation) located in the main electrical room. There is an emergency microphone connected to the voice evacuation system located in the main office. The fire alarm annunciator panel is located in the main lobby. Fire alarm devices include manual pull stations, smoke detectors, duct-type smoke detectors, door holders, monitoring modules for flow and valve tamper switches, and audible and visual notification devices. Fire alarm ceiling-mounted combination speaker/strobes are located in the classrooms and corridors.

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APPENDIX D —EXISTING PHOTOS

Main Entry

Gym Entrance

Bus Loop

Play Fields

APPENDIX D —EXISTING PHOTOS

Typical classroom

Corridor Ramp to Gym

Media Center

Gym

APPENDIX D —EXISTING PHOTOS

Stairs to Multi-Purpose Room


Multi-Purpose Room


Multi-Purpose Room

Stairs and Lift to Multi-Purpose Room

APPENDIX D —EXISTING PHOTOS

Typical Corridor

Stairs from Classroom

Main Entrance Doors

Main Office

APPENDIX E — BRICKYARD ROAD SITE

General Site Information:

Brickyard Road Site is a 20-acre undeveloped property located at 8615 Brickyard Road in Potomac, Maryland within Election District 10. The property is found on ADC Map grid 5405-E1, 5405-F1 and has tax account number 10-0114590. The site is zoned as RE-2 and is bounded to the northwest, northeast, and southeast by single-family homes and to the southwest by Brickyard Road.

Per the current Montgomery County Zoning Ordinance the dimensional parameters for the property will include the following:

Front setback – 50'

Side setback –18'

Rear setback – 35'

Maximum Building Height – 50'

Maximum Lot Coverage – 25% (Maximum of net site area covered by buildings, including accessory buildings)

APPENDIX E — BRICKYARD ROAD SITE (CONTINUED)

Brickyard Road Site – Aerial (Courtesy of MC GIS)

Site Analysis:

Adjoining Streets, Pedestrian Access, and Vehicular Access:

There are two proposed vehicular connection points to from the site to the right-of-way. The northwest connection point provides the entrances and exit for the student drop-off, staff parking lot and loading area to Brickyard Road. The southeast connection point provides access to the bus drop-off and visitor parking lot to Brickyard Road. The separation of the bus and student drop-off loops will provide good circulation around the site and safety by decreasing congestion. During the design phase, pedestrian access will need to be evaluated and considered in the final design. This will ensure safe and ADA complete access from the right-of-way to the building's main entrance, while providing the most direct route with as few crosswalks as possible. ADA accessibility design will be in accordance with MCPS policy and the latest state and federal ADA accessibility guidelines.

New entrances will require approval from the Montgomery County DPS and DOT. DPS requires a permit application including an engineered plan before considering the request. Preliminarily the locations of the proposed entrances appear to meet the requirements set forth by DPS and DOT. The construction of the entrances may require the relocation of utility poles and removal of several trees to accommodate a deceleration lane and acceleration lane if required from the new entrance to facilitate the merging with the Brickyard Road northbound through lane. If an acceleration lane is deemed necessary, it may require off site work, and may impact the front of the adjacent privately owned property.

APPENDIX E — BRICKYARD ROAD SITE (CONTINUED)

Brickyard Road – Existing Site Entrance (Courtesy of Google Maps)

Bus Loop:

The proposed bus loop is located to the southwest of the building; consisting of a 32-foot wide, 400-feet of curb length for queuing to support the ten (10) buses that serve the school. The sidewalk along the bus queuing area should be a minimum of 12 foot to meet MCPS requirements. ADA compliance is also recommended for inclusion to site improvements, including a passenger loading area and accessible curb ramps. The proposed separation of the student and bus drop-off in favor of a dedicated entrance and exit for the bus drop-off should provide good site circulation.

Student Drop-off Loop:

The proposed student drop-off loop is located along the northwest side of the proposed building utilizing a designated drop-off area. The student drop-off drive aisles consist of a 24-foot wide 400-foot long queuing space. In addition, the 320 feet of curb length will decrease delays during drop-off and pick-up. This configuration appears to be sufficient and can support up to 20 cars for queuing while the separation of the loops should provide good traffic flow. It is recommended for inclusion of a passenger loading area and accessible curb ramps as required by current ADA regulations.

APPENDIX E — BRICKYARD ROAD SITE (CONTINUED)

On-Site Parking:

Parking will be provided within two proposed parking areas at the northwest and southeast sides of the proposed building. The northwest parking area will provide a majority of the 80 spaces typically required by MCPS while the southeast parking area will provide a portion of the total spaces for the site. Within the parking areas, four (4) handicap spaces will need to be provided to be in compliance with current ADA regulations.

On-Site Loading:

The loading area is located on the northwest side of the proposed building off of the student drop-off loop. This configuration appears to be insufficient to support both dumpsters and daily deliveries. This location is visible from Brickyard Road, parking areas, student drop-off and adjacent residences.

Sidewalks:

Sidewalks should be designed to meet current ADA requirements both from the right-of-ways to the building and around the site. The existing asphalt sidewalk in the right-of-way will need to be replaces to meet current ADA requirements. Access to field and play areas will need to conform to current ADA accessibility regulations.

APPENDIX E — BRICKYARD ROAD SITE (CONTINUED)

Fire Access:

The proposed site layouts appear to meet current fire access requirements. During the design phase, the need for an additional on-site hydrant may be required to meet current fire access regulations. All fire exits from the building should provide accessible egress to the public way. A meeting with County Fire and Rescue personnel is needed early in the design process in order to determine what improvements need to occur for any proposed improvements.

Site Topography:

The site drains from the high points near the center of the site at an elevation of 338' to the north corner at an elevation of 318', to the east corner at an elevation of 308' , and to the southwest south corner at an elevation of 316'. There appears to be no off-site drainage area that enters the site from the adjacent residences. The site will require grading to accommodate hard play surfaces and athletic fields.

Brickyard Road Site – Aerial (Courtesy of Bing Maps)

APPENDIX E — BRICKYARD ROAD SITE (CONTINUED)

Vegetation:

A Natural Resources Inventory / Forest Stand Delineation should be prepared in order to determine tree sizes, species, and health. This will also provide a better understanding to how proposed improvements will impact the existing site trees. It is our understanding that Forest Conservation for the latest improvements to the school was an exemption. Any disturbance to specimen trees per the new building addition will require a Forest Conservation Plan.

Water and Sewer:

A 16 inch water main appears to runs along the Brickyard Road right-of-way adjacent the site. It is assumed that a new outside meter for the school will be required.

According to WSSC, the site is in a 495A pressure zone with a High Hydraulic Gradient of approximately 560 and a Low Hydraulic Gradient of approximately 482. On that basis, per WSSC prescribed calculations, the water pressure at the existing connection to the water main in Brickyard Road is approximated to be between 62 p.s.i. and 109 p.s.i. The exact pressures and flows should be confirmed via field testing at the time of design.

An eight (8) inch sewer appears to runs along the Brickyard Road right-of-way adjacent the site.

Gas, Electric and Telephone, Etc.

All additional utility service connections will be made from the Brickyard Road right-of-way to the proposed building. It is unknown if gas service is available at this site.

The existing capacities of the dry utilities in the right-of-way, sch as gas, electric, telephone, etc... are unknown.

APPENDIX E — BRICKYARD ROAD SITE (CONTINUED)

Storm Drainage and Stormwater Management:

It can be anticipated that any site development will meet the latest regulations to the maximum extent practicable defined in the Maryland Department of Environment (MDE) Stormwater Design Manual, that includes the Environmental Site Design (ESD) in order to treat all areas inside the limits of disturbance. If ESD efforts are exhausted and the site has still not been able to reach a hydrologic state of "woods in good condition," then structural practices may be permitted as determined by Montgomery County.

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 where available open space can be found, such as parking lot islands and around the athletic fields. Alternative surfaces would include vegetative roofing for building additions. Permeable pavements would not be a good alternative surface to consider, as this site has undergone significant grading and potential compaction during previous construction of the site. It can be anticipated that any new development will require a soil erosion and sediment control plan per MDE.

Site Soils:

Per the Soil Survey of Montgomery County, Maryland the predominant soils on the site are in the Glenelg and Neshaminy silt loam. According to the USDA, the depth to bedrock and seasonal water table is usually is greater than six and half (6.5) foot.

In terms of hydrology, the entire site is within the hydrologic soil group 'B' and is characteristically known to provide good drainage and allow adequate infiltration. Based on this, there should be a limited amount of limitations on stormwater management for the site.

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

Initial investigations reveal that the site is located outside of the mapped floodplain, in Zone "X", as shown per FEMA Flood Insurance Rate Map number FM24031C0430D. According to the U.S. Fish and Wildlife Mapping services there are no nationally recognized wetlands located on or around the site.

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APPENDIX F — ENGINEERING APPROACH

MECHANICAL

HVAC System

A similar mechanical solution is recommended for supporting the four revitalization / expansion concepts being proposed for Potomac Elementary School. The existing mechanical systems serving the facility are in fair working condition and have exceeded their useful service life. In addition, the existing systems lend themselves to excessive energy usage due to their requirement for simultaneous heating and cooling. For these reasons, replacement of the existing mechanical systems with a new system capable of providing a more energy efficient solution for ventilation and space conditioning is recommended. Similar to the existing four-pipe distribution system, the new HVAC system should be capable of providing independent heating or cooling to each space throughout the year.

The installation of a ground-source geothermal heat pump system is recommended for supporting all concepts for the modernized facility. This type of mechanical system provides the ability to have either heating or cooling year-round, while delivering a very high level of overall building energy efficiency. In addition, 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.

To support the proposed mechanical system, a geothermal borehole field would be positioned below the adjacent athletic fields for all four options. A pair of base-mounted pumps operating in a lead/lag type arrangement would circulate heat pump loop water throughout the building and borehole field. Major mechanical infrastructure components, included the heat pump loop headers, associated pumps, and expansion tank, would be located within the main mechanical room provided for facility.

Extended range vertical heat pump units are recommended for conditioning classroom areas and would be located within support closets located adjacent to the classroom served. Doors for support closets would be from the corridor for maintenance access. Administration and administrative support areas would be provided with space conditioning through a variable refrigerant volume (VRV) system, complete with water-cooled compressors connected to the building heat pump loop. Ceiling cassette type indoor VRV units are anticipated throughout.

Conditioned outdoor air for classroom and administration areas would be supplied by a series of rooftop dedicated outdoor air systems, complete with water-cooled compressors for heating and cooling and energy recovery for pre-conditioning and tempering of the outdoor air. Airflow supplied from these units would be dehumidified, conditioned, and delivered directly to each space at a room neutral temperature. Exhaust air from classrooms, toilets rooms, and storage areas would be routed though the energy recovery unit's heat exchanger for pre-conditioning of the outdoor air.

Rooftop type heat pump units are recommended for space conditioning and ventilation within the cafeteria and media center areas, with a gas-fired heating-only rooftop unit provided at the gymnasium area.

Toilet rooms, storage rooms, and other heating-only areas should utilize electric wall heaters.

Controls for the modernized facility will be direct digital controls (DDC) throughout. Control system components should be interfaced with the central MCPS energy management control system for remote monitoring and energy management routines.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

Plumbing Systems

To support the proposed revitalization / expansion concepts and revised architectural floor plan, replacement of the existing plumbing system components is recommended. The existing plumbing piping, equipment, and fixtures should be removed throughout the entire facility.

A new combination fire/water service and natural gas service should be provided for the school, with these new services entering the building near the main mechanical room. Domestic and fire services should be separated within the mechanical room, with a dedicated backflow preventer provided on each service.

A new gas-fired condensing type water heater would be provided for creating of domestic hot water for the modernized facility. This system should be complete with circulation pump, expansion tank, and thermostatic mixing valve.

New plumbing fixtures should be designed to meet the Americans with Disabilities Act (ADA) and will utilize water conservation features. Floor-mounted water closets would utilize dual-flush type valves, capable of providing either 1.6 or 1.0 gallons per flush. Urinals would be wall-hung and provided with pint flush valves. Wall-hung cast-iron lavatories would utilize self-closing faucets that supply 0.5 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 present fire protection system for the existing school building should be removed to support the proposed revitalization / expansion concepts and revised architectural floor plan. New sprinkler system components should be provided throughout, with the entire modernized facility provided with full sprinkler coverage.

The building should be separated into several zones that match the fire alarm pull zones for the building. The municipal water system should be evaluated during the design phase to confirm adequate pressure currently exists to serve the system without the need for a fire pump. All work should conform to the standards of the National Fire Protection Association (NFPA).

Air-handling units and dedicated outdoor air systems supplying 2,000 cubic feet per minute (CFM) or more of airflow should be equipped with smoke detectors in both the supply and return air ductwork.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

ELECTRICAL

General

The electrical systems required for the revitalization / expansion will be similar for the four revitalization / expansion concepts being proposed for Potomac Elementary School. Existing electrical, lighting, communications, security, and fire alarm systems will be removed. Electrical, lighting, communications, security, and fire alarm systems for the revitalization / expansion will be new.

Power Distribution

A primary feeder provided by Pepco will run in a two-way concrete-encased ductbank from a Pepco utility pole along River Road to the primary section of a pad-mounted Pepco utility transformer to be located outside near the main electrical room. Secondary service feeders in a 15-way concrete-case ductbank will be run from the secondary section of the utility transformer to the CT cabinet of the main distribution switchboard located in the main electrical room.

The main distribution switchboard will be rated at 277/480 volts, 3-phase, 4-wire, with a 2000-ampere bus. The main distribution switchboard will have three sections. The first section will be the CT cabinet. The second section will be the mains sections. The third section will be the switchboard distribution section.

The mains section of the main distribution switchboard will have three main circuit breakers with space for three additional main circuit breakers. The main circuit breakers will serve the switchboard distribution section, a distribution panel for mechanical loads, and kitchen panelboard.

In addition to the main distribution switchboard, the main electrical room will have mechanical panelboards, 277/480-volt lighting panelboard, transformer for kitchen panelboard, standard dry-type transformer and associated 120/208-volt branch circuit panelboard for general receptacle loads, K-rated dry-type transformer and associated 120/208-volt computer panelboard to serve "clean power" computer receptacle loads, and generator equipment to include automatic transfer switches, panelboards and transformers.

Electrical closets will be located throughout the school. It is anticipated that three electrical closets will be required. Each electrical closet will have a 277/480-volt mechanical panelboard, 277/480-volt lighting panelboard, standard dry-type transformer and associated 120/208-volt branch circuit panelboard, K-rated dry-type transformer and associated 120/208-volt computer panelboard, and 120/208-volt generator standby panelboard.

Three-phase surge protective device (SPD) will be mounted adjacent to each respective computer panel, as well as adjacent to each generator standby panelboard that serves teacher station receptacles and telecom room receptacles.

General receptacles will be ivory will ivory wall plates. Computer receptacles will be gray will gray wall plates. GFCI receptacles will be provided in outdoor locations, kitchen, and within six feet of any sink.

Three-phase motor loads will be provided with phase-loss protection.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

Emergency Power

A new 150-kW natural gas generator with weatherproof sound-attenuated enclosure will be located adjacent to the Pepco utility transformer. Enclosed circuit breakers mounted at the generator will serve automatic transfer switches in the main electrical room. The first automatic transfer switch (ATS) will be for emergency/life safety loads to include emergency egress lighting, exit lights, and fire alarm system. The second ATS is an "optional standby" ATS serving standby panelboards. Standby panelboards will serve teacher station receptacles, telecom room receptacles, kitchen freezer and cooler, ATC/EMS panel(s), elevator cab, sumps pumps, smoke dampers, and heat trace for rooftop units.

Lighting

MCPS standard classroom lighting consisting of pendant-mounted lighting fixtures with linear fluorescent lamps will be provided. Offices, corridors, toilet rooms, storage rooms, and support spaces will have lensed type recessed fluorescent fixtures. Compact fluorescent or LED downlights will be provided where smaller fixtures are appropriate. Decorative lighting will be specified in selected spaces. Interior lighting fixtures utilizing LED technology will be considered where appropriate. High-bay lighting fixtures with compact fluorescent lamps will be provided in the gymnasium. Exterior building-mounted perimeter security lighting and pole-mounted parking lights shall be full cut-off utilizing LED light sources.

Linear fluorescent type lighting fixtures with utilize 32-watt, 3500K, T8 lamps and programmed-start electronic ballasts.

General lighting control will be provided by room lighting switching schemes with occupancy sensors for automatic shut-off control. Multiple switching will be provided for larger areas.

Lighting controls will meet the requirements of ASHRAE Standard 90.1-2010. Lighting controls in classrooms will include lighting room controllers to control 0-10V electronic dimming ballasts, daylight monitoring sensor for daylight harvesting, occupancy sensors, and multiple levels of lighting. Office lighting fixtures will either utilize two-level ballasts with bi-level control to provide 50% or 100% light output, or utilize 0-10V electronic dimming ballasts to provide multiple levels of light output when connected to a daylight monitoring sensor for daylight harvesting. Emergency lighting will be automatically switched on during a power outage.

Lighting levels will be designed in accordance with the recommendations of the Illuminating Engineering Society of North America (IESNA). The lighting power density shall not exceed 0.99 watts per square foot per Table 9.5.1 of ASHRAE Standard 90.1-2010.

Data and Voice Systems

There will be a main telecommunications room near the media center and intermediate telecom closets as required. The telecommunications infrastructure will include outlet boxes, conduits and raceways, surface metal raceways in the computer lab and for student outlets in classrooms, and conduit sleeves through walls and floors for the installation of the data and voice cabling. The number of telecom outlets in each room will comply with MCPS and Maryland State requirements.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

Intercom and Sound Systems

The public address/intercommunications head-end console will be located in the work room. The head-end equipment will have public address, intercom, master clock, and CD/audio functions.

Call switches and ceiling-mounted speakers will be provided in classrooms, gymnasium, multipurpose room, selected offices, and support spaces. Ceiling-mounted public address speakers will be provided in corridors and large toilet rooms. Exterior building-mounted speakers will be provided near the front entrance, bus loop, and playground areas.

The gymnasium, multipurpose room, and music rooms will have sound reinforcement systems per MCPS standards.

Instructional/Classroom Technology

Classrooms will be equipped with dedicated computer receptacles connected to "clean power" computer panelboards. The teacher's desk receptacles will be connected to generator standby panelboards. An additional computer receptacle will be located at the front of the classroom off-center of the teaching wall for Promethean smart boards.

Security System

Door access control system card readers, in conjunction with electrified door hardware, will be provided at the building main entrance and selected exterior doors.

Intrusion detection will include ceiling-mounted motion sensors in the main office area, corridors and classrooms, and door contacts at exterior doors.

Video surveillance/CCTV system cameras will be provided in front of the main entrance and at other exterior locations required by MCPS.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

Fire Alarm System

The fire alarm system with voice evacuation will meet ADA requirements and will be designed to comply with State of Maryland Fire Code, local authorities having jurisdiction, International Building Code, and NFPA.

Fire alarm control panel will be located in the chief custodian (building service) office. The fire alarm annunciator with graphic display will be located in the vestibule of the main entrance. The graphic display will show the fire alarm zones. Zoning will follow the sprinkler zones, with separate zones for smoke detectors, heat detectors, manual pull stations, and water flow devices.

Manual pull stations will be located at the main entrance, main office, multipurpose room, gymnasium, and exterior doors at kitchen and near loading dock. Smoke detectors will be provided on each side of a door with fire alarm magnetic door holders. Duct smoke detectors with remote test stations will be provided for air-handling systems where required, and will interface with the HVAC equipment for shutdowns. Each initiation device will have its own address.

Fire alarm combination speaker/strobe devices will be installed ceiling-mounted in classrooms and corridors, and will be installed wall-mounted in offices, media center, multipurpose room, gymnasium, and toilet rooms. Notification appliance circuit (NAC) power extender panels will be provided where needed for speaker/strobe devices. Strobe spacing and locations will be per NFPA and ADA requirements for rooms and corridors. Candela minimum required light output intensity will be indicated on the drawings.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

CIVIL

Bus Loop:

The proposed bus loop is located to the northwest of the building; consisting of a 32-foot wide, 400-feet of curb length for queuing to support the ten (10) buses that serve the school. The sidewalk along the bus queuing area should be a minimum of 12 foot to meet MCPS requirements. ADA compliance is also recommended for inclusion to site improvements, including a passenger loading area and accessible curb ramps. The proposed separation of the student and bus drop-off in favor of a dedicated entrance and exit for the bus drop-off should provide good site circulation.

The proposed bus loop will require the construction a new secondary access point to the site. This new entrance will require approval from the Maryland-State Highway Admission. SHA requires an Access Permit application including an engineered plan before considering the request. Preliminarily the location of the proposed entrance appears to be able to meet the requirements set forth by SHA. The construction of the entrance may require the relocation of utility poles and removal of several trees to accommodate a deceleration lane and acceleration lane from the new entrance to facilitate the merging with the River Road northbound through lane. If an acceleration lane is deemed necessary, it will require off site work, and may impact the front of the adjacent privately owned property.

Student Drop-off Loop:

The proposed student drop-off loop is located along the southeast side of the proposed building, directly in front of the building's main entrance, utilizing a designated drop-off area. The proposed designated student drop-off drive aisles consist of a 24-foot wide 500-foot long queuing space. In addition, the 200-feet of curb length will decrease delays during drop-off and pick-up. This configuration appears to be sufficient and can support up to 25 cars for queuing while the separation of the loops should provide good traffic flow. It is recommended for inclusion of a passenger loading area and accessible curb ramps as required by current ADA regulations.

On-Site Parking:

Parking will be provided within two proposed parking areas at the southeast and southwest sides of the proposed building. The southeast parking area will provide a majority of the 80 spaces typically required by MCPS, while the southwest parking area will provide a small portion of the total spaces for the site. Within the parking areas, four (4) handicap spaces will need to be provided to be in compliance with current ADA regulations.

No formal agreement exists between MCPS and Potomac Presbyterian Church. However, the Church expressed their desire to continue the shared parking arrangement.

APPENDIX F — ENGINEERING APPROACH (CONTINUED)

On-Site Loading:

The loading area is located on the southeast side of the proposed building off of the student drop-off loop. This location is visible from River Road, parking areas, student drop-off and adjacent residences.