

---

# **S. CHRISTA McAULIFFE ELEMENTARY SCHOOL**

## **ADDITION FEASIBILITY STUDY**

Prepared for

Montgomery County Public Schools

By

**hord | coplan | macht**

October 2013

---

---

# S. CHRISTA MCAULIFFE ELEMENTARY SCHOOL

## Addition Feasibility Study

<u>SECTION</u>	<u>PAGE NO.</u>
I. Introduction	2
II. Executive Summary	3
III. Scope, Methodology, and Goals	11
IV. Existing Site & Floor Plans	13
V. Description of Options	16
VI. Proposed Project Implementation Schedule	31
VII. Appendices	
Appendix A. Space Allocation Summary	A-1
Appendix B. Educational Specifications	B-1
Appendix C. Existing Conditions & Code Analysis	C-1
Appendix D. Existing Photographs	D-1

---

## **S. Christa McAuliffe Elementary School**

Addition

12500 Wisteria Drive  
Germantown, Maryland 20874

## **Montgomery County Board of Education**

Mr. Christopher S. Barclay	President
Mr. Philip Kauffman	Vice President
Ms. Shirley Brandman	Member
Dr. Judith R. Docca	Member
Mr. Michael A. Durso	Member
Mrs. Patricia B. O'Neal	Member
Mrs. Rebecca Smondrowski	Member
Mr. Justin C. Kim	Member

## **Montgomery County Schools Administration**

Dr. Joshua P. Starr	Superintendent of Schools
Mr. James C. Song	Director, Department of Facilities Management
Mr. R. Craig Shuman	Director, Division of Construction
Mr. Michael P. Shpur	Architect, Division of Construction
Mr. James Tokar	Project Manager, Division of Construction
Ms. Deborah Szyfer	Facility Planner, Division of Construction

---

# I. INTRODUCTION

This addition feasibility study was conducted for Montgomery County Public Schools (MCPS) by the architectural firm Hord Coplan Macht. S. Christa McAuliffe Elementary School is located at 12500 Wisteria Drive, Germantown, Maryland and is part of the Seneca Valley cluster. The feasibility study work was performed under the direction of the MCPS Department of Facilities Management, Division of Construction.

## Feasibility Study Participants

Mrs. Wanda Coates	Principal, S. Christa McAuliffe ES
Mrs. Nooshin Amirpour	Project Manager, MCPS Division of Construction
Mrs. Elissa Andrade	Staff, S. Christa McAuliffe ES
Mr. Brandon Barrett	Parent, S. Christa McAuliffe ES
Mrs. Elaine Bartholazzi	Parent, S. Christa McAuliffe ES
Mrs. Dinah Benson	Administrative Assistant, S. Christa McAuliffe ES
Mrs. Jeri Crist	PTA President, S. Christa McAuliffe ES
Mrs. Michele Gibbs	Staff, S. Christa McAuliffe ES
Mrs. Pam Grant	Staff, S. Christa McAuliffe ES
Mrs. Monica Hill	Parent, S. Christa McAuliffe ES
Mrs. Rita Keyes	Staff, S. Christa McAuliffe ES
Ms. Kimberly Markham	Staff, S. Christa McAuliffe ES
Mrs. Sherry Moitoza	Parent, S. Christa McAuliffe ES
Mrs. Julie Morris	Planner, MCPS Division of Long Range Planning
Mrs. Allison Peterson	Assistant Principal, S. Christa McAuliffe ES
Mrs. Nicole Quiroga	Parent, S. Christa McAuliffe ES
Mrs. Jackie Riffle	Staff, S. Christa McAuliffe ES
Mrs. Lori Speer	Staff, S. Christa McAuliffe ES
Ms. Jillian Storms	MSDE Architect
Mrs. Deborah Szyfer	Planner, MCPS Division of Long Range Planning
Mr. Jim Tokar	Project Manager, MCPS Division of Construction
Mrs. Pat Whittington	Staff, S. Christa McAuliffe ES
Ms. Sandy Witt	Staff, S. Christa McAuliffe ES

---

## II. EXECUTIVE SUMMARY

### Purpose

The purpose of this feasibility study is to explore alternatives for an addition to the existing S. Christa McAuliffe Elementary School that satisfies the requirements of the Space Allocation Summary and Educational Specifications set forth in Appendix A and Appendix B respectively for the project. Furthermore, the study provides specific recommendations to Montgomery County Public Schools (MCPS) for implementation. When the addition is completed the facility will have a capacity of 730 students with core spaces designed to accommodate 740 students.

### History

S. Christa McAuliffe Elementary School is located at 12500 Wisteria Drive, Germantown, Maryland. The school is a member of the Seneca Valley cluster. The original structure was built in 1986 as the East Germantown Elementary School. Presently, the school capacity is 507 students and the enrollment is 628 students in grades K through 5. The existing building is approximately 77,240 gross square feet, and the existing site is 10.6 acres in size.

### Methodology

The existing school has been evaluated by a design team of architects and engineers to determine the modifications required to accommodate an addition to the facility that meets the requirements of the S. Christa McAuliffe Elementary School Educational Specifications. The study is based on:

- Consensus Workshops with the feasibility participants and MCPS Staff
  - There were six meetings
  - There was consistent attendance from the core participants
  - There were 23 different attendees
  - There were 6 different concepts and option refinements
- Review of the Educational Specifications and Summary of Space Requirements provided by MCPS (Appendix A & B)
- Analysis of the existing conditions survey and code analysis (Appendix C & D)
- Review of existing construction documents provided by MCPS
- Research conducted by the design team

---

## II. EXECUTIVE SUMMARY (continued)

### Overview

Three Options were developed with input from the feasibility study participants. All three options meet the site and programmatic requirements for the building addition. All options share common site and building elements.

**Option 1** places a two-story building addition along the east side of the existing building.

**Option 2** wraps a one-story building addition around the north-east corner of the existing building.

**Option 3** places two separate one-story additions along the east and the north side of the existing building.

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

## II. EXECUTIVE SUMMARY (continued)

### OPTION 1

Option One provides the additional program specified while utilizing the smallest building footprint of the three options. This is achieved by constructing a two-story addition along the east side of the existing building, adjacent to Wisteria Drive. This option preserves the site and results in the most compact construction area. The play areas are grouped together on the lower level of the site, and the building addition creates a new building image along Wisteria Drive. All of the site and building elements from the educational specifications are included in this option.

Option 1 (Preferred):

Total Cost: \$9,573,000



## II. EXECUTIVE SUMMARY (continued)

### OPTION 2

Option Two provides the additional program specified while utilizing a building footprint larger than Option One. This is achieved by constructing a one-story addition along the north and east sides of the existing building. The building addition is partly built into the adjacent grade, which may create potential unwanted roof access and habitable spaces without natural light. The play areas are split between the upper and lower levels of the site. All of the site and building elements from the educational specifications are included in this option.

### Option 2:

Total Cost: \$8,582,000





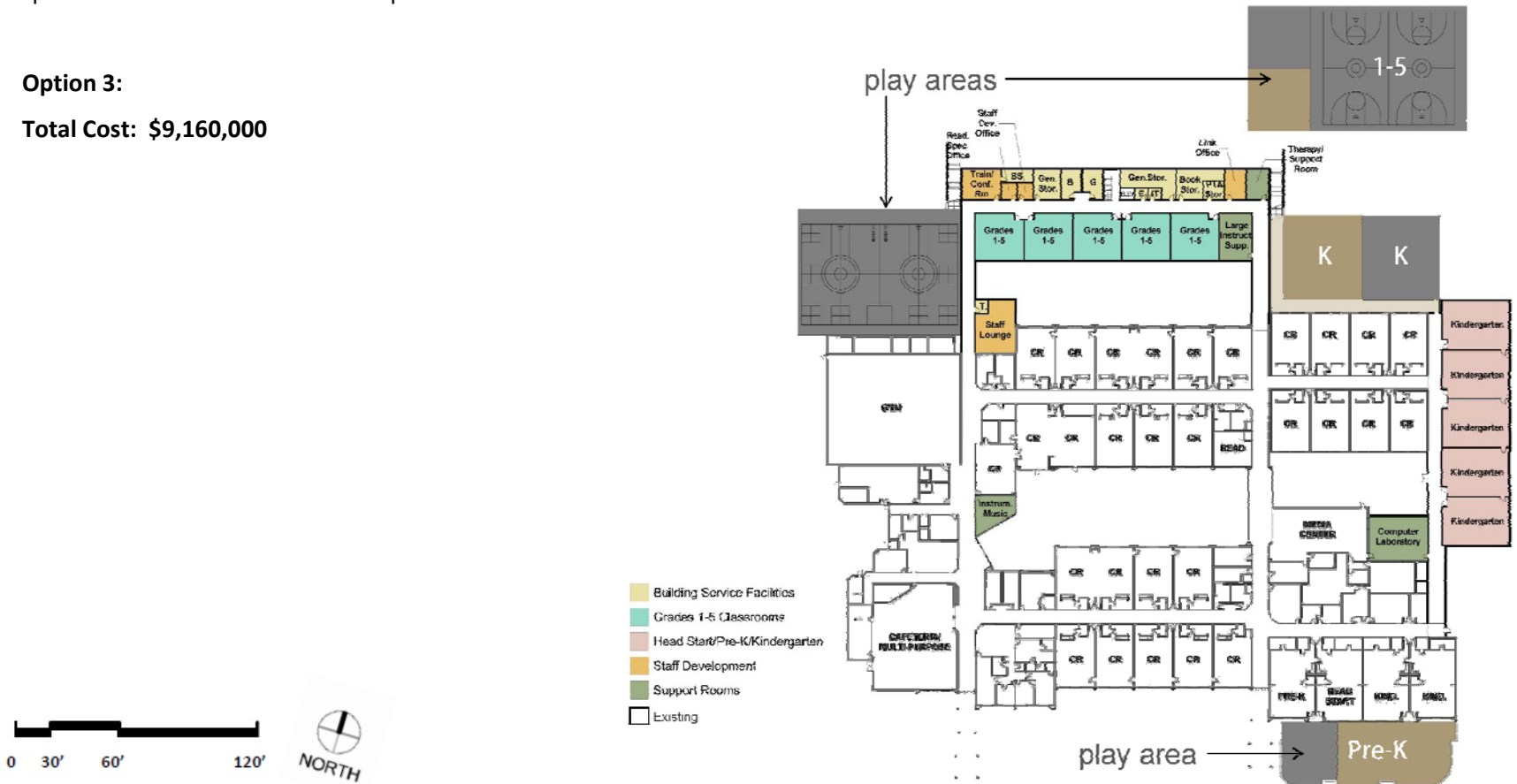
## II. EXECUTIVE SUMMARY (continued)

### OPTION 3




Option Three provides the additional program specified while utilizing the largest building footprint of the three options. This is achieved by constructing two separate one-story additions along the north and east sides of the existing building. The north building addition is partly built into the adjacent grade, which may create potential unwanted roof access and habitable spaces without natural light. The play areas are split between the upper and lower levels of the site. All of the site and building elements from the educational specifications are included in this option.

#### Option 3:

Total Cost: \$9,160,000



## II. EXECUTIVE SUMMARY (continued)

OPTION 1	OPTION 2	OPTION 3
 <p>second floor</p> <ul style="list-style-type: none"> <li>Building Service Facilities</li> <li>Grades 1-5 Classrooms</li> <li>Head Start/Pre-K/Kindergarten</li> <li>Staff Development</li> <li>Support Rooms</li> </ul>	 <ul style="list-style-type: none"> <li>Building Service Facilities</li> <li>Grades 1-5 Classrooms</li> <li>Head Start/Pre-K/Kindergarten</li> <li>Staff Development</li> <li>Support Rooms</li> </ul>	 <ul style="list-style-type: none"> <li>Building Service Facilities</li> <li>Grades 1-5 Classrooms</li> <li>Head Start/Pre-K/Kindergarten</li> <li>Staff Development</li> <li>Support Rooms</li> </ul>
<p>Existing: 77,240 SF  Demolition: 600 SF  Addition: 25,020 SF  Total After Addition = 101,660 SF  Addition Efficiency = 64%</p>	<p>Existing: 77,240 SF  Demolition: 600 SF  Addition: 22,430 SF  Total After Addition = 99,070 SF  Addition Efficiency = 72%</p>	<p>Existing: 77,240 SF  Demolition: 740 SF  Addition: 23,940 SF  Total After Addition = 100,440 SF  Addition Efficiency = 67%</p>

## II. EXECUTIVE SUMMARY (continued)

### COST ANALYSIS

Presented below is a tabulation of areas and costs associated with each recommended option for the addition to S. Christa McAuliffe Elementary School. This cost estimate in this feasibility study is based on current construction market conditions for both building and site. The estimates will be revised to reflect market conditions and prevailing construction costs when the project is included in the Capital Improvements Program Request for architectural and construction funding.

#### Cost Analysis – S. Christa McAuliffe Elementary School Addition

Square Footage					
	Option 1	Option 2	Option 3		
Existing	77,240	77,240	77,240		
New Construction	25,020	22,430	23,940		
Demolition (Total)	600	600	740		
Existing To Remain	76,640	76,640	76,500		
Total Gross	101,660	99,070	100,440		
PDF/ FEASIBILITY STUDY COST OUTLINE - PREFERRED OPTION 1 (\$000'S)					
Construction Cost Estimate	\$7751				
Project Planning Cost	\$910				
Contingency	\$912				
<b>Total Cost in FY 2012 Dollars</b>	<b>\$9,573</b>	<b>\$8,582</b>	<b>\$9,160</b>		
Notes:					
1. This cost estimate does not include furniture and equipment.					

---

## II. EXECUTIVE SUMMARY (continued)

### CONCLUSIONS AND RECOMMENDATIONS

Option 1 was selected by the Feasibility Study participants as the preferred option. The recommendation is consistent with MCPS standards, meets their program requirements, and addresses the interests and concerns of the Principal, school staff, the PTA, and the community as represented by the Feasibility Study Participants.

---

## III. SCOPE, METHODOLOGY AND GOALS

### SCOPE AND INTENT

Montgomery County Public Schools (MCPS) plans to provide an addition to S. Christa McAuliffe 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 addition to 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 the addition is completed the facility will have an increased capacity of 730 students, with core spaces designed for 740 students.

The scope of work included a survey of the site, building and evaluation of the existing mechanical, electrical, and plumbing systems. The A/E design team analyzed the educational specifications and developed building concepts addressing the addition 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 the modifications required to provide an addition to the facility that will allow it to comply with the requirements of the S. Christa McAuliffe Elementary School Educational Specifications, dated January 2012 (see Appendix A). The study is based on:

- Consensus Workshops with the feasibility participants and MCPS Staff
  - There were six meetings
  - There was consistent attendance from the core participants
  - There were 23 different attendees
  - There were 6 different concepts and option refinements
- Analysis of the existing physical plant
- Review of existing construction documents provided by MCPS
- Review of the Educational Specifications and Summary of Space Requirements provided by MCPS

---

### III. SCOPE, METHODOLOGY AND GOALS (continued)

Over the course of the five Feasibility Study meetings held between February and May of 2012 members of the community, PTA. and school staff brainstormed goals for the project. The following project goals and objectives for the S. Christa McAuliffe Elementary School Addition were developed:

#### GENERAL GOALS

- Use the STAR Program – Safety, Teamwork, Respect and Responsibility, as the guide for success.
- Organize teams by grade and cluster grades.

#### SITE GOALS

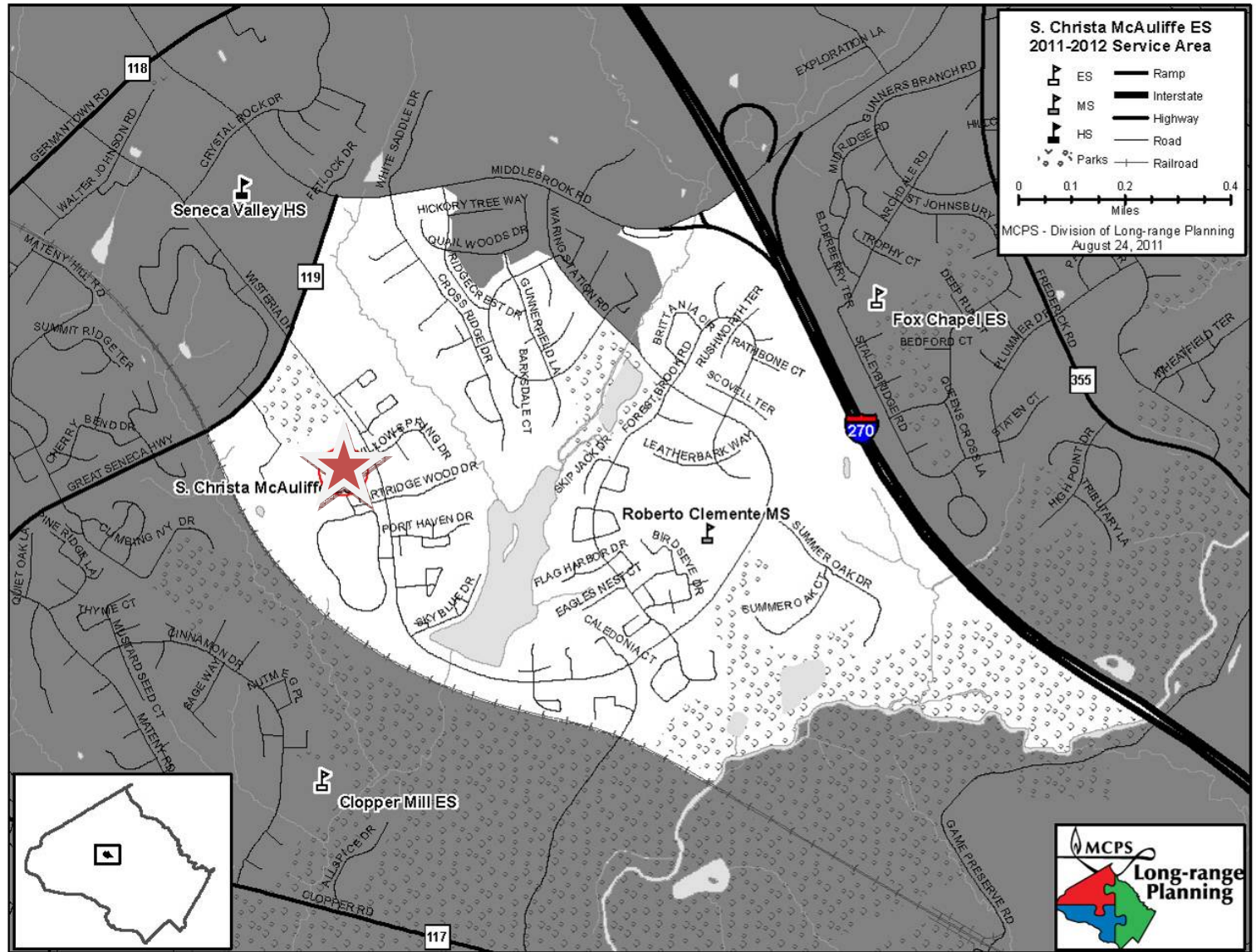
- Keep play areas on one level of site and provide direct view to allow for easier supervision.
- Isolate outdoor play activities from classrooms to prevent visual and noise distractions.
- Provide functional courtyards.
- Incorporate sustainability in all elements of the design.
- Preserve existing trees to the maximum extent practicable, as they are highly valued.

#### BUILDING GOALS

- Cluster Kindergarten classrooms; keep near exits for safety
- For safety provide connections between classrooms
- Improve and/or provide good acoustics within classrooms. There are current acoustical issues with moveable partitions.
- Provide maximum daylight, but allow for control within classrooms for presentations.
- Locate the computer lab adjacent to Media Center.
- Provide open storage for students in classrooms and eliminate hiding places.
- Incorporate sustainability in all elements of the design.

# IV. EXISTING SITE & FLOOR PLANS

## VICINITY MAP





# IV. EXISTING SITE & FLOOR PLANS (continued)

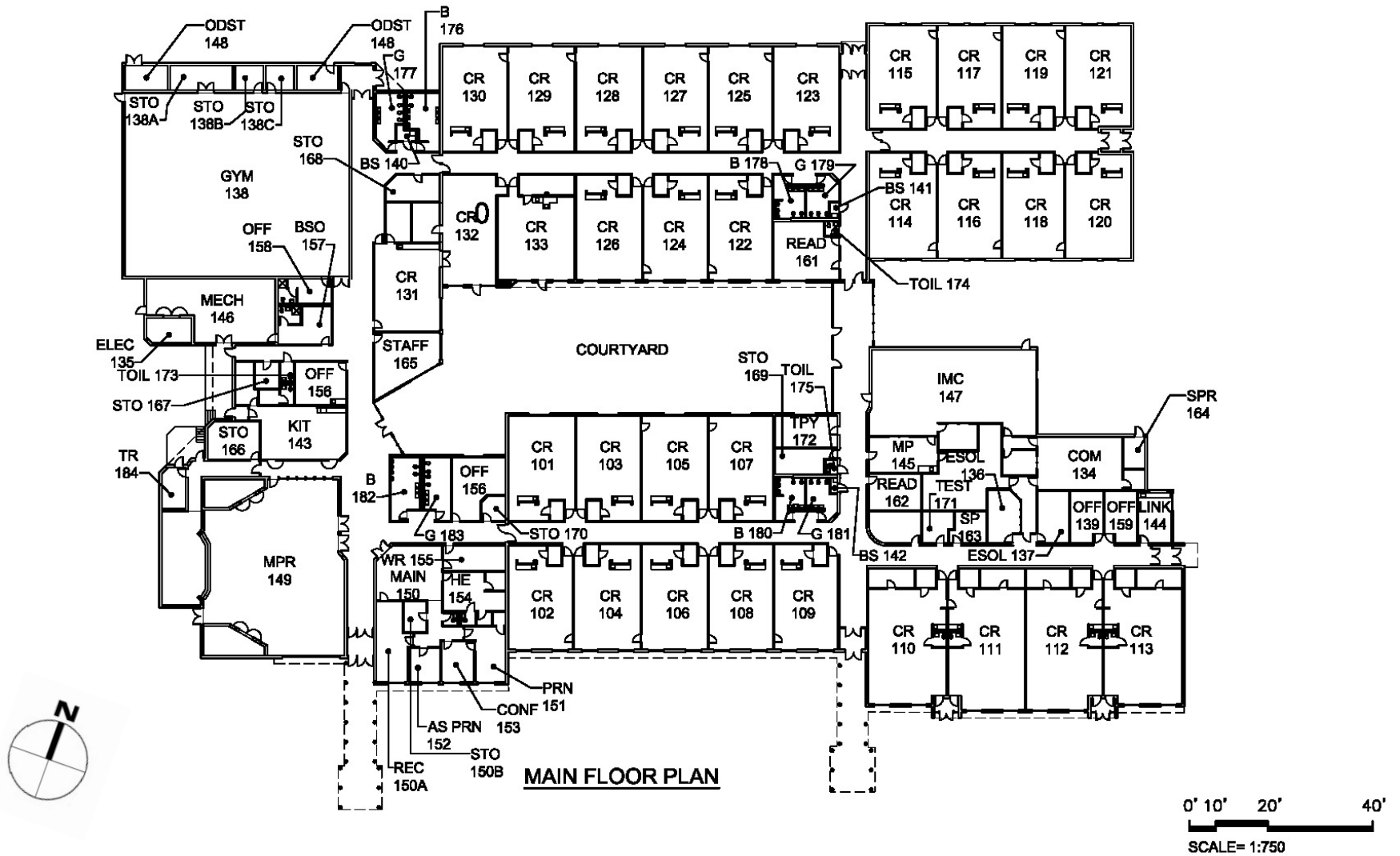
## EXISTING SITE PLAN





# IV. EXISTING SITE & FLOOR PLANS (continued)

## EXISTING FLOOR PLAN



---

## V. DESCRIPTION OF OPTIONS

### GENERAL

Three options were developed in response to the MCPS Educational Specifications for S. Christa McAuliffe Elementary School. Each option addresses the desired physical and instructional improvements to the school, and satisfies the educational specification requirements. Each of the options was developed with the intention of the existing school to remain in operation throughout construction. This goal will be achieved through construction fencing and phasing of construction activities to ensure student and staff safety at all times. All of the options will require some of the athletic programs to be temporarily relocated off site throughout the construction of the site amenities. Phasing schedules for each option are provided within this document.

### COMMON SITE DESIGN ELEMENTS FOR EACH OPTION

The physical characteristics of the site direct all of the future development to occur in the northeast corner (impacting the 80' by 100' asphalt play area). The existing storm drainage line and possibly the water line will have to be relocated in all three options. Option #1 has the smallest footprint both from the final building layout and the area impacted by construction. A smaller footprint will reduce costs and sizes of rooftop stormwater management (SWM) features. New and relocated asphalt play areas will also require SWM features. Concept #3 presents some SWM challenges with a higher additional impervious area than the other options. Additional SWM will be required for all 3 options. Because more pollutants are generated in the parking lot and roadways, it is likely that SWM would be provided within those areas as a tradeoff for not treating new play areas. There may also be minor design & construction corrections to site ADA issues regardless of which option is chosen. A new sanitary line will be provided from the west of the existing building to the new addition on the east.

### STORMWATER MANAGEMENT (SWM)

There are no existing stormwater management facilities on site. There are 3 main storm drain lines that collect water from the impervious areas of the site. In the northeast corner, a 15" RCP exits the site just south of the Wisteria Drive Entrance. In the central southern part of the site, an 18" RCP exits the site just east of the bus loop driveway. In the western part of the site, a 15" RCP exits the site. All three exit points are connected into publicly-owned closed storm drain systems. SWM will be provided in accordance with State and County regulations via environmental site design (ESD) features to the maximum extent practicable.

---

## V. DESCRIPTION OF OPTIONS (continued)

### COMMON BUILDING ELEMENTS

All building options for the addition to S. Christa McAuliffe Elementary School including kindergarten classrooms, grades 1-5 classrooms, computer laboratory, staff lounge, storage rooms, instructional support rooms and offices will incorporate sustainable design and construction. The classrooms will be organized and separated by grade level. The computer lab will be located adjacent to the existing media center. The instructional support spaces will be centrally located and easily accessible from all grade levels. The building will be clad in masonry and will include aluminum windows. The design will feature sustainable concepts to enhance energy efficiency; they include:

- placement and layout of the building on the site to respect climate
- a sound building envelope design
- use of high efficiency mechanical and lighting systems
- day-lighting techniques
- use of recycled materials
- indoor air quality techniques
- 

### HVAC SYSTEM

A similar mechanical approach is recommended for supporting the three proposed addition concepts. The existing building's two-pipe distribution system serving classroom areas lends itself to potential space temperature concerns during both the spring and fall seasons, due to its heating-only or cooling-only limitations. To overcome these limitations, the addition would be provided with a new HVAC system capable of providing independent heating or cooling to each space throughout the year. Replacement of the HVAC system serving the existing building is not anticipated under the scope of the building addition project.

### ELECTRICAL POWER SYSTEM

The existing service switchboard appears to be adequate to serve the new construction. The existing demand load should be low enough to allow for the capacity needed for the new addition. However, the physical size and age of the main switchboard may not allow adequate additional breakers to be added. It is proposed to maintain the existing switchboard in the main electrical room. A new breaker will be required to be mounted in the existing distribution section or the switchboard may have to be tapped to feed a new breaker that will serve the new addition. This breaker can be located in the main electrical room where it can be within the code-required 25 feet for a bus tap. The new breaker would serve a distribution panelboard located in an electrical closet in the new addition. This panelboard would then serve lighting panelboards and dry type transformers for receptacle and computer power panelboards.

---

## V. DESCRIPTION OF OPTIONS (continued)

### EMERGENCY POWER SYSTEM

The current MCPS standard is to provide emergency power for life safety systems and standby power for the heating system to prevent damage to the building due to freezing conditions. The existing building generator system does not provide this capability for the existing building nor does it have the capacity to meet the MCPS standards for the new addition. If the existing generator is to remain, it will have the capacity to serve only the life safety emergency lighting and fire alarm system for both the existing building and the addition. A larger or additional generator will be required to accommodate the standby loads that are required under the MCPS standards. It is not the intent under this project to rewire the existing building to meet these standards, however the new addition will be connected in this way and provisions will be made for the existing building standby loads to be connected to the generator in the future.

### LIGHTING

MCPS standard classroom lighting will be provided in the classrooms of the new addition. This will consist of high efficient fluorescent pendant fixtures. Lighting controls will include occupancy sensors and multiple levels of lighting.

### FIRE ALARM SYSTEM

The existing fire alarm control panels will remain. A new addressable fire alarm system will be provided for the addition. The new and old panels will be interconnected. Initiation devices and notification devices will be located to meet code requirements.

### PLUMBING

The existing cold water piping system can be extended to support the new addition. Based on the proximity of the existing water heater, a new water heater should be installed in the addition. New plumbing fixtures will be designed to meet the Americans with Disabilities Act (ADA) and will utilize water conservation features. The water consumption figures noted are equal to or less than what is required by both current plumbing code and LEED water conservation requirements.

### SPRINKLER SYSTEM

The present fire protection system for the existing school will be extended to handle the new addition area. A new zone valve assembly, located within the existing water service room, is anticipated for supporting the new addition. Sprinkler coverage should also be extended from the new zone valve assembly to support the modular classroom building, allowing for full sprinkler coverage throughout the entire school. All new air-handling unit or dedicated outdoor air systems supplying 2,000 cubic feet per minute (CFM) or more of airflow will be equipped with smoke detectors in both the supply and return air ductwork.

---

## V. DESCRIPTION OF OPTIONS (continued)

### OPTION 1 - DESCRIPTION

Option One provides the additional program specified while utilizing the smallest building footprint of the three options. This is achieved by constructing a two-story addition along the east side of the existing building, adjacent to Wisteria Drive. This option preserves the most site and provides the most compact construction area. The play areas are grouped together on the lower level of the site, which facilitates supervision. The building addition creates a new building image along Wisteria Drive. All of the site and building elements from the educational specifications are included in this option. The addition will comply with accessibility codes.





# V. DESCRIPTION OF OPTIONS (continued)

OPTION 1 – FLOOR PLAN



---

## V. DESCRIPTION OF OPTIONS (continued)

### OPTION 1 – ADVANTAGES & DISADVANTAGES

#### Advantages:

- Smallest building footprint (preserves site & reduces storm water management)
- Most compact construction area
- Creates new building image along Wisteria Drive
- Play areas grouped together on lower level of site (facilitates supervision)
- Allows direct access to upper playfield
- Opportunity for inspiring two-story space

#### Disadvantages:

- (5) Grades 1-5 classrooms on 2<sup>nd</sup> level
- Largest gross building area



---

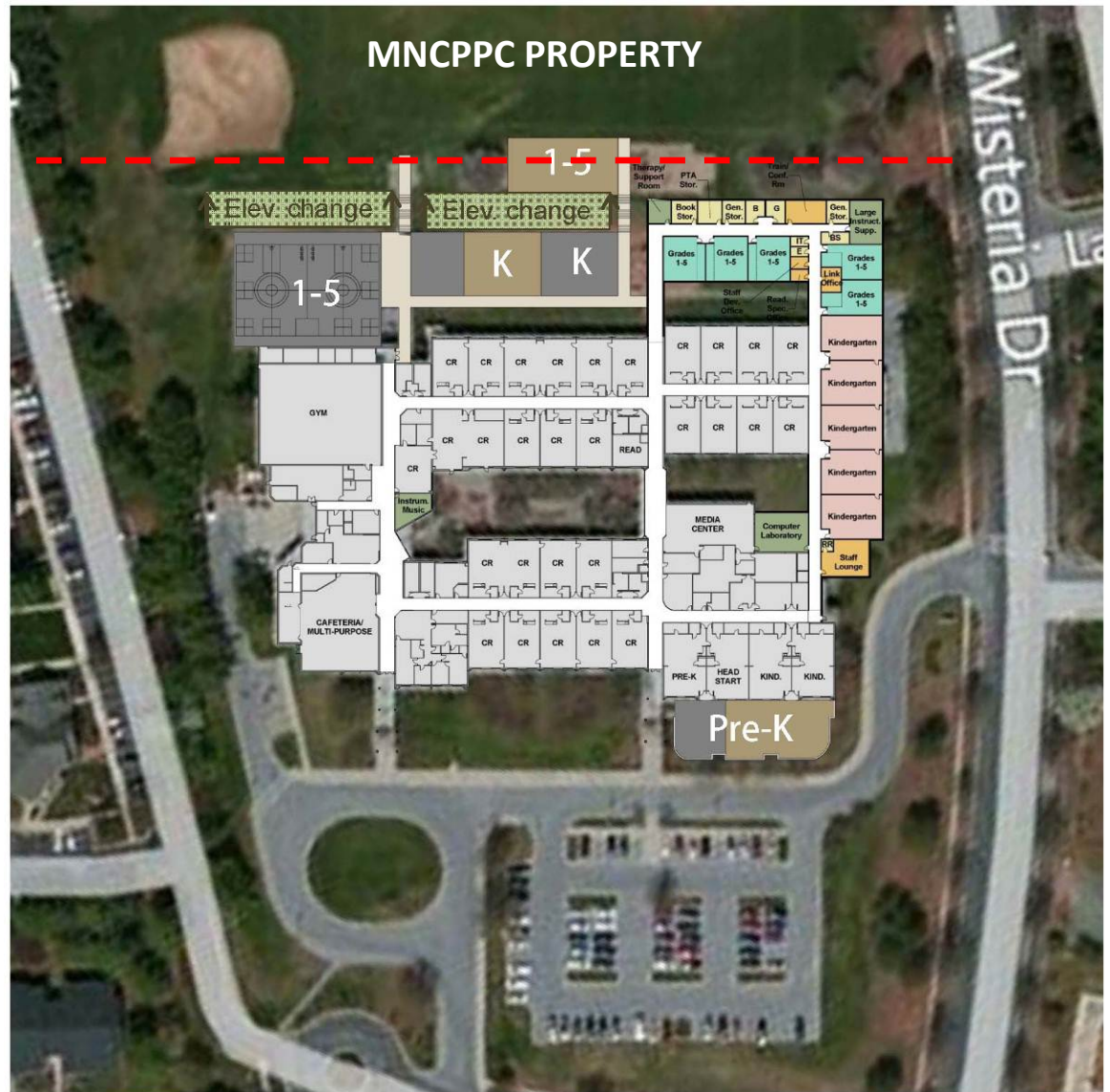
## V. DESCRIPTION OF OPTIONS (continued)

### OPTION 2 - DESCRIPTION

Option Two provides the additional program specified while utilizing a building footprint larger than Option One. This is achieved by constructing a one-story addition along the north and east sides of the existing building. The building addition is partly built into the adjacent grade, which may create potential unwanted roof access and habitable spaces without natural light. The play areas are split between the upper and lower levels of the site. All of the site and building elements from the educational specifications are included in this option. The facility will comply with accessibility codes.

# V. DESCRIPTION OF OPTIONS (continued)

## OPTION 2 – SITE PLAN



- Building Service Facilities
- Grades 1-5 Classrooms
- Head Start/Pre-K/Kindergarten
- Staff Development
- Support Rooms



# V. DESCRIPTION OF OPTIONS (continued)

OPTION 2 – FLOOR PLAN

- Building Service Facilities
- Grades 1-5 Classrooms
- Head Start/Pre-K/Kindergarten
- Staff Development
- Support Rooms
- Existing



---

## V. DESCRIPTION OF OPTIONS (continued)

### OPTION 2 – ADVANTAGES & DISADVANTAGES

#### Advantages:

- Building addition is all on one level
- Smallest gross building area

#### Disadvantages:

- Larger building footprint than Option 1
- Play areas split on upper & lower levels of site
- Building addition built into grade (potential roof access, some habitable spaces will be without natural light)

---

## V. DESCRIPTION OF OPTIONS (continued)

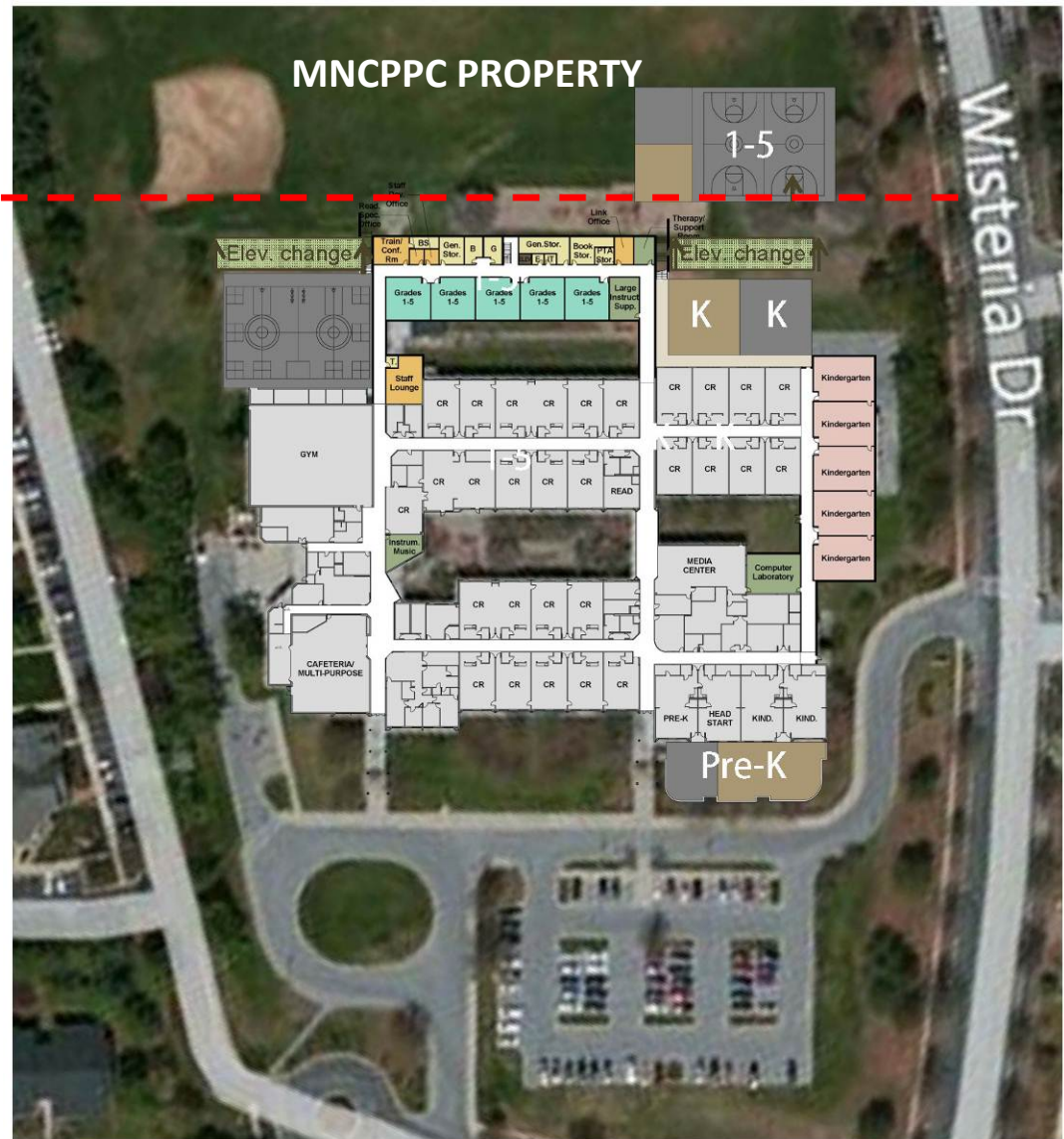
### OPTION 3 - DESCRIPTION

Option Three provides the additional program specified while utilizing the largest building footprint of the three options. This is achieved by constructing two separate one-story additions along the north and east sides of the existing building. The north building addition is partly built into the adjacent grade, which may create potential unwanted roof access and habitable spaces without natural light. The play areas are split between the upper and lower levels of the site. All of the site and building elements from the educational specifications are included in this option. The addition will comply with ADA accessibility codes.



# V. DESCRIPTION OF OPTIONS (continued)

## OPTION 3 – SITE PLAN



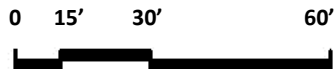
- Building Service Facilities
- Grades 1-5 Classrooms
- Head Start/Pre-K/Kindergarten
- Staff Development
- Support Rooms



# V. DESCRIPTION OF OPTIONS (continued)

## OPTION 3 – FLOOR PLAN

- Building Service Facilities
- Grades 1-5 Classrooms
- Head Start/Pre-K/Kindergarten
- Staff Development
- Support Rooms
- Existing



---

## V. DESCRIPTION OF OPTIONS (continued)

### OPTION 3 – ADVANTAGES & DISADVANTAGES

#### Advantages:

- Building addition is all on one level
- Grades 1-5 classrooms are closer to shared spaces (gymnasium & cafeteria)

#### Disadvantages:

- Largest building footprint
- Two (2) separate building additions / construction areas
- Play areas split on upper & lower levels of site
- Building addition built into grade (potential roof access, some habitable spaces will be without natural light)



## VI. PROPOSED IMPLEMENTATION SCHEDULE

### TWO-YEAR IMPLEMENTATION SCHEDULE (OPTIONS: 1, 2 & 3)

OVERALL PROJECT SCHEDULE	Year 1					YEAR 2					YEAR 3												
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
Feasibility Study																							
Schematic Design																							
Committee Meetings																							
BOE Approval																							
CM Selection																							
Design Development																							
Construction Documents																							
Permitting																							
Advertise for Bid																							
Bid Opening & Negotiation																							
Building Constructon																							
Occupancy																							

## APPENDIX A: SPACE ALLOCATION SUMMARY

Facility	#	Description	Net Sq. Ft.	Total Net Sq. Ft.
<b><u>Classrooms</u></b>				
Head Start	1	Includes 250 s.f. storage	1300	1300
PreK Collaboration	1	Includes 250 s.f. storage	1300	1300
Kindergarten	3	Includes 250 s.f. storage	1300	3900
Grades 1-5	6	Includes 150 s.f. storage	900	5400
<b><u>Support Rooms</u></b>				
Instrumental Music Room		Consider resuing staff lounge	400	0
Large Instructional Support Room	1		600	600
Small Instructional Support Room		Existing in Rooms 156/137/162	450	0
Speech/Language Room		Existing in Room 136	250	0
Therapy/Support Room	1		250	250
Testing/Conference Room		Reuse Room 171	150	0
Instructional Data Assistant Office		Existing in Room 159	250	0
Support Staff Offices		Reuse Rooms 144	150	0
Computer Laboratory	1		1000	1000

## APPENDIX A: SPACE ALLOCATION SUMMARY (continued)

<u>Administration</u>				
General Office			500	0
Workroom			350	0
Principal's Office			250	0
Assistant Principal's Office			150	0
Conference			300	0
Counselor's Office			250	0
Telephone Booth			50	0
Storage			100	0
Record Room			100	0
Toilet Room			50	0
2nd Floor Workroom			75	0
<u>Staff Development Area</u>				
Staff Development Office	1		100	100
Reading Specialist Office	1		100	100
Training/Conference Room	1		450	450
Staff Lounge	1		700	700
<u>Building Service Facilities</u>				
General Storage	2	250 sq. ft. each	250	500
Book Storage	1		400	400
PTA Storage	1		150	150
<b>Total</b>	<b>12</b>			<b>16150</b>

---

# APPENDIX B: EDUCATIONAL SPECIFICATIONS

## Introduction

- This document describes the facilities that are needed for the S. Christa McAuliffe Elementary School Addition 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 730 with a master-planned (core) capacity for 740 students. The educational specifications are divided into three sections:
  - The first section, the space summary, lists the type of spaces and square footage required when the project is complete.
  - The second section describes the general design, location, and specific requirements for each type of space in accordance with Montgomery County Public Schools (MCPS) standards.
  - The third section identifies 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 (USGBC) 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.accessboard.gov/adaag/html/adaag.htm>). In addition to the ADAAG, the *Maryland Accessibility Code* (COMAR.05.02.02) revised in 2002 also is required for public schools. (The regulation can be found at <http://mdcodes.umbc.edu/dhcd2/Title05.pdf>)
- The facility is to reflect an appealing visual, acoustic, and thermal environment and is to be properly furnished and equipped. Well chosen colors and textures are to be used. Lighting must meet current standards and provide adequate levels.
- High quality materials are to be used in the construction. The architect should refer to the MCPS Design Guidelines.
- The first impression of a building is important. The main entrance to the school should have a clear and inviting identity, and the entrance area should be designed and landscaped to emphasize its importance. A covered walkway from the bus loading area to the front door is desirable. The design of the main lobby area needs to convey a feeling of warmth and welcome. The inclusion of a lighted showcase in which 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 State 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 Division of Construction 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 Division of Construction for specific standards.

---

## General Planning Considerations (continued)

- 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.

---

## General Planning Considerations (continued)

- 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.

---

## 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.

### Prekindergarten/Head Start/Kindergarten Classroom

- The Head Start classroom should be designed as a prekindergarten/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 all kindergarten and prekindergarten rooms.
- All prekindergarten rooms should have an outside door or be directly accessible to the outside and convenient to the main entrance of the school building.
- The prekindergarten classrooms must have direct access to the prekindergarten play areas. See the Site Requirements section for a description of play areas. 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 MCPS Division of Construction (DOC). Computer/technology wiring must be in accordance with MSDE/MCPS standards.
- 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 DOC Facilities Guide.
- A sink with a drinking fountain must be provided, with cabinets above and below.
- This is a class-size reduction school and the built-in student wardrobe area must provide 24 individual compartments to store students' belongings. The architect is to refer to the DOC construction standards 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.



---

## Prekindergarten/Head Start/Kindergarten Classroom (continued)

- 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 all 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 Division of Construction (DOC). Computer/technology wiring must be in accordance with DOC/MSDE/OCTO standards.
- 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*.
- Approximately 30 to 35 linear feet of magnetic white board and 20 to 24 linear feet of tackboard, both with tack strips and map rails above the boards, should be installed in each classroom. White boards should be located so as to reduce glare. Tack strip is needed on all available walls. The architect should refer to the DOC Facilities Guide standards 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 DOC construction standards 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.
- 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 DOC construction standards.
- 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.

---

## Instrumental Music Room

- When feasible, the music room and instrumental music room should be located adjacent to each other with a shared storage room.
- This room should be located near the multipurpose room to allow easy access to the platform.
- This room must be acoustically treated for isolation and reverberation.
- 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.
- This room must be soundproofed.
- Doors into the instrumental music room must be wide enough to accommodate the passage of a piano.

---

## Large Instructional Support Room

- Room for a teacher's desk, lockable file cabinet, and assorted sized furniture is desired.
- Every classroom 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 DOC construction standards 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 DOC construction standards.
- 40 mailboxes should be designed for storage of student work such as folders or notebook.
- This classroom should be equipped with a handicapped accessible sink with drinking bubbler. Cabinets should be provided above and below the counter area.
- Each classroom should be equipped with window blinds. The specifications for the window blinds will be provided by DOC.
- Each classroom 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.

---

## 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.

---

## 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.
- 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.

---

## Second Floor Workroom

- If a two-story addition is designed, this workroom should be located on the second floor. If this is a single-story building, this workroom should be located remote from the main Administration Suite.
- 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.

---

## Staff Development Area

### 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.
- The room should be able to comfortably accommodate up to 12 participants seated around a conference table.
- A whiteboard and tack board should be installed.
- The wiring for an overhead LCD projector should be provided.



---

## 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

### General Storage

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

### Book Storage

- The architect should work with the school with regard to their specific storage needs. Flexible shelving is required.

### PTA Storage

- This room should be located near the main entrance to the school.
- This room should include locking cabinets and open shelving.
- The room will be used as both a work area and for storage.

---

## Site Requirements

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

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

### Driveway and Service Drive

- The architect/engineer should refer to the MCPS Facilities Guide when designing the driveway, bus loop, service drives, etc.
- Bus traffic should be separated from car traffic at all times, when possible. Bus loading zones should be able to accommodate the entire student body.
- A student drop off area should be provided and must be separate from the bus loop area.
- All driveways must be arranged so that children do not cross them to get to the play areas.
- Care for safety of students must be exercised in developing the driveways including use of safety rails in the bus loading area.
- Pedestrian access to the school facilities should be designed to make the best use of community right-of-ways and avoid crossing of loading zone areas.
- The site must comply with the most current ADA or COMAR regulations, whichever is most stringent.

---

## Site Requirements (continued)

- 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 Division of Construction Facilities Guide.
- 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 Facilities Guide available from the Division of Construction).
- A second area, designated for primary use, shall be striped according to drawings provided in the Facilities Guide available from the Division of Construction. On small sites, this pave area should be fenced for use by Grade Kindergarten students.

---

## Physical Education Site Requirements (continued)

### 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 Facilities Guide available from the Division of Construction. 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

### Site

- The architect should explore the possibility of providing a standard size kindergarten play area in the same area as the other play areas

### Building

- One of the existing Kindergarten classrooms should be designated as a Prekindergarten collaboration classroom in order to provide opportunities for inclusion of PEP students with nondisabled peers in the future.;
- Classroom 132 between the Art and Music rooms will be designated as a Dual Purpose Room. Classroom 117, the current computer lab, should be repurposed as a standard classroom once the addition is complete.
- The architect should explore the possibility of reusing the existing staff lounge as an instrumental music room. If modifications to this space are minimal, then a new staff lounge will be included in the addition. Otherwise, an instrumental music room should be included in the addition rather than the staff lounge.



---

# APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

## GENERAL SITE INFORMATION



### SIZE OF SITE

S. Christa McAuliffe Elementary School is located at 12500 Wisteria Drive in Germantown, Maryland. The school is a 10.59 acre tract of land bounded to the north by MNCPPC owned Gunners Lake Park, to the east by Wisteria Drive (access for parents dropping off students), to the west by residential condominiums on Grey Eagle Court, and to the south by Bent Willow Court (bus access point). The property generally resembles a trapezoid with the southern boundary (along Bent Willow Court) being the shortest of the sides at about 500 feet and the eastern side as the longest at almost 1000 feet along Wisteria Drive.



---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### SITE FEATURES

The elementary school building, which was built in 1986, encompasses the center of the site and is approximately 400' wide and 250' deep. There is one approximately 80' by 100' asphalt play area (which had at least 2 basketball hoops prior to portable placement) at the northern portion of the site. There is another 120' by 75' wide asphalt play area at the northwestern corner that also has two basketball hoops. There is also a kindergarten paved and mulched play area on the south side (front) of the school. A long, narrow mulched play area and a newer square mulched play area are located in the rear (north) of the school.

There are significant elevation differences throughout the school property. The school building's first floor elevation of 456 feet and the surrounding rear asphalt play areas are at approximately 455 feet. From the edge of the asphalt play areas, there is a steep (11' high on average) hill that separates the school building from the ball fields (470 foot elevation). Steps are used to gain access to the rear ball fields. The entrances to the school are both at an elevation of 438 where the driveway and the main road intersect. Each driveway slopes up steeply to the curb along the front of the school where the elevation is about 452 feet. Long sidewalks lead from the curbs to the front doors.



Wisteria Entry Drive



Playfield Stairs & Existing Portables

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### TRAFFIC AND PARKING

There are two curb cuts that provide access to the school and the 80 parking spaces, including handicap accessible spaces. A topographical survey has not been provided as of April 2012 and therefor conformances of grades for walkways and parking with ADA requirements have not been checked. The main lot of 76 spaces does not have any assigned handicap spaces at this time. Busses access the site from the south where they come up the steep grade and precede counterclockwise around the traffic circle to drop off. The traffic circle has a large grass island and rather narrow lanes so if one bus is dropping students off in front of the school, other busses must wait behind that bus. It was observed that during morning rush hours, a maximum of 3 busses typically drop off students at one time in front of the school. Other busses then stack up on the steep driveway and onto Bent Willow Court.

The eastern side curb cut is used as the entrance to the student drop off and staff/visitor parking. Cones are used during drop off / pick up times to prevent drivers from entering the bus loop. The intersection is currently manned by a crossing guard who regulates traffic allowing groups of cars to exit the school. Signage on the existing parking lot is rather sparse and a couple of near miss fender benders were observed as parents went through any of the 3 drive aisles in the parking lot to then exit out of the site via the same entrance they used to enter.

The loading dock and trash area is located along the western side of the school.



Parent Drop-off Walk



Building Entry

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### WATER AND SEWER ADEQUACY

The site is located in the WSSC Grid 226NW12. Water is supplied by an 8" main that is located just north of the first curb cut on Wisteria Drive. The line makes two 45 degree bends before entering the school building near the Media Center.

The site is served by the sanitary sewer that exits at the midpoint of the western border. A 4" and 6" line both exit the building along the western side of the of school in the vicinity of the loading and trash dock area.

### STORMWATER MANAGEMENT (SWM)

There are no existing stormwater management facilities on site. There are 3 main storm drain lines that collect water from the impervious areas of the site. In the northeast corner, a 15" RCP exits the site just south of the Wisteria Drive Entrance. In the central southern part of the site, an 18" RCP exits the site just east of the bus loop driveway. In the western part of the site, a 15" RCP exits the site. All three exit points are connected into publicly-owned closed storm drain systems. SWM will be provided in accordance with State and County regulations via environmental site design (ESD) features to the maximum extent practicable.

### TREE PROTECTION/FOREST CONSERVATION

A simplified Natural Resource Inventory Forest Stand Delineation has not been provided by MCPS as of April 2012. The proposed project should qualify for a tree save plan and not a full forest conservation plan.





---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### ARCHITECTURAL

Built in 1986, the existing S. Christa McAuliffe Elementary School is a one-story structure. Masonry walls were used for the shell and core spaces, as well as to create the teaching spaces, media center, gymnasium, locker rooms, and auditorium. Metal partition walls were used to create the administration suite, and several teaching spaces are equipped with operable partitions separating adjoining rooms. A one-story, eight classroom add-alternate was completed at the same time as the original construction. Metal partition walls and metal stud roof framing were used for this portion of the building.



Main Entry



Main Entry Corridor

The exterior walls are masonry with one and a half inch of insulation and face brick veneer. The structural system is steel framing with slab on grade, and open web steel joists with metal deck at the roof. Exits were provided to grade at the ground; some equipped with exterior concrete stairs to varying grade levels. The typical floor to roof bearing elevation change is 15'-4". The school is organized in a loop configuration around a central exterior courtyard which provides views to the outside

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### ARCHITECTURAL (continued)

for nearly all teaching spaces. The double-loaded corridors are filled with daylight through the use of linear skylights located overhead. The windows that are in the building are aluminum windows with insulated glazing. The existing window sills are in good condition.

Exterior doors are painted steel. In most high traffic exiting locations, the doors have panic hardware. Interior doors are a combination of steel and wood doors with original hardware. The wood doors in the original building are in good condition.



Courtyard Cross Corridor



Central Courtyard

The majority of the floor finishes in the original 1986 building appears to be in good condition.

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### ARCHITECTURAL (continued)

Based on limited visual observations, the existing structure appears to be in good condition. No structural modifications other than those required for the proposed additions and renovation are anticipated. The masonry walls and the brick all appear to be in good condition. In summary, the existing structure appears to be in good condition.



Typical Classroom



Typical Corridor



---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### STRUCTURAL

The existing school is primarily steel-framed. The ground floors are 5" thick slab on grade.

The roof system is open-web bar joists supported by steel beams, and appears to be in good condition.



Typical Roof Framing



---

# APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

## MECHANICAL

### General

S. Christa McAuliffe Elementary School was originally constructed in 1987. The following is a detailed description of the existing mechanical, plumbing, and fire protection systems.

### Heating System

Two scotch-marine boilers produce heating water for the building. These boilers were installed as part of the original building construction and appear to be in good working condition. Manufactured by Cleaver Brooks (Model CBH 100-30), this equipment has a gross output rating of approximately 1,004 MBH per boiler. While the existing boilers are functioning adequately to satisfy the heating demands of the existing school, there does not appear to be surplus capacity available to support any building additions without losing standby capacity in the event one boiler fails. Currently each boiler is provided with a single low-water cut-off. There is no automatic low-water cut-off back-up provided. Flues from each boiler extend through the boiler room roof, with one flue extending into an existing masonry chimney. Boilers are currently equipped with gas-fired burners supplied from the existing gas service entrance located adjacent to the boiler room area. These burners do not appear original to the equipment, as the original construction documents for the facility indicate fuel oil burners for each boiler. The gas train for each boiler is provided with two gas shutoff valves for CSD-1 compliance.

Heating water is supplied to the building's two-pipe chilled/heating water distribution system through two base-mounted end suction pumps, as well to a dedicated building heating water loop through two inline pumps. Both pairs of pumps are arranged in a lead/lag setup with only one pump operating at any time. Both the two-pipe chilled/heating water distribution loop and dedicated building heating water distribution loop are equipped with an air separator, shot feeder, and an air-charged expansion tank.

### Cooling System

A single 100-ton water-cooled chiller manufactured by Trane (Model CGWCD104) is located within the boiler room area, generating chilled water for the building's two-pipe unit ventilator systems. This machine was installed as part of the original building construction and appears to

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### MECHANICAL (continued)

be in fair working condition. The chiller utilizes R-22 refrigerant, is mounted on a concrete pad, and provided with vibration isolators between the concrete pad and chiller base. There is no excess chiller capacity to support any planned additions to the building.

A single forced-draft cooling tower manufactured by Baltimore Air Coil (BAC Model FXT116) is located outdoors within a masonry enclosure adjacent to the boiler room. The tower is mounted on concrete piers, with vibration isolation provided between the tower base and concrete piers. Outdoor condenser water piping is provided without heat trace, with surface rust visible on all outdoor piping surfaces. Make-up water is supplied directly to the tower, with a three-way valve located within the boiler room for condenser water temperature control.

Similar to the heating water system, chilled water is distributed through the chiller and to the building's two-pipe chilled/heating water distribution system through two base-mounted end suction pumps. Condenser water is distributed between the chiller and cooling tower through a single base-mounted end-suction pump. No redundancy is provided for the condenser water pumping system. All pumping systems are located within a depressed slab area within the boiler room area.

In addition to chilled water, direct expansion (DX) cooling is provided for the building's rooftop unit systems. Rooftop units support the administration and health suite, cafeteria, kitchen, media center, and media support areas.

#### HVAC Systems

The heating, ventilating, and air conditioning (HVAC) systems vary slightly throughout the building. These systems were installed as part of the original building construction and appear to be in good to fair working condition. The following is a breakdown of the various spaces and their associated HVAC system:

- **Non-Modular Classroom Areas:** Non-modular classrooms are heated and cooled through unit ventilators connected to the building's two-pipe chilled/heating water distribution system. Each unit ventilator has a direct outdoor air connection through a louver mounted in the exterior wall. An exhaust register is provided for each classroom to maintain proper room pressurization. Exhaust air from several classrooms is ducted to an inline transfer fan, which transfers excess airflow into the adjacent restroom areas before being exhausted. Unit ventilators manufactured by the Trane Company were installed as part of the original building construction and appear to be in fair working condition.

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### MECHANICAL (continued)

- **Modular Classroom Areas:** Modular classrooms, located near the rear of the building, are heated and cooled through self-contained unit ventilators, complete with DX cooling and electric heating. While modular in design, these classrooms have become a permanent part of the elementary school. Each unit ventilator has a direct outdoor air connection through a louver mounted in the exterior wall. An exhaust register is provided for each classroom to maintain proper room pressurization. Exhaust air from several classrooms is ducted to an exhaust fan, located at the roof. Unit ventilators manufactured by American Air Filter were installed as part of the original building construction and appear to be in good working condition.
- **Administration and Health Suite:** The interior administration and health suite areas are served by a packaged DX rooftop unit, located at the roof level. A single duct-mounted heating coil, located within the supply air ductwork main, provides heating for the interior administration and health suite areas. A plenum-type return air distribution arrangement is utilized within the administration area. Perimeter office and conference room areas are supported through self-contained unit ventilator systems, complete with DX cooling and hot water heating. Both the rooftop unit and unit ventilator systems appear original to the building's construction. The rooftop unit appears to be in fair working condition, while the unit ventilators appear to be in good condition. The health suite area is provided with a switch operated exhaust fan, allowing for full exhaust of area airflow.
- **Cafeteria:** The cafeteria and stage areas are conditioned by a DX rooftop unit, located at the roof level adjacent to the cafeteria area. The unit is provided complete with an integral heating coil, connected to the building's heating water distribution loop. Supply air is ducted to multiple overhead air devices located throughout the space. A pair of return grilles, installed low within the cafeteria, return airflow back to the unit. This rooftop unit was installed as part of the original building construction and appears to be in fair working condition.
- **Kitchen:** Similar to the cafeteria area, the kitchen is supported by a DX rooftop unit, located at the roof level above the kitchen area. A single duct-mounted heating coil, located within the supply air ductwork main, provides heating for the area. This rooftop unit was installed as part of the original building construction and appears to be in fair working condition. Major kitchen equipment includes two stacked convection ovens and a two-burner range. There is no hood installed above this equipment.
- **Computer Lab:** The facilities computer lab is located within the modular classroom portion of the building. HVAC systems within the computer lab area are identical to those described previously for the modular classroom areas.

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### MECHANICAL (continued)

- **Gymnasium:** A heating-only, above-ceiling indoor air-handling unit serves the gymnasium area. This unit was installed as part of the original building construction and appears to be in good working condition. Supply air is ducted between the roof trusses and distributed throughout the space via two branch supply air ducts, located near the perimeter walls. Two inline supply fans, deliver ventilation during the summer months, with companion relief grilles provided at the opposite end of the gymnasium for space pressure relief.
- **Media Center and Support Areas:** The media center and associated support areas are served by a packaged DX rooftop unit, located at the roof level. A single duct-mounted heating coil, located within the supply air ductwork main, provides heating for the areas served. A plenum-type return air distribution system is utilized throughout the area. This rooftop unit was installed as part of the original building construction and appears to be in fair working condition.
- **Art and Art Storage Rooms:** The art room is currently equipped with a single kiln. Local exhaust is provided through an overhead capture hood located above the kiln equipment. This arrangement offers an effective means of providing local exhaust for this equipment. Heating, cooling, and ventilation are accomplished through a two-pipe unit ventilator, similar to the typical non-modular classroom areas described previously.
- **Building Exhaust Systems:** A combination of roof-mounted and inline fans remove exhaust air throughout the building. These fans were installed as part of the original building construction and appear to be in good working condition. There are select fans that have damage to their external housing; however, they appear to still be operating.

#### Control System

The existing control system for the school is a combination of Andover direct digital control (DDC) and pneumatic control systems. Major valve and damper components are provided with pneumatic operation; while other system components are provided with electronic operation. Building control components are interfaced with the central MCPS energy management control system for occupied/unoccupied settings. A duplex type air compressor system, complete with horizontal storage tank, is located within the boiler room and serves the building's pneumatic control components. Air supplied from this compressor system is fed through a refrigerated dryer system. This air compressor system appears to have been recently replaced and is in excellent working condition.

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### MECHANICAL (continued)

#### Plumbing System

The building is served by an existing WSSC water system through a 6-inch combination fire and water service, entering the building within a water service room located at the rear of the building. 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 the system was installed, it does not meet current 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 100-gallon gas-fired condensing water heater, manufactured by A.O. Smith. This heater is equipped with a 250 MBH gas burner that produces 288 gallons per hour recovery. The system appears to be recently replaced and in good working condition. A dedicated PVC flue extends from the heater to a gooseneck termination at the roof. The system is equipped with a domestic water circulation pump and expansion tank; however, no thermostatic mixing valve is currently provided. It is anticipated that limited surplus capacity exists for the hot water heater.

Plumbing fixtures appear to be in good condition and were installed as part of the original building construction. The water closets are floor-mounted, urinals are wall-hung, and the lavatories are individual wall-hung type. The school is equipped with plumbing fixtures that may not comply with all aspects of the Americans with Disabilities Act (ADA) requirements.

#### Fire Protection System

The building is currently provided with sprinkler coverage throughout all areas of the building, with the exception of the modular classroom areas. Located within the water service room, a 4-inch fire line extends from the incoming water service and is provided with a 4-inch double-check-type backflow preventer. This fire line serves two zone valve assemblies, each located within the water service room. Sprinkler mains extend from each zone valve assembly and serve sprinkler heads located throughout their respective zone. Sprinkler system components appear in good condition. The existing 4-inch fire service appears adequately sized to support any planned additions to the school.

---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### ELECTRICAL

#### Power Distribution

The school is fed from a pad mounted PEPCO transformer located outside the building. The main distribution switchboard, located in the Main Electrical Room, is rated 2000-amp, 277/480 volts, 3-phase, 4-wire with a single main 2000 amp fused load break switch in the switchboard. The switchboard is manufactured by Square D and was installed around 1988. There are three switchboard sections that contain the power company CT section, the main fused switch, and a distribution section with molded case circuit breakers. The switchboard is approximately 24 years old and in good to average condition. The anticipated reliable life of the switchboard is another 8 to 10 years.

The distribution section serves the 480Y/277 volt distribution panelboard in the main electrical room, a 500 Kva step down transformer, and several branch circuit panelboards throughout the building. There is also a circuit breaker without a label that may be for the existing relocatable classrooms. The switchboard also serves the automatic transfer switch that is located within the main electrical room via a tap and a separate disconnect switch.

The 480Y/277 volt distribution panelboards, located in the main electrical room, serve the chiller, boilers, pumps, and other mechanical equipment that are located in the Boiler Room. The 500 Kva transformer feeds the 208Y/120 volt switchboard MDP, also located in the main electrical room. This switchboard is rated 1600amp 120/208 volts 3-phase 4-wire. This switchboard serves branch circuit panelboards throughout the building that in turn feed receptacles and other 120 volt circuits. The northeast portion of the building appears to be constructed in modular format with separate electrical load centers in each classroom. These load centers are fed from a distribution panelboard located in the corridor adjacent to the modular type of construction. All panelboards, load centers, and transformers in the main electrical room and throughout the building were manufactured by Square D around 1988. This equipment is in good to average condition.

Typical classrooms have as many as four or five duplex receptacles, two on each of the front and rear walls, and one on the side wall. There is also a GFCI receptacle over the counter next to the sink. There is no dedicated computer power distribution system in the school.

#### Emergency Power

There is an outdoor emergency generator that provides power through the automatic transfer switch for life safety and standby systems such as emergency lighting, fire alarm system, sound console, heat tape, and security system. The generator is a 30 kW, made by Onan, and is a natural gas fueled unit. The generator appears to be in fair condition. The automatic transfer switch is a Onan unit, rated 60 amps, 277/480-volt. The transfer switch serves panelboard HE and LE in the main electrical room. Panel LE is fed from a dry type transformer.

---

## **APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS**

### **ELECTRICAL (continued)**

#### **Lighting**

Fluorescent lighting is used throughout the school. The standard fixture is a 2' x 4' recessed lensed fixture. These fixtures are used in classrooms, corridors, multipurpose room, kitchen, media center and offices. The stage area has one row of track lights in front of the stage and one above the stage that are controlled by switches, and a row of fluorescent fixtures over the main portion of the stage. The high ceiling areas of the corridors near the skylights and in the Media Center have surface or suspended square linear fluorescent fixtures. The fluorescent lamps used throughout the building appear to be generally T-8 type. The gymnasium lighting is metal halide high bay fixtures.

#### **Fire Alarm System**

The main fire alarm panel is an Edwards 5721B, zoned panel. A Radionics digital communicator and a Firelite subpanel are also present. Fire alarm devices include manual pull stations, duct smoke detectors, and audible and visual notification devices. The existing panel is outdated and not expandable.

#### **Intercom and Sound Systems**

The school intercom system is located in the main office area. The system is the Telecenter System, manufactured by Rauland. The system has the capability to perform select local calls to classrooms or paging throughout the school. Each classroom area has a Rauland speaker and call switch. Speakers are also located throughout the corridors, in the multi-purpose room, gymnasium, and all occupied spaces of the school.

#### **Telephone System**

The telephone system is a separate key system for telephones in the school offices. The telephone company demarcation point is in the storage room adjacent to the main office. The telephone switch is also located in the storage room. The system is by Comdial.

#### **Cable TV System**

Cable TV outlets are located in rooms throughout the school. The head-end equipment is rack mounted and located in the storage room near the media center. TV's are generally mounted on carts and not permanently mounted in classrooms. Promethian smart boards have been added in some of the classrooms; however most classrooms still lack this technology.



---

## APPENDIX C: EXISTING CONDITIONS SURVEY AND CODE ANALYSIS

### ELECTRICAL (continued)

#### Security System

The security system consists of an intrusion detection system. The intrusion detection system includes keypads and motion sensors in the corridors and door switches on the exterior doors. The main panel is a Magnum Alert system with keypads located in the main office, engineer's office, and other locations.

#### Data Wiring System

A Category 5 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. Computer power for classrooms is from the normal receptacle circuits. Separate computer power receptacles have not been provided. The main file server is located in the storage room across the hallway from the media center. The room's equipment includes a Dell file server cabinet and the racks that contain the patch panels and system hubs.

---

# APPENDIX D: EXISTING PHOTOS

MAIN ENTRY / DROP-OFF



KINDERGARTEN CLASSROOM / PLAY AREA



EAST BUILDING / WISTERIA DRIVE ENTRY



EAST BUILDING FACADE





---

EAST PORTABLES



NORTH CLASSROOM FAÇADE



NORTH PLAY AREA



NORTH PORTABLES



---

MAIN ENTRY CORRIDOR



CORRIDOR SKYLIGHT



COURTYARD CROSS CORRIDOR



EIGHT CLASSROOM ADD-ALTERNATE CORRIDOR





GYMNASIUM



MEDIA CENTER



TYPICAL CLASSROOM STORAGE AREA



TYPICAL CLASSROOM



COMPUTER LAB



TYPICAL KINDERGARTEN



OPERABLE PARTITION AT RESOURCE ROOM



RESOURCE ROOM

